THEFT AND LOSSES IN TURKISH ELECTRICITY SECTOR: EMPIRICAL ANALYSIS AND IMPLICATIONS FOR TARIFF DESIGN

by
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Since the 1980s, electricity industries in many countries have been undergoing privatization and liberalization in order to generate improvements in efficiency and quality. Liberalization and privatization can only be successful if privatized utilities can be financially viable on their own and not rely on government subsidies except for those that are designed for social objectives such as universal service. In the case of Turkey, an important impediment to privatization and liberalization are thefts and losses that generate large asymmetries in costs across different regions. In international comparisons these costs are exceptionally high and they threaten the economic and political feasibility of reform.

This master thesis undertakes an econometric analysis to identify factors that cause such large variances in electricity theft-losses across different regions of Turkey. Once these factors are identified, empirical results are then used to derive implications for both privatizations as well as principles that should guide tariff design, including possible subsidy mechanisms.

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TÜRK ELEKTRİK SEKTÖRÜNDE KAYIP VE KAÇAKLAR: AMPİRİK ANALİZ VE TARİFE TASARIMINA ETKİSİ

1980'lerden bu yana elektrik sektörü bir çok ülkede verimlilik ve gelişim sağlamak için özelleştirme ve liberalleşme sürecine girmiştir. Liberalleşme ve özelleştirme ancak özelleştirilmiş kurumlar merkezi hükümetten herhangi bir finansal destek almadan kendi ayakları üzerinde durabildiği zaman başarılı olabilir. Bunun tek istisnası sadece evrensel servis gibi sosyal amaçlar olabilir. Türkiye için elektrik sektöründeki serbestleşme ve özelleştirme karşısındaki en önemli engellerden biri bölgeler arasında büyük maliyet asimetrileri yaratan kayıp ve kaçaklardır. Diğer dünya devletlerine göre kayıp kaçak maliyetleri aşırı yüksektir ve bu da yapılmak istenen reformun ekonomik ve siyasi olabilirliğini tehdit etmektedir.

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TABLE OF CONTENTS

ABSTRACT..iv
ÖZET...v
LIST OF TABLES...viii
LIST OF FIGURES...xii
LIST OF SYMBOLS AND ABBREVIATIONS...xiii
1. INTRODUCTION AND BACKGROUND…………………………….....1
1.1. Introduction……………………………………………………...……...1
1.2. Process of Liberalization in the Electricity Sector……………...…………2
1.3. Distribution Private Participation……………………………………...3
1.4. The Electricity Market Law…………………………………….…….5
1.4.1. Vertical Separation………………………………...……...………6
1.4.2. Licensing……………………………………………………….6
1.4.3. Regulatory Authority…………………………….……………6
1.4.4. Competition in the Generation and Retail Segment……….……..6
1.4.5. Privatization………………………………………………………7
2. PROBLEM DESCRIPTION…………………………………………….8
2.1. Definition of the Problem……………………………………………….8
2.1.2. Technical Losses……………………..……………………………...9
2.1.3. Theft……………………………...……………………...……..11
2.1.4. Measuring Theft-losses………………..……………………………13
2.1.5. The Size of the Problem………………………………………………13
2.2. Current Tariffs and Subsidy Mechanism…………………………………15
2.2.1. The Concept of Tariff………………………………………………15
2.2.2. The Current Financial Flow and Cross Subsidy Mechanism…………16
3. EMPIRICAL ANALYSIS…………………………….………………...…19
3.1. The Model…………………………………………………………....…19
3.2. Independent Variables……………………………………………………19
3.2.1. Economic Variables………………………………………………...20
3.2.2. Social and Cultural Variables…………………………..………..…21

3.2.3. Variables Reflecting the Enforcement Capacity and the Reach of the State ……………………………………………………………………....22
3.2.4. Distribution Utility's Managerial variables………...…………………23
3.2.5. Physical Variables……………………………………...………..…23
3.2.6. Dummy Variables……………………………………..…..……...24
3.3. The Data Set……………………………….……..…………………24
3.4. Descriptive Statistics……………………..…………………….....28
3.4.1. Dependent Variables…………………………………………..……28
3.4.2. Independent Variables………………………………………...…32
3.5. Empirical Results………………………………………………....……34
3.5.1. Year 2000 regression…………………………………………..…36
3.5.2. Panel Data Analysis……………………………………………...39
3.5.2.1. Multicollinearity Diagnosis………………………………......…39
3.5.2.2. TLR Regression for the Whole Sample……………………………41
3.5.2.3. TLR Regression for the Shrunk Sample……………………...…44
3.5.2.4. TLPC Regression for the Whole Sample……………………......…46
3.5.2.5. TLPC Regression for the Shrunk Sample……………………….……47
3.6. Summary and Inference……………………………………………..49
4. IMPLICATIONS FOR PRIVATIZATION AND TARIFF DESIGN……....51
4.1. Privatization Concern…………………………………………….....51
4.2. Tariff Design Concern…………………………………………………54
5. CONCLUSION…………………………………………………...……59
APPENDIX A: THE DATA SET……………………………………..……….62
APPENDIX B: MEAN AND VARIANCE COMPARISON TESTS…………87
APPENDIX C: STATA OUTPUTS OF REGRESSIONS………………..….100
BIBLIOGRAPHY………………..…………………………………...127

LIST OF TABLES

Table 2.1 Cumulative Amount of Theft-Losses in MWh for 8 years) (1994-2001……………………..………………………………………………..…...14

Table-2.2 Methods for Tariff Regulation for Different Electricity Activities and Services………………………………..………………………………...…18

Table 3.1 Descriptive Statistics of Dependent Variables for the Whole Sample………………………………..…………………………………….…29

Table 3.2 Descriptive Statistics of Dependent Variables for the Shrunk Sample………………………………..…………………………………….…....29

Table 3.3 Descriptive Statistics of Independent Variables for the Whole Sample………………………………..…………………………………......33

Table 3.4 Descriptive Statistics of Independent Variables for the Shrunk Sample………………………………..……………………...………...…34

Table 3.5 Summary Results for Year 2000 Regressions………………………37

Table 3.6 Variance Inflation Factors for Year 2000 Independent Variables…..38

Table 3.7 Correlation Matrix for Independent Variables………………………40

Table 3.8 Principal Components for Independent Variables…………………..41

Table-3.9 Summary of TLR Regressions Results for the Whole Sample…..…42

Table 3.10 Summary of TLR Regressions Results for the Shrunk Sample..…..44

Table 3.11 Summary of TLPC Regressions Results for the Whole Sample..…47

Table 3.12 Summary of TLPC Regressions Results for the Shrunk Sample…..48

Table A.1 the Panel Data………………………………………………………63

Table A.2 Additional Data for Year 2000 Regression……………..…………..84

Table B.1 Testing the Equality of Means of GDPCR for Whole and Shrunk Sample………………………………..………………………………......88

Table B.2 Testing the Equality of Means of RESECR for Whole and Shrunk Sample……………………………..…………………………..……..…88

Table B.3 Testing the Equality of Means of INDECR for Whole and Shrunk Sample……………………………..……………………………….....89

Table B.4 Testing the Equality of Means of DEPOSITR for Whole and Shrunk Sample……………………………..……………………………....…89

Table B.5 Testing the Equality of Means of DEPR for Whole and Shrunk Sample……………………………..…………………………..…...90

Table B.6 Testing the Equality of Means of PIE for Whole and Shrunk Sample……………………………..……………………………….....90

Table B.7 Testing the Equality of Means of TRRR for Whole and Shrunk Sample……………………………..……………………………….....91

Table B.8 Testing the Equality of Means of TRPGDP for Whole and Shrunk Sample……………………………..……………………………….....91

Table B.9 Testing the Equality of Means of PNPS for Whole and Shrunk Sample……………………………..……………………………….....92

Table B.10 Testing the Equality of Means of TUR for Whole and Shrunk Sample……………………………..……………………………….....92

Table B.11 Testing the Equality of Means of LWLPS for Whole and Shrunk Sample……………………………..……………………………….....93

Table B.12 Testing the Equality of Means of AGRGDPR for Whole and Shrunk Sample……………………………..……………………………….…93

Table B.13 Testing the Equality of Variances of GDPCR for Whole and Shrunk Sample……………………………..……………………………….…94

Table B.14 Testing the Equality of Variances of RESECR for Whole and Shrunk Sample……………………………..……………………………….…94

Table B.15 Testing the Equality of Variances of INDECR for Whole and Shrunk Sample……………………………..……………………………..…95

Table B.16 Testing the Equality of Variances of DEPOSITR for Whole and Shrunk Sample……………………..……………………………………..…95

Table B.17 Testing the Equality of Variances of DEPR for Whole and Shrunk Sample……………………………..…………………………………..…96

Table B.18 Testing the Equality of Variances of PIE for Whole and Shrunk Sample……………………………..………………………………………..96

Table B.19 Testing the Equality of Variances of TRRR for Whole and Shrunk Sample……………………………..……………………………………..…97

Table B.20 Testing the Equality of Variances of TRPGDP for Whole and Shrunk Sample………………………..…………………………………..…97

Table B.21 Testing the Equality of Variances of PNPS for Whole and Shrunk Sample……………………………..…………………………………..…98

Table B.22 Testing the Equality of Variances of TUR for Whole and Shrunk Sample……………………………..…………………………………..…98

Table B.23 Testing the Equality of Variances of LWLPS for Whole and Shrunk Sample……………………………..……………………………………99

Table B.24 Testing the Equality of Variances of AGRGDPR for Whole and Shrunk Sample……………………..…………………………………..…99

Table C.1 Stata Output for Year 2000 Regression (TLR) ……………………101

Table C.2 Stata Output for Year 2000 Regression (TLPC) ………………..…102

Table C.3 Stata Output for Between Estimator Regression using Whole Sample (TLR) ……………………………..………………………………….....103

Table C.4 Stata Output for Fixed Effects Regression using Whole Sample (TLR) ……………………………..………………………………………..…...104

Table C.5 Stata Output for Random Effects Regression using Whole Sample (TLR) ……………………………..…………………………………..…105

Table C.6 Stata Output for FGLS Regression using Whole Sample (TLR)…..106

Table C.7 Stata Output for FGLS Regression with Lagged Dependent Variable using Whole Sample (TLR) ………………………………………………107

Table C.8 Stata Output for Arellano-Bond GMM Regression using Whole Sample (TLR) …………………..…………………………………..……..108

Table C.9 Stata Output for Between Estimator Regression using Shrunk Sample (TLR) ……………………………..……………………………………109

Table C.10 Stata Output for Fixed Effects Regression using Shrunk Sample (TLR) ……………………………..……………………………………110

Table C.11 Stata Output for Random Effects Regression using Shrunk Sample (TLR) ……………………………..……………………………………111

Table C.12 Stata Output for FGLS Regression using Shrunk Sample (TLR……………………..……………………………………..…….112

Table C.13 Stata Output for FGLS Regression with Lagged Dependent Variable using Shrunk Sample (TLR)……………………………………………..…113

Table C.14 Stata Output for Arellano-Bond GMM Regression using Shrunk Sample (TLR) ……………………………..……………………..……..114

Table C.15 Stata Output for Between Estimator Regression using Whole Sample (TLPC) ……………………………..…………………………………...115

Table C.16 Stata Output for Fixed Effects Regression using Whole Sample (TLPC) ……………………………..…………………………………...116

Table C.17 Stata Output for Random Effects Regression using Whole Sample (TLPC) ……………………………..…………………………………...117

Table C.18 Stata Output for FGLS Regression using Whole Sample (TLPC)………..……………………………………………………..…..118

Table C.19 Stata Output for FGLS Regression with Lagged Dependent Variable using Whole Sample (TLPC)…………………………………………..…119

Table C.20 Stata Output for Arellano-Bond GMM Regression using Whole Sample (TLPC) ……………………………..……………………..…120

Table C.21 Stata Output for Between Estimator Regression using Shrunk Sample (TLPC) …………………………..……………………………..…121

Table C.22 Stata Output for Fixed Effects Regression using Shrunk Sample (TLPC) ……………………………..…………………………………...122

Table C.23 Stata Output for Random Effects Regression using Shrunk Sample (TLPC) ……………………………..……………………………………123

Table C.24 Stata Output for FGLS Regression using Shrunk Sample (TLPC)……………………………………………………………………..124

Table C.25 Stata Output for FGLS Regression with Lagged Dependent Variable using Shrunk Sample (TLPC)……………..……………………………………125

Table C.26 Stata Output for Arellano-Bond GMM Regression using Shrunk Sample (TLPC) ………………………………..………………………….126

LIST OF FIGURES

Figure 3.1 Histogram of TLR……………………………………………….30
Figure 3.2 Histogram of TLPC………………………………………………31
Figure 3.3 Histogram of TLR for the Shrunk Sample………………………….31

LIST OF SYMBOLS AND ABBREVIATIONS

$	United States Dollars
A	Cross Sectional Area of Lines
BEDAŞ	Boğaziçi Electricity Company
BOTAŞ	Pipeline Transportation Company
ÇEAŞ	Çukurova Electricity Company
DEP	Democracy Party
DPT	State Planning Organization
EDAŞ	Electricity Distribution Company
EMRA	Energy Market Regulatory Authority
EÜAŞ	Electricity Generation Company
FGLS	Feasible Generalized Least Square
GCPC	Gross Consumption per Capita
GDP	Gross Domestic Product
GMM	Generalized Methods of Moments
HADEP	Democracy Party of People
I	Electricity Current of Lines
KCETAŞ	Kayseri and Surroundings Electricity Company
l	Length of Lines
LR	Technical Electricity Loss Ratio
MWh	Megawatt-hour
OECD	Organization for Economic Cooperation and Development
OİB	Privatization Authority
OLS	Ordinary Least Squared
R	Resistance of Lines
TEAŞ	Turkish Electricity Transmission-Generation Corporation
TEDAŞ	Turkish Electricity Distribution Company
TEİAŞ	Turkish Electricity Transmission Company
TEK	Turkish Electricity Authority
TETAŞ	Turkish Electricity Trading and Contracting Company
TL	Electricity Theft Ratio
TOR	Transfer of Operating Rights
TR	Turkish Lira
V	Voltage of Lines

VIF	Variance Inflation Factor

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TABLE OF CONTENTS

ABSTRACT..iv
ÖZET..v
LIST OF TABLES..viii
LIST OF FIGURES...xii
LIST OF SYMBOLS AND ABBREVIATIONS..xiii
1. INTRODUCTION AND BACKGROUND…………………………….....1
1.1. Introduction………………………………………………...……...1
1.2. Process of Liberalization in the Electricity Sector……………..…………2
1.3. Distribution Private Participation…………………………………….....3
1.4. The Electricity Market Law………………………………………….…….5
1.4.1. Vertical Separation…………………………………..……...……….6
1.4.2. Licensing……………………………………………………….6
1.4.3. Regulatory Authority…………………………………..…………….6
1.4.4. Competition in the Generation and Retail Segment…………….……..6
1.4.5. Privatization…………………………………………………………7
2. PROBLEM DESCRIPTION………………………………………………….8
2.1. Definition of the Problem……………………………………………….8
2.1.2. Technical Losses…………………..………………………………...9
2.1.3. Theft…………………………...……………………...……..11
2.1.4. Measuring Theft-losses………………..……………………………13
2.1.5. The Size of the Problem……………………………………………13
2.2. Current Tariffs and Subsidy Mechanism…………………………………15
2.2.1. The Concept of Tariff…………………………………………………15
2.2.2. The Current Financial Flow and Cross Subsidy Mechanism…………16
3. EMPIRICAL ANALYSIS……………………….…………………..…19
3.1. The Model……………………………………………………………...…19
3.2. Independent Variables……………………………………………………19
3.2.1. Economic Variables……………………………………………...20
3.2.2. Social and Cultural Variables…………………………..………..…21

3.2.3. Variables Reflecting the Enforcement Capacity and the Reach of the State …………………………………………………………………………....22
3.2.4. Distribution Utility's Managerial variables………...…………………23
3.2.5. Physical Variables……………………………………...………..…23
3.2.6. Dummy Variables…………………………………….…..………...24
3.3. The Data Set………………………………..……….……………………24
3.4. Descriptive Statistics……………………….……………………….....28
3.4.1. Dependent Variables…………………………………………..……28
3.4.2. Independent Variables……………………………………….....…32
3.5. Empirical Results……………………………………………......……34
3.5.1. Year 2000 regression………………………………………………..…36
3.5.2. Panel Data Analysis………………………………………………...39
3.5.2.1. Multicollinearity Diagnosis………………………………......…39
3.5.2.2. TLR Regression for the Whole Sample……………………………41
3.5.2.3. TLR Regression for the Shrunk Sample………………………...…44
3.5.2.4. TLPC Regression for the Whole Sample……………………......…46
3.5.2.5. TLPC Regression for the Shrunk Sample…………………….……47
3.6. Summary and Inference……………………………………………..49
4. IMPLICATIONS FOR PRIVATIZATION AND TARIFF DESIGN……....51
4.1. Privatization Concern…………………………………………….....51
4.2. Tariff Design Concern……………………………………………………54
5. CONCLUSION……………………………………………………..……59
APPENDIX A: THE DATA SET…………………………………..……….62
APPENDIX B: MEAN AND VARIANCE COMPARISON TESTS…………87
APPENDIX C: STATA OUTPUTS OF REGRESSIONS………………..….100
BIBLIOGRAPHY…………………..…………………………………...127

LIST OF TABLES

Table 2.1 Cumulative Amount of Theft-Losses in MWh for 8 years) (1994-2001……………………..……………………………………………..…...14

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Table 3.2 Descriptive Statistics of Dependent Variables for the Shrunk Sample………………………………..…………………………………….…....29

Table 3.3 Descriptive Statistics of Independent Variables for the Whole Sample………………………………..…………………………………......33

Table 3.4 Descriptive Statistics of Independent Variables for the Shrunk Sample………………………………..……………………..………...…34

Table 3.5 Summary Results for Year 2000 Regressions………………………37

Table 3.6 Variance Inflation Factors for Year 2000 Independent Variables…..38

Table 3.7 Correlation Matrix for Independent Variables………………………40

Table 3.8 Principal Components for Independent Variables…………………..41

Table-3.9 Summary of TLR Regressions Results for the Whole Sample…..…42

Table 3.10 Summary of TLR Regressions Results for the Shrunk Sample..…..44

Table 3.11 Summary of TLPC Regressions Results for the Whole Sample..…47

Table 3.12 Summary of TLPC Regressions Results for the Shrunk Sample…..48

Table A.1 the Panel Data………………………………………………………63

Table A.2 Additional Data for Year 2000 Regression……………..…………..84

Table B.1 Testing the Equality of Means of GDPCR for Whole and Shrunk Sample………………………………..…………………………………......88

Table B.2 Testing the Equality of Means of RESECR for Whole and Shrunk Sample……………………………..………………………..……..…88

Table B.3 Testing the Equality of Means of INDECR for Whole and Shrunk Sample……………………………..……………………………….....89

Table B.4 Testing the Equality of Means of DEPOSITR for Whole and Shrunk Sample……………………………..……………………………....…89

Table B.5 Testing the Equality of Means of DEPR for Whole and Shrunk Sample……………………………..……………………………..…...90

Table B.6 Testing the Equality of Means of PIE for Whole and Shrunk Sample……………………………..……………………………….....90

Table B.7 Testing the Equality of Means of TRRR for Whole and Shrunk Sample……………………………..……………………………….....91

Table B.8 Testing the Equality of Means of TRPGDP for Whole and Shrunk Sample……………………………..……………………………….....91

Table B.9 Testing the Equality of Means of PNPS for Whole and Shrunk Sample……………………………..……………………………….....92

Table B.10 Testing the Equality of Means of TUR for Whole and Shrunk Sample……………………………..……………………………….....92

Table B.11 Testing the Equality of Means of LWLPS for Whole and Shrunk Sample……………………………..……………………………….....93

Table B.12 Testing the Equality of Means of AGRGDPR for Whole and Shrunk Sample……………………………..…………………………….…93

Table B.13 Testing the Equality of Variances of GDPCR for Whole and Shrunk Sample……………………………..…………………………….…94

Table B.14 Testing the Equality of Variances of RESECR for Whole and Shrunk Sample……………………………..…………………………….…94

Table B.15 Testing the Equality of Variances of INDECR for Whole and Shrunk Sample……………………………..…………………………..…95

Table B.16 Testing the Equality of Variances of DEPOSITR for Whole and Shrunk Sample……………………..…………………………………..…95

Table B.17 Testing the Equality of Variances of DEPR for Whole and Shrunk Sample……………………………..………………………………..…96

Table B.18 Testing the Equality of Variances of PIE for Whole and Shrunk Sample……………………………..………………………………….96

Table B.19 Testing the Equality of Variances of TRRR for Whole and Shrunk Sample……………………………..……………………………….…97

Table B.20 Testing the Equality of Variances of TRPGDP for Whole and Shrunk Sample………………………..…………………………….…97

Table B.21 Testing the Equality of Variances of PNPS for Whole and Shrunk Sample……………………………..………………………………..…98

Table B.22 Testing the Equality of Variances of TUR for Whole and Shrunk Sample……………………………..………………………………..…98

Table B.23 Testing the Equality of Variances of LWLPS for Whole and Shrunk Sample……………………………..………………………………….99

Table B.24 Testing the Equality of Variances of AGRGDPR for Whole and Shrunk Sample……………………..…………………………………..…99

Table C.1 Stata Output for Year 2000 Regression (TLR) ……………………101

Table C.2 Stata Output for Year 2000 Regression (TLPC) ………………..…102

Table C.3 Stata Output for Between Estimator Regression using Whole Sample (TLR) ……………………………..…………………………………....103

Table C.4 Stata Output for Fixed Effects Regression using Whole Sample (TLR) ……………………………..……………………………………….…...104

Table C.5 Stata Output for Random Effects Regression using Whole Sample (TLR) ……………………………..……………………………………..…105

Table C.6 Stata Output for FGLS Regression using Whole Sample (TLR)…..106

Table C.7 Stata Output for FGLS Regression with Lagged Dependent Variable using Whole Sample (TLR) ……………………………………………….107

Table C.8 Stata Output for Arellano-Bond GMM Regression using Whole Sample (TLR) …………………..…………………………………..……..108

Table C.9 Stata Output for Between Estimator Regression using Shrunk Sample (TLR) …………………………………..…………………………………….109

Table C.10 Stata Output for Fixed Effects Regression using Shrunk Sample (TLR) …………………………………..…………………………………….110

Table C.11 Stata Output for Random Effects Regression using Shrunk Sample (TLR) …………………………………..…………………………………….111

Table C.12 Stata Output for FGLS Regression using Shrunk Sample (TLR……………………..…………………………………………..…….112

Table C.13 Stata Output for FGLS Regression with Lagged Dependent Variable using Shrunk Sample (TLR)……………………………………………….…113

Table C.14 Stata Output for Arellano-Bond GMM Regression using Shrunk Sample (TLR) …………………………………..…………………….……..114

Table C.15 Stata Output for Between Estimator Regression using Whole Sample (TLPC) …………………………………..…………………………………...115

Table C.16 Stata Output for Fixed Effects Regression using Whole Sample (TLPC) …………………………………..…………………………………...116

Table C.17 Stata Output for Random Effects Regression using Whole Sample (TLPC) …………………………………..…………………………………...117

Table C.18 Stata Output for FGLS Regression using Whole Sample (TLPC)…………..…………………………………………………………..…..118

Table C.19 Stata Output for FGLS Regression with Lagged Dependent Variable using Whole Sample (TLPC)……………………………………………...…119

Table C.20 Stata Output for Arellano-Bond GMM Regression using Whole Sample (TLPC) …………………………………..………………………..…120

Table C.21 Stata Output for Between Estimator Regression using Shrunk Sample (TLPC) ……………………………..……………………………..…121

Table C.22 Stata Output for Fixed Effects Regression using Shrunk Sample (TLPC) …………………………………..…………………………………...122

Table C.23 Stata Output for Random Effects Regression using Shrunk Sample (TLPC) …………………………………..……………………………………123

Table C.24 Stata Output for FGLS Regression using Shrunk Sample (TLPC)……………………………………………………………………..124

Table C.25 Stata Output for FGLS Regression with Lagged Dependent Variable using Shrunk Sample (TLPC)……………..……………………………………125

Table C.26 Stata Output for Arellano-Bond GMM Regression using Shrunk Sample (TLPC) ………………………………..………………………….126

LIST OF FIGURES

Figure 3.1 Histogram of TLR……………………………………………….30
Figure 3.2 Histogram of TLPC……………………………………………31
Figure 3.3 Histogram of TLR for the Shrunk Sample………………………….31

LIST OF SYMBOLS AND ABBREVIATIONS

$	United States Dollars
A	Cross Sectional Area of Lines
BEDAŞ	Boğaziçi Electricity Company
BOTAŞ	Pipeline Transportation Company
ÇEAŞ	Çukurova Electricity Company
DEP	Democracy Party
DPT	State Planning Organization
EDAŞ	Electricity Distribution Company
EMRA	Energy Market Regulatory Authority
EÜAŞ	Electricity Generation Company
FGLS	Feasible Generalized Least Square
GCPC	Gross Consumption per Capita
GDP	Gross Domestic Product
GMM	Generalized Methods of Moments
HADEP	Democracy Party of People
I	Electricity Current of Lines
KCETAŞ	Kayseri and Surroundings Electricity Company
l	Length of Lines
LR	Technical Electricity Loss Ratio
MWh	Megawatt-hour
OECD	Organization for Economic Cooperation and Development
OİB	Privatization Authority
OLS	Ordinary Least Squared
R	Resistance of Lines
TEAŞ	Turkish Electricity Transmission-Generation Corporation
TEDAŞ	Turkish Electricity Distribution Company
TEİAŞ	Turkish Electricity Transmission Company
TEK	Turkish Electricity Authority
TETAŞ	Turkish Electricity Trading and Contracting Company
TL	Electricity Theft Ratio
TOR	Transfer of Operating Rights
TR	Turkish Lira
V	Voltage of Lines

VIF	Variance Inflation Factor

1. INTRODUCTION AND BACKGROUND

1.1.Introduction

Until the last decades, natural monopolies all over the world have been tightly regulated. One of the most vital sectors which has been operating as a natural monopoly is the electricity industry. Nevertheless, the natural monopoly property of electricity sector has been diminishing especially in generation and distribution-retail segment due to technological and methodological improvements leading to the liberalization of these segments.[1]

Turkey had also tried to adapt to this trend of liberalization although the process started a bit late relative to developed countries. However, there are some problems in the different segments of the electricity sector that can act as serious barriers to the implementation of the liberalization and privatization process. Stranded costs of power plants are among such problems in generation segment, whereas high theft and losses are serious barriers to private participation in the distribution and retail segments.[2] Because such asymmetric costs can harm competition and breaks down the financial viability of the system, they should be considered as primary concerns in transition to liberalization in the electricity sector.

Having mentioned two different segments, generation and distribution, the focus of this thesis will be on the distribution-retail segments since it is buyer side of the electricity sector. If this segment cannot reach competition and financial viability, none of the liberalization objectives will be achieved. The aim of this thesis is to identify factors that cause theft and losses and make policy suggestions.

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[1] Despite all developments in technology and methodology, transmission segment of the sector still exhibits properties of natural monopoly. In fact, distribution without retailing also shows natural monopoly feature but virtual competition can be created between distribution companies via some methods such as Yardstick Competition (Shleifer, 1985). Since in the near future distribution companies will also be retailing companies, the term "competition in distribution-retail segment" can be used conveniently.

[2] Intended meaning of " theft and losses" is "electricity theft and technical losses"

Regarding this aim, the thesis consists of two core parts other than the introduction and conclusion. The first core part presents an empirical analysis of theft and losses, intended to explain reasons and factors that cause huge variability in time dimension and especially across cross sections (among provinces). The second part uses the results of the first part and makes recommendations for privatization and tariff design so as to reduce the burden of theft-losses in the privatization process.

1.2. Process of Liberalization in the Electricity Sector

The liberalization process was initiated in 1984, by the Law No: 3096 which abolished the monopoly of Turkish Electricity Authority (TEK) and private entities participate in generation, transmission and distribution activities. Also, TEK became a state owned enterprise.

By the end of 1980s, Çukurova Electricity Company and Kepez Electricity Company which existed before TEK were given rights to do generation, transmission distribution and trading of electricity within Adana and Antalya region respectively.

By the Decree in force Law No.513 and dated 13.8.1993, TEK was slated for privatization, without cutting its relations with the Ministry of Energy and Natural Resources. As an extension of this arrangement, TEK was divided into two separate State Owned Enterprises, namely Turkish Electricity Generation Transmission Company (TEAŞ) and Turkish Electricity Distribution Company (TEDAŞ) by the Act of the Council of Ministers. [3]

The most important step in the restructuring of the energy sector was the enactment of the Electricity Market Law No: 4628, (Official Gazette, 3 March, 2001). The purpose of the law was the establishment of a stable, transparent and financially strong electricity market that works under competitive environment and private law, in order to ensure sufficient, high quality, sustainable, environmentally desireable and low cost electricity activities. (TEİAŞ web site)

This Law covers the generation, transmission, distribution, wholesale, retail, wholesale service, retail service of electricity and its import-export, together with the rights and responsibilities of all real and legal persons related with those services. Moreover, the establishment of Energy Market Regulatory Authority and its working

[3] Actually, this is Council of Ministers' decision of the force of law (kanun hükmünde kararname)

agenda, principles as well as the procedure for the sector's privatization are covered in the Electricity Market Law.

By the Decree of Council of Ministers No:2001/2026 and dated 05.02.2001 which was issued in the Official Gazette dated March 2, 2001, TEAŞ was divided to form 3 state owned public enterprises; Turkish Electricity Generation Company (EÜAŞ) Turkish Electricity Transmission Company (TEİAŞ), and Turkish Electricity Trading and Contracting Company (TETAŞ).

These three companies started to function in October 1, 2001. EUAŞ is responsible for operating and maintaining state owned thermal and hydraulic power plants and also building new plants, TEİAŞ' responsibilities are to build and operate the transmission facilities to carry out the load dispatch, to install a communication infrastructure appropriate for the new market mechanism and to perform the balancing and reconciliation activities of the market. As for TETAŞ, it executes wholesale activity generally, buys electricity from generators (EUAŞ and others) and sells to distributors and free customers. Since our focus is on distribution segment, specific efforts in this segment should also be stated.

1.3. Private Participation in Distribution

Privatization program in the distribution sector had been started by assignment of Kayseri and Surroundings Electricity Company for Kayseri and its surroundings and also Aktaş Electricity Company for Asia part of Istanbul. Based on the Law No: 3096 (legislated in 1984), concession contracts were signed with Kayseri and Surroundings Electricity Company and Aktaş Electricity Company on March 1, 1990 and September 1, 1990 respectively. Also, both companies started to run after the physical transferring operations at the same year. (DPT, 2001)

According to the contracts, the following system has been applied for both firms. In this system, at the beginning of each year a temporary budget is made and a buying price is determined. At the end of the year, all revenues of the firm are summed up as income and also expenses for operating the firm (which expenses are necessary and which are not are determined by the government) are recorded as expenditures. Planned investments and a reasonable dividend are also included in the expenditures. Then, the difference between income and expenditures (income minus expenses) is calculated and compared to the electricity invoices that are paid by the distribution company to TEAŞ

(TETAŞ after 2001). If the difference is greater than the invoices, the difference becomes claim of TEAŞ (TETAŞ after 2001) but if it is less, the difference becomes claim of the corresponding firm. This is actually a cost plus regulation (www.kcetas.com.tr).

However, the contracts contain no upper bounds on operating and investment expenses. Hence, there have been some conflicts between the corresponding sides and these conflicts have led to court cases.

In addition to this, distribution system was divided to 29 mission region by the Decree of Council of Ministers which was issued in the Official Gazette dated November 24, 1996 and no: 22827 (DPT, 2001).

The number 29 was increased to 33 (two of them had been already operating by Aktas and Kayseri private companies) following a decree in November 2000. (OECD, 2002) After a tender for transferring operating rights (TOR) for these corresponding areas 26 proposals were accepted and for 5 regions no proposal were offered. Among the 26 proposals 4 were cancelled by the Council of the State. Of the 22 remaining regions, 11 of them were assigned to the corresponding winners of the tender in January 1998 and franchising contracts were signed in 1999. As for the other 11 regions, evaluation and feasibility process continued. On the other hand, all these processes were further complicated in January 2000. A new law allowed TORs to be based on private law as well as public law. Some companies preferred private law, whereas other, remained under public law. After all these, the economic crisis of 2001 prompted the Treasury to be unwilling to provide guarantees for contractual obligations of TEAŞ, further jeopardizing the TOR process. Finally, transferring process was delayed. Actually, no transfer completed yet. (OECD, 2002)

Besides, Council of State (Danıştay) cancelled the franchising contracts of Aktaş Electricity Company on February 16, 2001 claiming absence of public benefits in the franchising contract.

Moreover, on June 12, 2003 Ministry of Energy and Natural Resources seized Çukurova Electricity Company (ÇEAŞ) and Kepez Electricity Company (Kepez) by abolishing the concession agreement. ÇEAŞ and Kepez were not only electricity distribution companies but also they were involved in transmission and generation activities. In fact, their distribution activities were restricted to just definite industry consumers. Therefore, they will not be considered as distribution companies.

As for today, the only private electricity distribution company is Kayseri and Surroundings Electricity Company that has been operating since 1990 without any interruption. Now, except for this special case, all of the rest of electricity distribution activities are carried out by the state enterprises. These enterprises are TEDAŞ and its joint partnerships. TEDAŞ consists of 64+3 electricity distribution establishments (64 province establishment + substitution for Aktaş, ÇEAŞ and Kepez). Its joint partnerships are Trakya EDAŞ (Electricity Distribution Company), Boğaziçi EDAŞ, Körfez EDAŞ, Karaelmas EDAŞ, Meram EDAŞ, Sakarya EDAŞ and Başkent EDAŞ (TEDAŞ web site).

In addition to all these historical background and process, legal structure is another important aspect of the problem. Current legal structure of electricity market is based on Electricity Market Law 2001.

1.4.The Electricity Market Law

On 20th February 2001, the Turkish parliament accepted the electricity market law (Law no.4628) and it was issued on the Official Gazette dated 3rd March, 2001. The first article of the law describes the aim and the scope of the law. The first article states the purpose as establishment of financially strong, stable and transparent electricity market that operates under competitive environment and private law in order to make sure sufficient, high quality, sustainable, low cost and environmentally desiareable electricity activities.

As for scope, the law covers generation, transmission, distribution, wholesale, retail sale, retail sale service, import and export of electricity; responsibilities and rights of all entities that engage in these activities; installation of Electricity Market Regulatory Authority and its working procedure and principles and procedure for privatization of electricity entities.

This law is actually a cornerstone for Turkish electricity sector and it was written in the light of developed western countries' electricity laws. The most important innovations introduced by the law are as follows:

1.4.1. Vertical Separation

The first unbundling in the sector was in 1993 by separation of TEK into TEAŞ and TEDAŞ. By the new law, TEAŞ was also disintegrated to three state enterprises EÜAŞ, TEİAŞ and TETAŞ which are responsible for generation, transmission and wholesale activities respectively.

1.4.2. Licensing

All public and private participants need to obtain licenses in order to engage in electricity activities. For each defined activity participants must have separate license. Licenses are given by the central regulator, EMRA. In each license, duration of the license, price setting mechanism and license canceling conditions are attached to the license.

1.4.3. Regulatory Authority

In order to protect the sector especially from political influence and to ensure transparency, an independent and financially and administratively autonomous regulatory authority EMRA (Energy Market Regulatory Authority) has been established. (Özkıvrak, forthcoming)

This regulator is responsible for granting licenses, regulating present franchising contracts according to the law, observing the market performance, writing instructions for customer services and inspecting their applications, determining pricing principles that are mentioned in the law and making necessary adjustments, and maintaining application of the law.

1.4.4. Competition in the Generation and Retail Segment

The main focus of the law is introducing competition into the electricity sector wherever possible. In light of experience of western countries, competition for generation and retail sale was proposed. Because of market power concern, some limitations were placed on private generation firms. A private company's total market share cannot exceed 20% of total installed capacity in the preceding year in Turkey.

As for retail sale, in addition to retail sales companies, distribution companies may also engage in retail sale by getting a retail license. Nevertheless, although retailers can do retailing in all regions of Turkey, distributors are restricted to do retail sales just within a specified region that is identifed in their retail licenses.

Distribution companies can also engage in generation activities if they have generation licenses. However, the electricity they generate cannot exceed 20% of the electricity consumption of the previous year for their region.

TEDAŞ performs both distribution and retail sale activities until the market develops. However, TEDAŞ and its affiliates are organized as defined in the new market model and keep separate accounts for distribution and retail service activities.

1.4.5. Privatization

Ministry of Energy and Natural Resources offers its opinions and proposals to the privatization Authority (OİB) about privatization of TEDAŞ, EÜAŞ, their establishments, joint partnerships and units. Privatization procedure is carried out by OİB. In the frame of the privatization process, none of participants can have significant shares in any of the activities to control the market (Özkıvrak, forthcoming)

2. PROBLEM DESCRIPTION

2.1. Definition of the Problem

Private participation in the distribution and retailing of electricity is expected to bring substantial improvements to the sector such that investment burden of the indebted state will be reduced and inefficiency in the sector will be minimized. However, to achieve these aims, the problem of high theft-losses needs to be overcome. Up to now, these high ratios and high heterogeneity across provinces have been hidden by cross subsidies. That is, people in cities with low theft-losses paid some part of the bills of people who live in cities with high theft-losses. However, when private participation is realized all distribution firms will have different costs and different theft-loss ratios in different regions. Cross subsidy cannot be maintained on anymore with private participation. Moreover, if cross subsidy is abolished, due to high variability in theft-loss ratios across regions, private distribution firms will have to apply very different prices across regions. Certainly, this runs into conflict with social objectives of the state. As a result, the cross sectional asymmetry and high ratios in theft-losses prevent the establishment of financially viable competitive market in electricity distribution. Hence, factors and reasons that drive theft and losses need to be determined, it is hoped that understanding these factors will facilitate dealing with them by designing proper tariff mechanism.

In this respect, it is necessary to distinguish between losses as theft and technical losses as they are likely to be driven by different factors. Technical loss is power lost when electricity passes through transformers and lines while electricity is being transmitted and distributed. These unavoidable losses can be minimized but never eliminated. As for theft, even though they are more than technical losses in volume, they are not inevitable. However, in practice 1 or 2 percent of theft is generally seen as acceptable. While technical loss is a physical design and construction problem that must be alleviated by engineers, theft is a social problem that should be examined by social scientists. Technical losses and theft can be summed and defined as theft-loss which is unbilled electricity.

Theft-losses constitute 20% of total cost of electricity in Turkey which reaches approximately $2 billion amount annually (roughly 1% of Turkish GDP).

2.1.2. Technical Losses

Electricity is a kind of energy and according to the energy conservation law any type of energy cannot be destroyed but it can be converted to other types. Actually, this law drives the events that occur in generation, transmission and distribution of electricity.

In generation, mechanical energy is converted to electricity by means of an alternator. However, although the aim is to produce electricity, all mechanical energy cannot be totally converted to the electricity. Instead, some of mechanical power heats up the environment. That is, it is converted to partially electricity and partially to heat. The ratio of these depends on the efficiency of the alternator and it should be noted that it is impossible to make a 100% conversion from mechanical power to electrical power. Even though the loss due to heating up in generation is a very large amount, this is not electricity loss but total energy loss (which is also an enormous waste).[4] Thus, this component of total losses will not be considered in the technical losses of transporting electricity to the consumers.

Electricity is produced at any location must be transported to the consumers. Like all other goods, transportation is costly and it is needed to construct some roads (lines) for electricity. However, in addition to the fixed cost of constructing and maintaining such roads, electricity does not need carrying activity. It carries itself by nature so it may seem to have no variable transportation cost. Actually, it does. While electrons flow into the lines they face some resistance in the wire (line). The wire absorbs some energy of the electrons and temperature of the wire increases due to the conversion of electricity to the heat. The amount of heat which appears or in other words amount of electricity loss ΔP depends on number of electrons that flow through the cross-section of the line per unit time, cross-section area of the line, length of the line, type of the wire and temperature of the line.

Formally, current (I) is defined as electrical charge quantity that passes through a cross-section of the wire per second which is a measure of flowing electrons per unit time. As for resistance of the wire (R) at a given temperature, which depends on the other variables of effecting power loss, is defined as resistivity of the wire material (ρ) times length of the line (l) divided by cross-sectional area of the wire (A). As a result,

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[4] For example, 1 kg coal has much more energy than electricity generated by burning of it. The difference is lost through the increase in the temperature of the environment.

power loss is equal to resistance multiplied by the squares of the current. $\Delta P=I^2R$ where $R= \rho l/A$

Resistance at a given temperature is an exogenous variable of the network that does not depend on activities of the consumers. It is a characteristic property of the physical system. Nevertheless, Current is highly sensitive to the action of network agents (consumers). By action of agents, it is meant how much power they are willing to consume at a given time. Now, it is needed to introduce a new concept, voltage, which is defined as the energy of unit charge. Hence, power is equal to current times voltage, $P=VI$. However, this is valid for direct current. For alternating current a new factor called power factor ($\cos\varphi$) enters the equation and it becomes $P=VI \cos\varphi$.

In order to understand what $\cos\varphi$ is, the concept of inductance, capacitance, reactance and impedance should be known. In addition to resistive property of the devices in the system, there are also two opposing features inductance and capacitance of these tools because of alternation of the current. These factors instantaneously withdraw some power; they release them to the system just a little time later and this process goes on continuously by nature. So they show some reactive property against current. This reactive property is called reactance (inductive reactance minus capacitive reactance) and it is directionally perpendicular to the resistive property (resistance). Finally, directional resultant of these factors is called impedance. Here, φ is the angle between impedance and resistance and cosines of this angle is the ratio of resistance to impedance.

Since voltage is fixed for all consumers, if they wish to withdraw more power from the network it is realized by increase in withdrawing of current. Therefore, we can write $I=P/V\cos\varphi$ where V is constant and 220 volt for low voltage consumers. As seen in the formula, current I depends on power withdrawal and $\cos\varphi$ therefore reactance of the devices of the consumers. When we make necessary substitutions power loss equation becomes $\Delta P=I^2R= (P/V\cos\varphi)^2R= (P/V\cos\varphi)^2\rho l/A$.

In conclusion, if we wish to draw more electrical power from a line, power loss increase will be quadratic. Everyday, new consumers join the electricity network and they increase power load of common lines hence power loss in the lines rises quadraticly. Therefore, in order to restrict power loss, new investments should be made to construct new lines. In fact, new line construction affects the total power loss of the network by two opposite ways. First, since new lines increase the length of the network total resistance of the system increases, so does power loss. Second, however, new lines divide the power load of existing lines and thus power loss decreases in quadratic motion driven by the equation generated above. Because the first reason of increase is linear and the second reason of decrease is quadratic, decrease effect overweighs the increase one. As a result, technical losses in the network are highly sensitive to the investments.

In addition to the losses in lines, some other losses also occur when the voltage changes. In fact, the aim of changing the voltage is to reduce total electricity losses. This is done by transporting electricity in high voltage lines where losses are low[5] and when electricity is close to the target, its voltage is reduced for consumption. This reduction of voltage is also costly in terms of electricity loss, but this loss amount is much lower than what it would be if electricity was totally be transported in low voltage lines. The voltage reduction process is realized by transformers and some losses occur in transformers driven by two effects. Some losses are function of voltage and some others are function of current. Because voltage is fixed, only current and therefore consumption of consumers affects the power loss in transformers. These transformers have some capacity and if power and therefore current drawn increases, their utilization increases and power losses rise, too. If power consumption is too high, reaching the capacity of transformer, the transformer may break down.[6] Such overloads increase number of power outages and reduce the quality of electricity such as voltage stability.

Therefore, transformer utilization ratio may be a good indicator for power losses and investments. Since high utilization ratio means insufficiency in setting up required transformers, lack of investment reveals itself.

As a result of all these considerations above, 3 variables which are investments, transformer utilization ratio and low voltage line lengths will also be used in regression analysis below to capture some of the variability in technical losses.

2.1.3. Theft

In addition to the technical losses, another reason for energy loss is theft. This is actually selling losses and results from not technical but social reasons. Smith, 2003

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[5] When voltage is high, current is low since multiplication of current and voltage is constant. Therefore, power loss in high voltage lines is less.

[6] Prof. Özay from Middle East Technical University says hundreds of transformers are broken down in Istanbul, annually.

suggests 4 types of electricity theft that differ in terms of methods used to steal electricity.

Fraud: In this type of theft, consumer tries to cheat the utility. Most general version of this is meter tampering. The consumer intervenes in the meter to make it show amount consumed less than it actually is. Actually, this is risky when done by amateurs. However, in some countries Malaysia for instance, professionals who are the managers of electricity utilities do this for a moderate price (New Strait Times, 1999). This is an organized crime, actually. When this meter tampering is done by organizations professionally, it may cause large amounts of losses.

Steal: This method can be considered as the most direct method to thieve. In contrast to the other 3 methods, the consumer does not pay anything for electricity. The consumer does not have any relation with electricity utility in this method. The consumer fixes a line to the electricity grid and draws power via this line. This method is especially quite common in poor residential areas. In fact illegal lines are easy to detect but police force is needed to remove those lines (Smith, 2003). Bribery is also another problem with this method that officers may condone stealing electricity when they accept bribe.

Billing irregularities: In some cases, the consumer may pay less or more than he consumes because of billing irregularities. The utility may be unable to detect the consumption correctly, leading to less or more amounts in billing than correct consumption. One of the most general reasons of billing irregularities is bribe. The consumer may bribe to pay less and meter reader officer may gain unofficial payment. (Smith, 2003)

Unpaid Bills: Although Smith (2003) suggests this as a type of electricity theft, we do not consider unpaid bills as theft. Actually, it is a revenue collection problem rather than theft. Nevertheless, it is also some unpaid amount which causes financial weakness to the electricity utility and it should be overcome. In our analysis this amount is not included in theft amounts.

After explaining sources of thefts, it is useful to show general picture of theft-losses in the world. When theft-losses are inspected for years of 1980 and 2000 over 102 countries using the World Bank data, the results show that except a little decline in Western Europe, North America and Australasia, theft-losses have raised dramatically (Smith, 2003). Considering the technological improvement which causes reduction of technical losses, it can be deduced that theft is the most effective factor driving theft-losses to high levels. Hence, electricity theft is getting more dangerous for most of the countries and threatening the financial viability of electricity sector.

2.1.4. Measuring Theft-losses

As for measuring theft and losses, some different indicators can be used. Nevertheless, there is no simple way to decompose theft and losses; what is available as data is the sum total of theft and losses which is calculated by subtracting billed consumption from total energy given to the grid. Summed amount of theft and losses which referred to amount of theft-losses is the first measure used in this analysis to see the total cost and size of the problem. However, like gross domestic product (gdp) this is not a scaled measure and is highly sensitive to population and consumption level of the corresponding region. As division of gdp by population gives more accurate and reasonable measure for income level, theft-losses amount can also be scaled by population which gives theft-loss per capita TLPC. Moreover, a better scaling factor is consumption rather than population since it precisely gives percentage cost of theft-losses. The resulting measure is called theft-loss ratio TLR. Both TLR and TLPC are going to be used in empirical analysis and it will be checked whether factors effecting TLR and TLPC significantly are different or not.

2.1.5. The Size of the Problem

Now, it could be a good idea to look at total amount of theft-losses. Table 2.1 shows total amount of electricity in MWh that had been lost or thieved for each province between 1994 and 2001 calculated by TEDAŞ Statistics.

As seen in the table 2.1, Istanbul, Diyarbakir, Ankara, Sanliurfa and Mardin are the leading five provinces in terms of the absolute level of theft-loss cost to Turkey. Also, Istanbul should be underlined since its cost is approximately as much as sum of the remaining four top five cities. Hence, to combat with financial costs due to theft, primary target should be those cities mentioned and especially Istanbul. If it is assumed that price of electricity is approximately $80 per MWh, total cost of Istanbul's theft-losses for 8 years is about $2 billion. The cost of total theft-losses to Turkey for the same period is about $15 billion. Thus, theft-losses inflict costs to Turkish economy $2 billion anually which is %1 of Turkey's GDP. These numbers actually show how serious the problem is.

Table 2.1 Cumulative Amount of Theft-Losses in MWh for 8 years (1994-2001)

ADANA	2,507,873	EDİRNE	566,474	KÜTAHYA	412,942
ADIYAMAN	649,738	ELAZIĞ	849,018	MALATYA	954,449
AFYON	433,776	ERZİNCAN	159,483	MANİSA	1,070,922
AĞRI	768,084	ERZURUM	1,009,725	MARDİN	4,709,896
AKSARAY	255,397	ESKİŞEHİR	851,402	MUĞLA	1,240,231
AMASYA	434,509	GAZİANTEP	2,410,352	MUŞ	816,520
ANKARA	7,818,051	GİRESUN	341,651	NEVŞEHİR	315,698
ANTALYA	1,721,408	GÜMÜŞHANE	97,548	NİĞDE	336,254
ARDAHAN	222721	HAKKARİ	761574	ORDU	574,519
ARTVİN	275,851	HATAY	1,504,701	OSMANİYE	192374
AYDIN	1,139,976	IĞDIR	390190	RİZE	457,892
BALIKESİR	1,127,914	ISPARTA	354,421	SAKARYA	1,238,976
BARTIN	246,329	İÇEL	2,750,168	SAMSUN	1,618,539
BATMAN	2,334,227	İSTANBUL	24,438,259	SİİRT	896,095
BAYBURT	43,099	İZMİR	4,664,723	SİNOP	253,984
BİLECİK	217,092	K.MARAŞ	1,122,094	SİVAS	468,939
BİNGÖL	265,138	KARABÜK	195,952	ŞANLIURFA	7,458,933
BİTLİS	518,728	KARAMAN	111,366	ŞIRNAK	2512258
BOLU	541,693	KARS	744,793	TEKİRDAĞ	1305751
BURDUR	278,135	KASTAMONU	280,997	TOKAT	488,055
BURSA	3,247,540	KAYSERİ	868,276	TRABZON	860,528
ÇANAKKALE	587,195	KIRIKKALE	303,615	TUNCELİ	119,303
ÇANKIRI	128,000	KIRKLARELİ	776,998	UŞAK	339,853
ÇORUM	415,948	KIRŞEHİR	247,282	VAN	1,994,367
DENİZLİ	916,777	KİLİS	177039	YALOVA	306941
DİYARBAKIR	8,194,247	KOCAELİ	3,070,693	YOZGAT	373,998
DÜZCE	467755	KONYA	1,300,009	ZONGULDAK	921,447

Although the absolute level of the amount is important as total cost incurred by the whole country, its importance vanishes when the main concern is the effect of theft-losses on privatization. Because privatized utilities are interested in profits, unit cost of theft-loss becomes important so they should control theft-loss ratios in their regions. Even though the absolute level of theft-loss amount in a region may be relatively high, the corresponding utility may still succeed to run the firm and make a profit if the net consumption is so high, too. For instance, Izmir's theft-loss amount is ranked 6th in Turkey and this amount is just slightly less than Mardin's but Izmir is one of the unproblematic cities in terms of electricity theft-losses. The reason is that, despite relative high amount in theft-loss of Izmir, its consumption is also huge, making total theft-loss cost less than 10% which is near to OECD standards. Therefore, the most critical variable is theft-loss ratio TLR (amount of theft loss divided by gross consumption which is total electricity drawn from the grid) in terms of the financial viability of the private distribution utilities. In order to make the concept of financial viability clear, tariffs concept, financial flow and subsidy mechanism in the electricity sector also need to be understood.

2.2. Current Tariffs and Subsidy Mechanism

2.2.1. The Concept of Tariff

Tariff is a regulation of revenue and pricing among consumers, producers and other third persons. It regards all parts' rights. A tariff consists of several components. These components are investments, operation expenses, costs due to transferring of operating rights, cross subsidies, taxes, insurances, funds, stranded costs and regulator's fees. (Sevaioglu, 2004) The sum of all these components gives the bill price.

Practically, these components may differ across different regions and different types of consumers, leading bill prices to differ. Actually, for purely allocative efficiency marginal costs must be borne by the consumer of the corresponding service. Nevertheless, sometimes economic and social aims contradict in the design of tariff structure for electricity. (Dossani, 2004) Economic efficiency suggests different pricing, whereas social aims may require applying a single tariff all over the country. In this regard, up to now, there has been a single tariff for every region of Turkey, although costs of different regions dramatically differ.[7] The reason of these differences is especially high variance of thefts and losses among different provinces.

In fact, different parts of a city also differ in terms of electricity thefts and losses. By this logic, continuing the reduction of region size or increasing the number of groups that should be charged with different tariffs, eventually leads to the idea that each subscriber has own unique cost and so should has own unique bill price. However, even logic that takes each subscriber as a separate cost unit, theft costs should not be reflected to each consumer separately since theft is not an actual cost caused by the corresponding consumer rather it is a weakness of the electricity system. Thus, according to this logic as well theft must be reflected to prices uniformly all over the

[7] Actually, tariffs are a little lower in provinces which have priority for development.

country. Hence, as far as reflecting the costs of theft is concerned, considering the country as a single unit gives the same result as considering each consumer as a single unit.

Logical constructions aside, it is important to consider practically feasible design of tariffs. Firstly, the current situation in Turkey is going to be explained.

2.2.2. The Current Financial Flow and Cross Subsidy Mechanism

As mentioned above, Turkey has always applied a uniform national tariff in electricity all over the country and is still applying in spite of the articles of Electricity Market Law, 2001. This law introduces competition and economic efficiency into the electricity sector so it proposes regional tariffs that reflect corresponding costs in the distribution of electricity. However, the current government has not implemented regional tariffs especially due to political reasons and pressure of southeastern deputies.

Currently, a national single tariff is in operation. The most striking property of this tariff is equality principle. It applies almost same tariffs across regions and consumption purposes (residential, agricultural or industrial usage) unlike most developed countries. This equalization mechanism is achieved through cross subsidies, meaning that low cost consumers subsidize high cost ones causing a single final price. Actually, there are 5 types of cross subsidies in electricity pricing. These are:

1. Across subscriber groups (industrial, residential, agricultural usage etc.)
2. Across regions or provinces
3. Across vertical activities (distribution, retail, generation, wholesale etc.)
4. Across institutions of horizontal activities (hydro, wind, natural gas etc. usage in generation.)
5. Across sectors (e.g. from natural gas to electricity)

This classification will be helpful in explaining how the current subsidy mechanism works. In designing tariffs, one approach is to start with costs and derive the retail price as the sum off all costs. This approach gives different prices for different cross sections (e.g. provinces) since costs are different for each cross sectional unit. The other approach is to start with a final price[8] and subtract each cost element, reaching at the end a "loss" or "profit" as a residual. All these residuals are then equated to zero by

[8] This final single price is selected such that sum of all costs over the whole country equal to selected final price times the quantity sold.

cross subsidies. If a residual is positive for a region, it means that the region's total cost is lower than the average total cost in whole Turkey and vice versa. Hence, in order to equalize different total costs of different regions, positive residuals which result from low costs "subsidize" or in another name "neutralize" negative residuals that come from high costs. At the end, a single uniform price emerges.

Concretely, the process works as follows. First a uniform tariff (single price) is determined by equalizing all expected revenues to expected costs. Then, each distribution company (TEDAŞ, Trakya Edaş, Bedaş, Körfez Edaş, Karaelmas Edaş, Meram Edaş, Sakarya Edaş and Başkent Edaş) sells its electricity at this price and collects the revenues. From these revenues, they retain the amount equals to their total costs plus a profit margin for retailing[9]. After this step, the remaining residual amount becomes the claim of TETAŞ. Hence, actually these residual amounts are the wholesale prices at which TETAŞ sells electricity to distribution companies[10]. TETAŞ makes discrimination across joint partnerships and TEDAŞ. The remaining total amount should cover financial burdens of TETAŞ. Thus, TETAŞ behaves like a common pool and subsidizes distribution companies. This is type 3 subsidy. Moreover, TETAŞ purchases electricity from EÜAŞ which has many plants, each having different costs. Thus, EÜAŞ covers the costs of corresponding plants by payment of TETAŞ. There is a type 4 subsidy here. Low cost hydro plants subsidize high cost natural gas power stations. Furthermore, if those revenues of generating electricity cannot cover costs, BOTAŞ sells natural gas with price less than the cost of the natural gas or vice versa. This is type-5 cross subsidy. The sum of state institutions can be seen as a huge pool and it hides inefficiencies. As for type-1 subsidy, it is realized over TETAŞ, too. Since TETAŞ applies different prices to different regions high price takers in fact subsidizes low price takers. Type-2 subsidy is applied by the result of whole mechanism. If there were a free market, industrial customers would probably get cheaper electricity because of quantity discounts. Nevertheless, since they are captive, they pay more and subsidize residential and agricultural consumption.

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[9] All these components are different for different distribution companies.

[10] In fact, same procedure is repeated for Tedaş' provincial distribution institutions. Each of them covers their corresponding costs and weighted remaining amounts become equal to Tedaş' buying wholesale price times total quantity sold. Each province distribution institution behaves like a joint partnership.

Although this cost based and subsidy supported mechanism is in operation, the Electricity Market Law of 2001 propose a different mechanism that prohibits cross subsidies and sets caps for revenues and prices.

The first essential property of the Law's proposal is that it replaces cost plus tariff structure with different kinds of structures for each activity and regulated charges as seen in the Table-2.2 below. Focusing on distribution and retailing, use of system charge tariff for distribution is intended to be under hybrid regulation, whereas retail service and average retail prices are intended to be regulated through price caps. These cap regulations introduce incentive for cost reduction. Therefore, utility prices cannot reflect all costs incurred by the utilities and cannot exceed the caps.

Table-2.2 Methods for Tariff Regulation for Different Electricity Activities and Services

Activity	**Regulated Price/Charge**	**Method**
Transmission (TEIAS)	Connection Charge	Project based
	Use of System Price	Revenue Cap
	System Operation Price	Revenue Cap
Distribution	Connection Charge	Project based and Standard Connection Charge
	Use of System Price	Hybrid
Retail Service	Retail Service Price	Price Cap
Retail	Average Retail Price	Price Cap
Wholesale (TETAS)	Average Wholesale Price	Cost based

* Taken from Electricity Market Implementation Manual, EMRA 2003.

The second important property of the mechanism stipulated by the Law is separation of accounts and restriction of cross subsidies. Nevertheless, if necessary, the law suggests direct subsidies from the treasury. Yet, this may not be the best solution for subsidization of regions with high theft-losses. Actually, burden of the treasury is high and treasury is reluctant to accept solutions that will increase its financial burden. In the section on tariff design, below, this topic will be discussed extensively.

3. EMPIRICAL ANALYSIS

3.1. The Model

The interest of this thesis is the behavior of two variables TLR (theft-loss per capita) and TLPC (amount of theft-loss divided by population). Although the primary focus is TLR, TLPC will also be examined through same methods. It will be attempted to analyze similarities as well as possible differences between the behaviors of these two highly correlated variables. As mentioned before, the method that will be used to examine the drivers behind these dependent variables is linear regression analysis.

In regression analysis, the aim is to estimate parameters (coefficients in front of explanatory variables); their signs and magnitudes. Moreover, attained significance level for each parameter that shows how convenient the parameters estimated is another important aim to find out. Now, it is time to explain explanatory variables.

3.2. Independent Variables

Factors that explain the variability in indicators of theft and losses are captured through a number of independent variables. These variables can be divided into 6 general categories.

- Economic Variables
- Variables Reflecting the Enforcement Capacity and the Reach of the State
- The State and Authority Related Variables
- Distribution Utility's Managerial Variables
- Physical Variables
- Dummy Variables

Here, it should be noted that there is no any structural model that tells which variables should enter the regression equation; rather, the regression model below is an ad-hoc reduced form equation model. The selection of variables is based on intuition rather than theory.

3.2.1. Economic Variables

These variables are a priori thought as most effective on theft-loss ratio since it is a general idea that usually poor economic conditions push people to theft.[11] Economic variables consist of income per capita GDPC, agricultural gdp ratio AGRGDPR, residential electricity consumption ratio RESECR, industrial electricity consumption ratio INDECR and bank deposit ratio DEPOSITR.

GDPC is used to measure income. However, when panel regression is done, GDPC can mislead the results since its time effect and cross sectional effect are two different components so it is better to use gdp per capita ratio GDPCR, which is calculated as the gdpc of a province divided by the maximum gdpc of all provinces for each year. It is thought that one of the reason for theft is unsatisfied needs of people who cannot afford to buy their needs and alternatively thieve. Therefore, a negative relation between theft-losses and GDPCR is expected.

AGRGDPR measures share of agricultural income over all income of a city. If it is high for a province, people in that province are generally farmers and rural population prevails. Hence, it can be thought that with high AGRGDPR, technical losses can be high and inspection is difficult to detect theft so theft-losses can be expected to increase with AGRGDPR.

Other two economical variables are RESECR electricity consumption of residences divided by total consumption and INDECR electricity consumption of industries divided by total consumption. These two variables are similar and seem complement of each other. But, correlation coefficient between them is 0.78 which is generally acceptable and they can be used together in regressions without fear of multicollinearity.[12] Additionally, Belsley, Kuh & Welsch test is going to be performed later to ensure that multicollinearity is not severe.[13] Actually, the effects of these variables on dependent variables (TLR, TLPC) are a-priori unclear. If residential

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[11] Although a simple electricity theft model with concave utility function says that the poor thieves less by only considering risk aversion, the actual mechanism is intuitionally more complex. People generally expect that the poor thieve more than the rich due to financial impossibilities.

[12] Correlation coefficient of two regressors more than 0.8-0.9 causes severe collinearity. In such a situation, collinearity should be handled via some methods such as ridge regression, principal components regression etc. or one of the collinear variables must be dropped.

[13] More information about multicollinearity will be given in subsection 3.5.2.1.

consumers thieve more than industrial and commercial consumers, positive effect of RESECR on theft is expected or vice versa. In addition to this, because industrial consumers get electricity directly from medium voltage lines without using low voltage lines, which cause most of technical losses, high INDECR may reduce technical losses. Unlike INDECR, high RESECR ratios may cause higher technical losses due to intense usage of low voltage lines.

Finally, DEPOSITR bank deposit ratio is total amount of money that is deposited in banks for a province divided by gdp of that province and INSUREDWPC insured workers per capita is number of insured worker over population. Those two variables are good indicators of the degree to which economic relations are formalized. Highly formalized economies are expected to thieve less electricity.

3.2.2. Social and Cultural Variables

Another important theft characteristic is determined by social and cultural factors. People in a region can see electricity as a public good or bribery may be widespread and be considered as a natural event. Moreover, people in some provinces may not respect the authority. Ethnic differences can also affect the behavior of people. With respect to these factors, the first variable of this category is the vote ratio of political parties Hadep and Dep, DEPR. Actually, this is an indicator of political thought of people and how they view the state.[14] As for this variable's effect on the dependent variables, expectation is clearly positive since this variable is a strong indicator of opposition to the current state. Actually, simple descriptive data supports this expectation, too.

Data for some variables in this category exist only for the year 2000. These are rural population ratio RURALPOPR which is total population of villages over all population of the province and professional technical schooling ratio PTHSCHR. The expectation about the effect of RURALPOPR on dependent variables is positive because technical losses are higher for villages than urban and controlling for theft is

[14] Actually, other political parties' vote ratios have been also considered but only Hadep-Dep vote ratio succeeded to be highly significant. Correlation coefficients between vote ratio and theft-loss ratio for all provinces for 1995 general election are on the first row and total vote ratios for the corresponding political parties in Turkey are on the second row.

RP	ANAP	DYP	DSP	CHP	MHP	HADEP	YDH	MP	YDP	İP	YP
-0.05	-0.25	-0.19	-0.43	-0.34	-0.30	**0.84**	0.55	0.07	0.35	0.00	0.36
21.3	19.7	19.2	14.7	10.7	8.2	4.2	0.5	0.5	0.3	0.2	0.1

difficult in villages. In contrast, PTHSCHR is anticipated to have negative effect on theft-losses because PTHSCHR gives positive measure for both income distribution and education level in the corresponding province. If PTHSCHR is higher in a province, it probably shows that people in that province have a higher human capital for economic activities meaning that income is shared among large variety people rather than a small minority. Other than this economic meaning, PTHSCHR can also be an indicator for education level and educated people naturally thieve less since they now the consequences of action of theft. As a result, it is expected that PTHSCHR is negatively correlated with theft-losses.

3.2.3. Variables Reflecting the Enforcement Capacity and the Reach of the State

Variables in this category capture the rule of law and esteem of the state for the corresponding province. The most important variable of this category is public investment expenditures per capita PIE. This variable shows clearly how much the government cares for the province. The effect of PIE on theft-losses is anticipated to be negative since more investment means that the State heeds the corresponding province more and effective in that province. Hence, in such provinces theft-losses may be controlled easily.

Another variable is tax realization-revenue ratio TRRR that indicates the power of the government to collect taxes so this variable is expected to have a negative relation with the dependent variables. Also, tax revenue over gdp TRPGDP is another good indicator to measure willingness of people to pay their obligations without hiding their income and strength of the state to enforce people not to deceive the government. Thus, expectation of this variable's effect on theft is negative, too.

In addition to those variables mentioned above, there are also some other variables, which are available only for year 2000. ASPHRR asphalted village road ratio, which is percentage of asphalted village roads within the corresponding province and DRINKVR drinkable water village ratio that percentage of villages, which have drinkable water within the province. These variables are good measures for service level of the state and physical conditions in provinces so negative relation with dependent variables TLR and TLPC is expected. Finally, in this category public order variables have been employed in regressions that cover only year 2000. Public order variables are MURDERPC murders per capita, INJPC injuries per capita, KIDNPC kidnappings per capita, ROBBPC robberies (gasp-soygun) per capita, THEFTPC general thefts (hirsizlik) per capita and THEFTPA auto thefts per auto within a year for a province for each public order variable. When these variables are high, one might conclude either that the propensity to break the law is higher in that province (for whatever reason), or that the capacity to maintain public security is weak, or both. In either case, one would expect a positive relation between these variables and electricity theft.

3.2.4. Distribution Utility's Managerial variables

In fact, left hand side dependent variables TLR and TLPC already fall in this category. Investment expenditures per subscriber IEPS, average personnel expenditure APE and personnel numbers per subscriber PNPS can be good measures of effort level and efficiency of the utilities. One may predict decrease in theft-loss ratio with increasing investment and personnel expenditures also with personnel number up to some degree. Nevertheless, after some point, high value of these variables indicates inefficiency and unnecessary expenses. Average price collected from consumers AEPRICEGET is another measure to determine effectiveness in collecting revenues. This variable is energy sales revenues divided by total net consumption for each province. Since prices are almost equal across provinces, this variable shows approximately collection ratio or billed consumption. However, data for all those mentioned variables except PNPS are not available for joint partnership provinces. Therefore, as mentioned at the end the section, on the data set (section 3.3) only PNPS was used in regressions.

In addition to PNPS, dummy variable DUMJP can also be considered in this category even though it is a dummy variable, too. DUMJP dummy joint partnership means 1 if a utility in a province is managed by a joint partnership of TEDAŞ and 0 otherwise.

3.2.5. Physical Variables

These variables are considered to capture some variability of the technical losses and they all are related to the physical properties of the distribution grid. The first one is transformer utilization ratio TUR which is calculated by division of average power to total power capacity of all transformers within the corresponding province. Average power is total electricity drawn from the grid over a year divided by total number of hours in a year (24*365=8760). High utilization ratio is expected to result in higher technical losses.

Low voltage line length per residential subscriber LWLPS is another measure that affects technical losses since most of the losses occur on the low voltage line. As described in the technical losses section, its effect depends on geometrical structure of the grid. It raises technical losses since the path that electrons pass through gets longer, whereas it decreases losses since dividing common lines reduce the current of the line. Second effect is quadratic so it may be thought that LWLPS has a negative effect on technical losses. Nevertheless, this direct conclusion may be misleading. If line formation is assumed nearly optimal across all provinces, then LWLPS will have positive effects on technical losses.

3.2.6. Dummy Variables

Putting dummy variables into the regression model is useful most of the times and they can capture some variability that other variables are unable to do so. Hence, standard errors are reduced and more efficient results can be obtained. With respect to these, some dummy variables were added in some of the methods. The first variable in this category is DUMJP dummy joint partnership (it is also a managerial variable). Another dummy variable is DUMX where X is referred to year from 1994 to 2001. If the data belongs to that year, the variable is equal to 1, otherwise 0. These year dummies control for factors that change over time but which have identical effects on all provinces (for example, changes in macroeconomic conditions).

3.3. The Data Set

The first intention was to use panel data for regression analysis since it bestows the analysis both time and cross section dimensions. Each dimension gives extra information that the other does not give. Hence, panel data analysis is the perfect method to extract information and to make inference if necessary data is available in both dimensions. At this point, there were some difficulties with the availability of data for both province and time dimension. Even though independent variables explained above will be used in the model, some of them are not available for all the years. The variables, their explanation, years for which they are available and their sources are listed below:

1. *Tlr:* Theft-loss ratio (amount of theft loss divided by gross consumption which is total electricity drawn from the grid) [data range1994-2001] [1]
2. *Tlpc (MWh):* Theft-loss per capita (amount of theft loss divided by population) [data range1994-2001] [1*]
3. *Gdp (TL):* Gross domestic product in 1987 prices [data range1994-2001] [2]
4. *Gdpc (TL):* Gross domestic product per capita in 1987 prices [data range1994-2001] [2]
5. *Pop:* Population (it is calculated by division of gdp to gdpc) [data range1994-2001] [2*]
6. *Pie (billion TL):* Public investment expenditures per capita in 2001 prices [data range1994-2001] [2]
7. *Agrgdpr:* Agricultural gdp ratio. (division of agricultural gdp by total gdp of a province) [data range1994-2001] [†*]
8. *Resecr:* Residential electricity consumption ratio (electricity consumption of residents divided by total consumption) [data range1994-2001] [1*]
9. *Indecr:* Industrial electricity consumption ratio (electricity consumption of industry divided by total consumption) [data range1994-2001] [1*]
10. *Lwlps (km):* Low voltage line length per residential subscriber [data range1994-2001] [1*]
11. *Tur:* Transformer utilization ratio (gross consumption per hour divided by total power capacity of transformers [data range1994-2001] [1*]
12. *Ape(TL):* Average personnel expenditures converted to 1994 prices by wholesale price index (division of total electricity personnel expenditures to total personnel number- can be considered as average wages) [data range1994-2001] [1* a]
13. *Aepriceget(TL):* Average electricity price converted to 1994 prices by wholesale price index (total revenue from electricity sales divided by net electricity consumption) [data range1994-2001] [1*a]
14. *Pnps:* Personnel number per subscriber [data range1994-2001] [1*]
15. *Ieps:* Investments expenditures per subscriber corrected by investment deflators [data range1994-2001] [1* a]
16. *Depr:* Hadep-dehap vote ratio [data range 1995,1999, 2002] [3]
17. *Trrr:* Tax realization-revenue ratio (revenue from taxes divided by total amount of tax that recorded to be paid) [data range1994-2001] [o]
18. *Trpgdp:* Tax revenue per gdp [data range1994-2001] [o*]

19. *Depositr:* Deposit ratio with 2001 prices (amount of bank deposits divided by gdp) [data range 1995-2000] [2]*
20. *Gdpcr:* Gross domestic product per capita ratio (gdpc divided by max gdpc for that year) [data range 1994 2001] [2]*
21. *Pthschr:* Professional technical schooling ratio [data range 2001] [2]
22. *Asphrr:* Asphalt road ratio (length of asphalted village roads divided by total village roads) [data range 2000] [2]
23. *Ruralpopr:* Rural population ratio (rural population divided by total population) [data range 2000] [2]*
24. *Drinkvr:* Drink water village ratio (number of villages that have enough drink water divided by total number of villages) [data range 2000] [2]
25. *Insuredwpc:* Insured workers per capita (number of insured-recorded workers divided by population) [data range 2000] [2]*
26. *Murderpc:* Murdered people per capita (number of murdered over total population) [data range 2000] **
27. *Injpc:* Injured people per capita (number of injured people over total population) [data range 2000] **
28. *Kidnpc:* Kidnapped people per capita (number of kidnapped people over total population) [data range 2000] **
29. *Robbpc*: Robbery per capita (number of robbery over total population) [data range 2000] **
30. *Theftpc:* Theft per capita (number of thefts over total population) [data range 2000] **
31. *Theftpa:* Auto theft per auto (number of auto thefts over total number of auto) [data range 2000] **
32. *Dumjp:* Dummy variable for joint partnership (1 if the utility is joint partnership, 0 otherwise)
33. *Dumx:* Dummy variable for the corresponding year (1for the year x, 0 otherwise)

Sources:

[o] http://www.muhasebat.gov.tr/mbulten/

[1] Türkiye Elektrik Dağıtım ve Tüketim İstatistikleri. TEDAŞ, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001.

[2] http://www.dpt.gov.tr/bgyu/

[3] http://www.frekans.com.tr/html/4tr_istatistikler.asp

*http://www.egm.gov.tr/asayis/istatistik.asp

† Obtained from Dr. Alpay Filiztekin, source:DIE

* Data was not directly taken (some calculations have been made to reach the data)

[a] No data available for joint partnerships

As seen above there are lots of variables that do not have observations for the full sample period. Hence, they could not be used in panel regression. However, DEPR data is available for just three years 1995 1999 and 2002 because elections were done in those years. It was tried to overcome this restriction by using 1995 DEPR data for 1994, 1995 and 1996; 1999 DEPR data for 1997, 1998 and 1999; finally 2002 DEPR data for 2000 and 2001. For DEPR data, we made another assumption that Dep, Hadep and Dehap are successive political parties that substitute for each other and so Hadep's 1995, 1999 votes and Dehap's 2002 votes are considered to be Dep vote ratios. Consistency of these votes confirms our assumption. Another variable that poses problems in the time dimension is DEPOSITR. 1994 and 2001 data are missing so 1995 data was used for 1994 and 2000 used for 2001. In addition to these, there are some variables for which we have data for only one year (2000) where interpolation and other methods to generate data do not make sense because these variables are expected to exhibit variability over time. Therefore, besides panel and between regressions it would be a good idea to make a regression with just year 2000 data with largest variable set. In this regression almost all variables mentioned above enter the equation and can give an idea about effect of variables with just one year data.

In addition to time availability problems of data, there are also some cross sectional data problems. First of all, the number of provinces number has increased in Turkey continuously. Hence, for some provinces there is no data especially for the earlier years because these provinces not exist at those years. Second, some utility specific variables are not available for joint partnerships. This is true for financial variables AEPRICEGET, IEPS and APE. Therefore, a choice needs to be made about whether to drop joint partnership cities or drop these variables. The choice has been made in favor of including provinces that are managed by joint partnerships. Hence, those three variables have been dropped from the regressions.

3.4. Descriptive Statistics

Before starting econometric analysis, it would be better to characterize panel data for theft-losses and independent variables. Some descriptive statistics and figures have been given in this subsection to describe the structure of both dependent and independent variables. Firstly, it should be noted that panel data covers 8 years from 1994 to 2001 and all of the 81 provinces of Turkey. Nevertheless, as explained before in the data set subsection, some data for some variables are not available.

3.4.1. Dependent Variables

Regarding dependent variables TLR and TLPC, average value of theft-loss ratio over 8 years across 81 provinces is 21% as seen on Table 3.1 below. As for average theft-loss amount per capita, it is about 0.2 MWh per year. Another important point is variability in the data. Standard deviations are really high for both variables at 0.15 for TLR and 0.18 for TLPC. A striking point, which should not be skipped, is that between standard deviations are very close to overall ones. This means that nearly all variability comes from cross sectional variation and there is persistency with respect to time variation.

The minimum value of TLR is 3% for overall sample and about 5% for cross sectional averages. The maximum value of TLR is 73% for whole sample and 64% for cross sectional averages.

As for TLPC, the minimum value is 0.027 MWh for the overall sample and 0.054 MWh for cross sectional average. The maximum value is 1.2 MWh for overall sample and 0.92 MWh for cross sectional average. These high ranges in both TLR and TLPC support indication of high standard deviations in the samples.

For cross sectional averages (in order of magnitudes)

-min tlr belongs to Bilecik, Karaman ,Karabük, İzmir and Isparta

-max tlr belongs to Diyarbakır, Şırnak, Mardin, Batman and Hakkari

-min tlpc belongs to Bayburt, Osmaniye, Karaman, Çankırı and Adıyaman

-max tlpc belongs to Şırnak, Mardin, Diyarbakır, Batman and Şanlıurfa

Table 3.1 Descriptive Statistics of Dependent Variables for the Whole Sample

Variable		Mean	Std. Dev.	Min	Max	Observations
tlr	overall	.2104448	.1522602	.0320768	.734864	N = 623
	between		.1514224	.0483968	.6374072	n = 81
	within		.0342432	-.0734199	.3858107	T-bar = 7.69136
tlpc	overall	.2003203	.1838197	.0268913	1.205617	N = 621
	between		.1731812	.0543927	.9205064	n = 81
	within		.0750385	-.2816675	.6629007	T-bar = 7.66667

Another comment on dependent variables is that variance of TLPC is higher than TLR. The reason is that TLPC is the product of TLR and GCPC (gross consumption per capita). Thus, any additional variation in GCPC causes TLPC to fluctuate more than variation of TLR. Because of this GCPC, TLPC also have more deviation in time dimension than TLR. We can conclude that Persistence in TLR is stronger. However, TLPC has considerable persistence, too. Therefore, persistence must be considered in econometric panel data analysis.

In addition to the statistical results described above, histograms can be used to depict the theft-loss data. When the histogram of TLR is drawn as in Figure 3.1, it is clearly seen its distribution is highly asymmetric, with a large number of extreme values that beyond 30%. When similar histogram is drawn for TLPC (Figure 3.2), a similar structure can be observed, perhaps a bit less pronounced than the case of TLR. From these observations, it is suspected that different reasons drive theft-losses in provinces which have TLR more than 30%. Actually, when those provinces are dropped from the observations, the distribution becomes nearly normal as on Figure 3.3. It may be a good idea to divide provinces as group-1 provinces which have TLR less than 30% and group-2 provinces which have TLR more than 30%. The regressions will be made for both all provinces (whole sample) and for just group-1 provinces (shrunk sample) to check whether drivers for theft-losses are different for different groups of provinces.

However, before that, descriptive statistics of shrunk sample have been compared to whole sample for both dependent and independent variables. For dependent variables, these statistics can be seen on Table 3.2.

Table 3.2 Descriptive Statistics of Dependent Variables for the Shrunk Sample

Variable		Mean	Std. Dev.	Min	Max	Observations
tlr	overall	.1416109	.0511398	.0320768	.2933584	N = 496
	between		.0452013	.0483968	.2679338	n = 64
	within		.0239915	.0309913	.223076	T-bar = 7.75
tlpc	overall	.1452056	.0756168	.0268913	.5675827	N = 494
	between		.0643527	.0543927	.3266907	n = 64
	within		.0408581	-.0101001	.4098693	T-bar = 7.71875

Actually, when group-2 provinces were omitted, mean of TLR decreases to two third of previous value (for whole sample case) 0.14. More significantly, standard deviation drops to one third of previous value which is 0.05. Also variation from time dimension does not decrease very much and since cross sectional standard deviation decreases appreciably, amount of variations get closer to each other. Hence, it can be said that although number of group-2 provinces is only 17, they are very effective in exploding overall and cross sectional variation of TLR.

Figure 3.1 Histogram of TLR

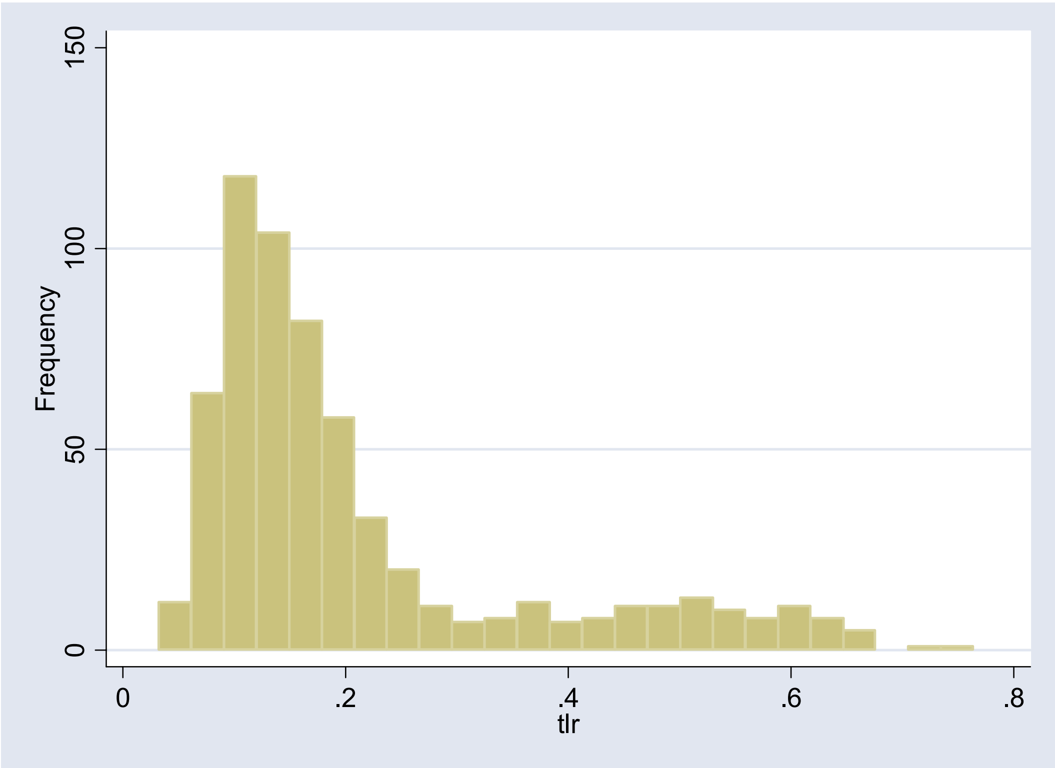


Figure 3.2 Histogram of TLPC

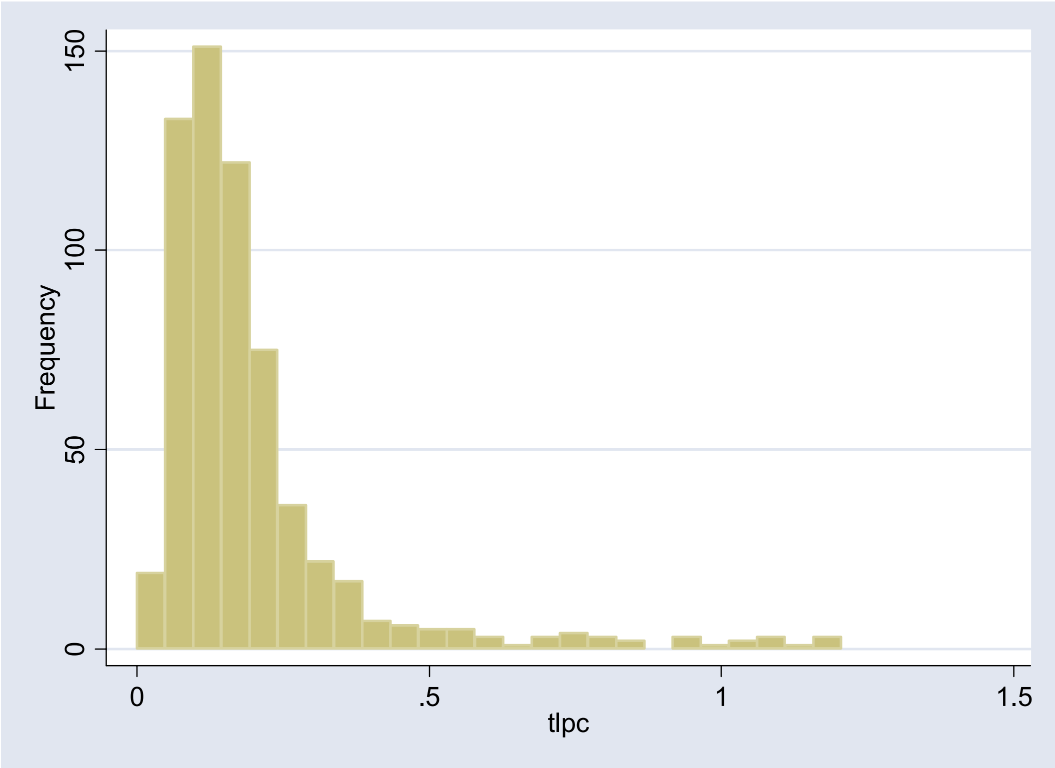
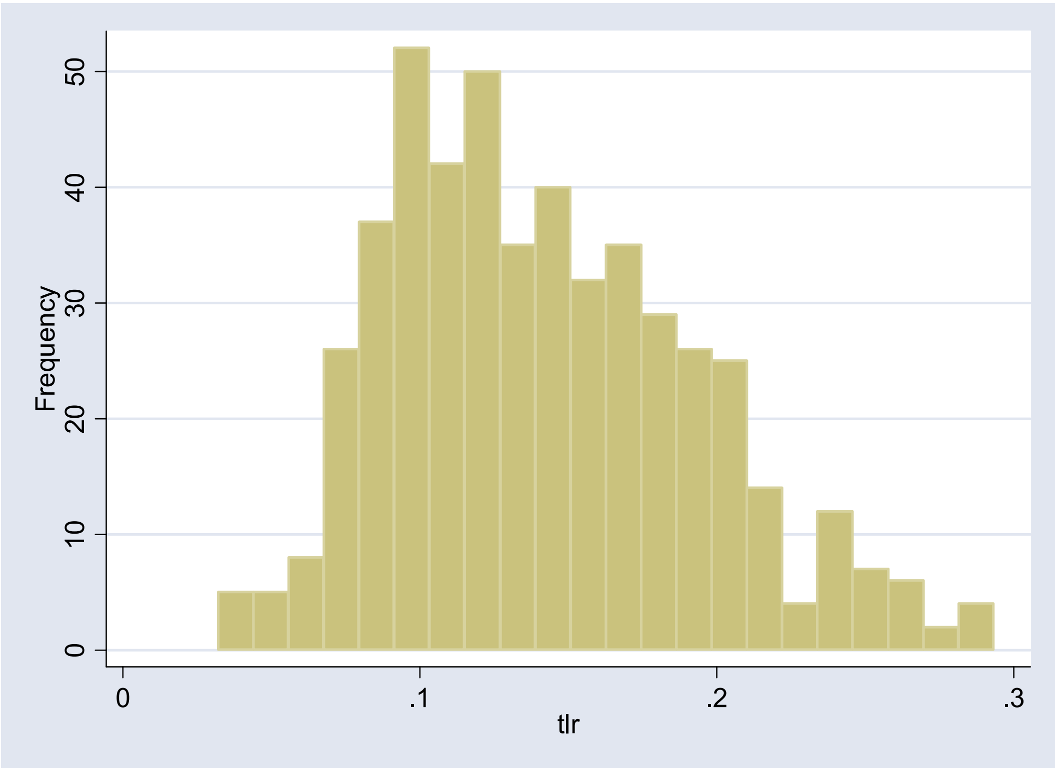


Figure 3.3 Histogram of TLR for the Shrunk Sample



Regarding TLPC, overall mean value also drops to 0.14 levels which is nearly two third of previous value. There is also a large reduction in standard deviations and variances along the time and cross sectional dimensions approach each other. It is clear that group-2 provinces cause a similar explosion in the variation of TLPC values.

3.4.2. Independent Variables

After describing data for dependent variables, a similar exercise can be undertaken for independent variables as well. Table 3.3 below presents, descriptive statistics of independent variables for the whole sample is seen. Overall standard deviations of DEPR, PIE, TRPGDP and DUMJP are greater than their means meaning they have huge variances. Like dependent variables, independent variables also show great variability across provinces but limited variation in time. Only PIE has more variation in time than along the cross sectional dimension. This is actually an indicator that Turkey has considerable heterogeneity across regions for almost every variable.

However, comparing these statistics with shrunk sample makes clear whether group-2 provinces are significantly effective in this heterogeneity. Descriptive statistics of independent variables for the shrunk sample can be seen in Table 3.4. If standard deviations and especially cross sectional ones drop appreciably when group-2 provinces with excessive TLR are dropped from the sample then effect of group-2 provinces seem significant in heterogeneity not only for theft-losses but also for other variables. To check equality of variances for different samples, F-tests can be performed. Stata outputs for these tests have been displayed in Appendix-B. According to the results of those tests INDECR, DEPR, TRPGDP, PNPS and TUR seem to be the variables that have unequal variances for whole and shrunk samples. Also results indicate that variances without group-2 provinces are smaller. Hence it can be concluded, group-2 provinces increase the variability of these variables.

In addition to variance of the independent variables, their means are also (probably more) important. Hence, mean of whole and shrunk samples should also be compared in terms of independent variables. These comparisons can be made by t-tests for testing equality of means. In Appendix-B, Stata outputs of these tests were given. According to results of these tests, GDPCR, RESECR, DEPOSITR, INDECR, DEPR, PNPS and TUR seem to have unequal means for both whole and shrunk sample. Hence, if regressions for different samples (whole and shrunk) yield different significance results for these variables, then these results can be supported by the t-test outcomes for equality of means.

For example, if GDPCR emerges significant in regression of TLR using whole sample and looses its significance when shrunk sample is used, then t-test results above supports that GDPCR is not effective on TLR for group-1 provinces with TLR less than 30% since it has different average for those provinces. The mechanism driving theft-losses in different group of provinces comes out different in this case since at least GDPCR is not in the mechanism for group-1 provinces.

Table 3.3 Descriptive Statistics of Independent Variables for the Whole Sample

Variable		Mean	Std. Dev.	Min	Max	Observations
gdpcr	overall	.3270467	.1847133	.061433	1	N = 633
	between		.1852758	.0708847	1	n = 81
	within		.0300942	.2110456	.5724163	T-bar = 7.81481
resecr	overall	.2770285	.117311	.0366215	.63564	N = 622
	between		.1141237	.0479714	.5471413	n = 81
	within		.0347868	.0766016	.4653661	T-bar = 7.67901
indecr	overall	.4095809	.2229451	.0033907	.9272245	N = 623
	between		.2163452	.0222447	.9026276	n = 81
	within		.0603771	.0375119	.7805004	T-bar = 7.69136
depositr	overall	.2373885	.1678877	.0384503	1.462523	N = 633
	between		.1590311	.0530789	1.128755	n = 81
	within		.052868	-.1150662	.5744534	T-bar = 7.81481
depr	overall	.0709599	.1167723	.0059654	.5618247	N = 639
	between		.1119027	.0079838	.4897597	n = 81
	within		.0333908	-.0395355	.2518827	T-bar = 7.88889
pie	overall	46.61494	91.32175	1.218713	1215.024	N = 633
	between		63.90466	3.431421	454.1926	n = 81
	within		64.96172	-388.5084	807.4462	T-bar = 7.81481
trrr	overall	86.18518	7.143266	33.19602	98.31088	N = 637
	between		6.506297	44.98229	97.10757	n = 81
	within		4.960446	49.53958	105.1992	T-bar = 7.8642
trpgdp	overall	.5363982	.8584433	.0249441	7.759699	N = 633
	between		.8409096	.0305306	6.357936	n = 81
	within		.1547182	-.6274974	1.938162	T-bar = 7.81481
pnps	overall	.0022886	.0011537	.0005431	.0115326	N = 615
	between		.0011247	.0008445	.008267	n = 81
	within		.0003407	.0005273	.0055543	T-bar = 7.59259
tur	overall	.1560958	.0646537	.0531109	.5940764	N = 623
	between		.0607414	.065924	.4873433	n = 81
	within		.0306017	.0328441	.4328995	T-bar = 7.69136
lwlps	overall	.0289822	.0158343	.0002506	.1174106	N = 616
	between		.0138782	.0067925	.0732776	n = 81
	within		.0078492	-.0110259	.0934744	T-bar = 7.60494
agrgdpr	overall	.270021	.1354616	.0048363	.7664663	N = 633
	between		.1281327	.0077775	.6018348	n = 81
	within		.0450371	.0504121	.5105903	T-bar = 7.81481

Table 3.4 Descriptive Statistics of Independent Variables for the Shrunk Sample

Variable		Mean	Std. Dev.	Min	Max	Observations
gdpcr	overall	.3707648	.1775416	.1215043	1	N = 499
	between		.1784956	.1351234	1	n = 64
	within		.0331285	.2547637	.6161343	T-bar = 7.79688
resecr	overall	.2626214	.1083964	.0366215	.63564	N = 495
	between		.1047167	.0479714	.5324337	n = 64
	within		.0312289	.0621945	.450959	T-bar = 7.73438
indecr	overall	.4640149	.200309	.0247347	.9272245	N = 496
	between		.1922344	.0455199	.9026276	n = 64
	within		.0580847	.1071647	.6999962	T-bar = 7.75
depositr	overall	.2672277	.1742697	.0698684	1.462523	N = 499
	between		.1640803	.0754597	1.128755	n = 64
	within		.0575136	-.085227	.6042926	T-bar = 7.79688
depr	overall	.0250174	.0368706	.0059654	.3256298	N = 503
	between		.0304138	.0079838	.195234	n = 64
	within		.0207829	-.085478	.2059402	T-bar = 7.85938
pie	overall	47.84753	97.17572	2.063434	1215.024	N = 499
	between		65.3359	7.036826	454.1926	n = 64
	within		71.70294	-387.2758	808.6788	T-bar = 7.79688
trrr	overall	85.75747	7.60711	33.19602	98.31088	N = 502
	between		7.056325	44.98229	97.10757	n = 64
	within		5.273607	49.11187	104.7715	T-bar = 7.84375
trpgdp	overall	.4961545	.5969844	.0249441	4.25117	N = 499
	between		.582587	.0305306	3.3791	n = 64
	within		.1243475	-.4062187	1.597422	T-bar = 7.79688
pnps	overall	.0020166	.0008471	.0005431	.0054727	N = 488
	between		.0008021	.0008445	.0049209	n = 64
	within		.0002871	.0012245	.0028975	T-bar = 7.625
tur	overall	.1447589	.0547423	.0531109	.4834648	N = 496
	between		.0456214	.065924	.269945	n = 64
	within		.0300842	.0405	.4215626	T-bar = 7.75
lwlps	overall	.0279732	.0150637	.0002506	.1174106	N = 493
	between		.0128147	.0067925	.0628898	n = 64
	within		.0079781	-.012035	.0924653	T-bar = 7.70313
agrgdpr	overall	.2401481	.117478	.0048363	.6026575	N = 499
	between		.1128509	.0077775	.5464927	n = 64
	within		.0347364	.1197192	.4077039	T-bar = 7.79688

3.5. Empirical Results

The first software package that was used for regression analysis was E-views. Nevertheless, since it is designed especially for time series analysis and it is insufficient for complex panel analysis, it has been replaced by Stata which is most widely used econometrics package. Via Stata-8 several methods and trials have been employed. Firstly, due to availability of extra data for year 2000, a regression against just year 2000 explanatory variables have been done. By this regression, effects of some variables that are not available for each year were searched roughly. Certainly, lack of degrees of freedom for these regressions causes lack of precision in results.

After these, panel data analysis which forms the core of the empirical study of this thesis was employed. Given that data is available in panel form, there are several approaches that can be used to estimate the impact of the explanatory variables on the indicators of theft and losses. Several of these approaches are tried and their suitability to the problem at hand is discussed taking into consideration the fact that most of the variation in the dependent variables is across provinces (that is, cross-sectional) rather than across time.

The first method is the between estimator, which involves deriving averages of all variables across time for each province, and running ordinary least squares (OLS) on those averages. This allows us to focus on the main dimension of variability but of course results in a very large loss of degrees of freedom. In addition, there is a loss of efficiency because no use at all is made of variability of the data across time.

The second method is the fixed effect (or least square dummy variable) method, which controls for cross-sectional heterogeneity effectively through dummy variables for each province. The advantage of the fixed effect method is that it is not necessary to assume that the unobservable effects are uncorrelated with the idiosyncratic error term. The disadvantage is that the fixed effects remove most of the cross-sectional variability that we would actually like to explain: The fixed effect approach is analogous to doing OLS on transformed variables whereby each variable is expressed as deviations from their time-averages; hence in effect the fixed approach focuses on variability across time rather than cross-sectional variability. In addition, the fixed effect approach does not allow the use of explanatory variables (such as ownership structure of distribution facilities) that do not change across time.

The third method, the random effects approach, gets around these problems by assuming that the unobserved heterogeneity or the individual effects are random. The problem with this approach is that if the individual effects are correlated with the explanatory variables, the estimated coefficients are not consistent.

In the fourth method feasible generalized least squares (FGLS); it is assumed that heterogeneity is in the error term rather than the intercepts. FGLS estimation allows very general error structures; here it is assumed that error variances differ across each province and that there is autocorrelation which is uniform across provinces. The fifth method also uses FGLS but now includes lagged dependent variable in the explanatory variables to capture persistence. It turns out that persistence is very important. Because the FGLS approach resolves difficulties associated with both the fixed effects and random effects methods, we think they produce the most reliable results.

For the sake of completeness, we try one last approach, namely the Arellano-Bond dynamic panel data model. This method has also been developed to allow for persistence, that is, for the inclusion of lagged dependent variable as an explanatory variable in a model that also allows for individual effects. The model is estimated in first-differences, which removes the individual effects. However, the inclusion of a lagged dependent variable creates correlation between the explanatory variables and the error term, and such correlation would cause coefficient estimates to be inconsistent if OLS is used. Arellano and Bond tackle this by developing a generalized method of moments (GMM), which is an instrumental variable estimator that uses lagged values of the dependent and pre-determined variables as instruments. While this approach is useful because it captures persistence, it has the same shortcoming as the fixed effect model: as a result of first differencing, most of the cross-sectional variability that we would actually like to explain is removed from the data. Because of this reason, we treat results obtained through FGLS as the most reliable and useful results.

After performing these methods for the complete sample of provinces, it also seems interesting to examine whether the mechanism driving theft-losses in provinces with very high theft-loss ratios is different from that governing theft-losses in provinces with lower ratios. Considering this aim, all panel methods described above is going to be done for provinces with theft-loss ratio less than 30%.

It is also tried to see whether the effect of the independent variables differs across two indicators of theft- losses TLR and TLPC. Empirical analysis starts with year 2000 regression.

3.5.1. Year 2000 regression

Due to availability of more data for year 2000, it is decided to regress dependent variables against existing variables plus year 2000 available data. Additional available data consists of data for PTHSCHR, ASPHRR, RLPV, RURALPOPR, DRINKVR, INSURWPC, DUMJP, MURDERPC, INJPC, KIDNPC, ROBBPC, THEFTPC and THEFTPA variables.

When the dependent variable TLR is regressed against all these regressors using robust option which calculate robust variance estimators against heteroskedasticity problems, DEPR, PIE, THEFTPA, TUR appear significant with positive signs and INDECR, PTHSCHR, INSUREDWPC, INJPC with negative signs at 10% significance level.[15] Summary of year 2000 regression results are seen on Table 3.5 above.

Table 3.5 Summary Results for Year 2000 Regressions

	tlr	***tlpc***
gdpcr	0.047369	0.070821
agrgdpr	-0.04039	-0.37914 *
depositr	0.041686	0.036602
resecr	-0.06007	-1.10386 * *
indecr	-0.1805 *	-0.63679 * *
depr	0.750367 * *	0.85004 * *
pie	9.96E-05 * *	0.000119
trrr	0.001232	0.00168
trpgdp	-0.00438	-0.01518
pnps	-11.8321	-45.2569 *
tur	0.350263 *	1.19604 * *
lwlps	-0.6731	-1.41393
dumjp	0.011129	0.02292
pthschr	-0.39398 * *	-0.27577
asphrr	0.000263	-0.00014
ruralpopr	0.133016	0.211076
drinkvr	0.000159	0.001821
insuredwpc	-0.00048 *	-0.00062
murderpc	0.485317	1.273766
injpc	-0.11794 *	-0.1398
kidnpc	0.337132	0.51238
robbpc	-0.7954	-1.95084
theftpc	0.015393	0.022626
theftpa	0.01686 * *	0.02096
_cons	0.112357	0.435536
Observ. #	80	80

* Significant at 10%
** Significant at 5%

Since multicollinearity may be a problem causing inflated significance levels, variance inflation factors (VIF) were calculated. As seen on Table-3.6 below, highest

[15] Since, there is no reduced structural model, 10% significance level can be thought acceptable. Unless stated otherwise, 10% percent significance level is going to be used for whole paper.

variance Inflation Factor (VIF) is 6.25 belongs to INDECR. Thus, it is concluded that multicollinearity is not severe since all VIFs are less than 10.[16] (Stata, 2003)

In regression of TLPC, some variables which were significant in the regression for TLR became insignificant, and others which were insignificant become significant. AGRGDPCR, RESECR and PNPS emerge significant with negative signs, whereas PIE, THEFTPA, PTHSCHR, INSUREDWPC and INJPC loose significance. Only, INDECR, DEPR and TUR are consistently significant in both regressions. These three variables seem to have important effects on theft-losses and if they also emerge important in panel regressions they shall be taken into considerations in both tariff design and privatization concerns.

After this inspection with cross section data, it is time to put time variation in this study that is; it is going to be employed panel data analysis.

Table 3.6 Variance Inflation Factors for Year 2000 Independent Variables

Variable	VIF	1/VIF
indecr	6.25	0.159954
pthschr	5.72	0.174798
depr	5.54	0.180381
resecr	5.23	0.191301
insuredwpc	5.12	0.195142
gdpcr	4.10	0.243886
agrgdpr	4.07	0.245446
asphrr	3.54	0.282292
theftpc	3.46	0.289114
theftpa	3.20	0.312182
ruralpopr	3.17	0.315507
tur	3.16	0.316602
pnps	3.15	0.317598
depositr	2.75	0.363193
injpc	2.62	0.381688
murderpc	2.57	0.388500
drinkvr	2.56	0.391128
robbpc	2.53	0.394707
dumjp	2.03	0.491473
kidnpc	2.01	0.496621
trpgdp	1.92	0.521974
lwlps	1.81	0.551765
pie	1.72	0.580257
trrr	1.33	0.750638
Mean VIF	3.32	

[16] VIF cannot be used for panel regression. Hence, correlation matrix will be used for panel data to comment on collinearity.

3.5.2 Panel Data Analysis

As mentioned before, some data is not available for some time dimension and for some cross section dimension. Hence, it is not possible to use balanced sample for the analysis but fortunately Stata can handle unbalanced data.

In this section, four groups of regressions have been made with several panel data analysis methods mentioned before. First group regression is regressing TLR against independent variables for whole sample. In the second group regressions sample is shrunk and provinces with more than 30% TLR were dropped from the sample. Third group regression has been done with whole sample but where dependent variable is TLPC instead of TLR. Finally for group four, this dependent variable is regressed with shrunken sample as in group two regressions. In all four group regressions, between estimator, fixed effects, random effects, FGLS, FGLS with lagged dependent variable and GMM Arellano-Bond panel data analysis methods have been employed. However, before using these methods for our analysis, it should also be ensured that multicollinearity is not a serious problem.

3.5.2.1. Multicollinearity Diagnosis

Multicollinearity is a poisonous condition that occurs when there are positive correlations among independent variables. If this correlation is 1 then a regressor is a linear combination of others causing perfect multicollinearity that makes the (X'X) explanatory variables matrix singular causing impossibility to estimate parameters. If correlation coefficient is close to 1 then regressors are nearly multicollinear. In order to look at that, correlation matrix can be used. As seen in Table 3.7, generally correlation coefficients among most regressors lie in an acceptable range. However, correlation coefficient between INDECR and RESECR is 0.78 and it should not be underestimated. Therefore, Belsley, Kuh & Welsch test for multicollinearity may be employed. This test says that square root of maximum over minimum of eigenvalues of X'X matrix should be less than 30. If not, multicollinearity is severe and it needs to be combated.

When principal components analysis is made for the regressors and their eigenvalues were calculated as on Table 3.8, max eigenvalue is 3.82415 while minimum is 0.12950. Thus, applying Belsley, Kuh & Welsch test; square root of division of them is $\gamma=\sqrt{(3.82415/\ 0.12950)}= 5.4342$ which is significantly less than 30. Hence, it is concluded that collinearity is not severe.

Table 3.7 Correlation Matrix for Independent Variables

	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps
gdpcr	1											
agrgdpr	-0.6413	1										
depositr	0.2272	-0.2859	1									
resecr	-0.516	0.4551	0.0869	1								
indecr	0.6019	-0.6375	0.0254	-0.7818	1							
depr	-0.4035	0.2918	-0.2826	0.0818	-0.3868	1						
pie	0.0305	0.0117	0.0213	0.0475	-0.0655	-0.0104	1					
trrr	-0.0445	0.0059	0.0417	0.0982	-0.1111	0.0479	0.0513	1				
trpgdp	0.1342	-0.1176	0.1946	-0.1261	0.0466	0.1611	0.1209	0.1776	1			
pnps	-0.5181	0.3885	-0.3077	0.2223	-0.4098	0.5537	0.0586	0.0704	0.1013	1		
tur	0.0399	-0.1616	-0.1925	-0.3775	0.2355	0.4388	-0.0703	0.06	0.4296	0.1311	1	
lwlps	-0.3322	0.2687	-0.1758	0.2814	-0.3032	0.1722	0.1272	0.08	0.024	0.3939	-0.1022	1

Table 3.8 Principal Components for Independent Variables

(principal components; 13 components retained)

Component	Eigenvalue	Difference	Proportion	Cumulative
1	3.82415	1.80041	0.2942	0.2942
2	2.02374	0.62066	0.1557	0.4498
3	1.40308	0.30307	0.1079	0.5578
4	1.10001	0.10579	0.0846	0.6424
5	0.99422	0.18962	0.0765	0.7189
6	0.80460	0.11329	0.0619	0.7808
7	0.69131	0.12375	0.0532	0.8339
8	0.56756	0.10502	0.0437	0.8776
9	0.46255	0.04849	0.0356	0.9132
10	0.41405	0.04493	0.0319	0.9450
11	0.36912	0.15300	0.0284	0.9734
12	0.21611	0.08662	0.0166	0.9900
13	0.12950	.	0.0100	1.0000

3.5.2.2. TLR Regression for the Whole Sample

As in all four group regressions, the first method used is between estimator. Between estimator regression is actually done by taking time average of all variables and then doing regression of averaged variables. Therefore, it covers only cross sectional information. Nevertheless, since our first aim is to explain cross sectional variation across provinces it should satisfy us in terms of this aim. It should be noted that over (81 province)*(8 year) = 648 observation requirements, 43 of them do not exist because some provinces were created later than 1994.

When TLR is regressed with respect to independent variables by OLS method by employing the between estimator, four variables seem significant for this regression RESCR, DEPR, and TUR with positive and INDECR with negative sign. Summary results of TLR regressions via several panel data analysis methods for the whole sample are seen on Table 3.9 next page.

Fixed effects method tries to capture unique characteristics of each cross sectional unit which are not covered by explanatory variables.[17] Since time variation enters the models this point forward, for fixed effects, random effects, FGLS and GMM; time dummies were added for each regression causing loss of 8 degrees of freedom. Nevertheless, time dummies capture time effects and give more efficient results. When TLR is regressed against independent variables including time dummies with fixed effect, the results are very surprising as on summary Table 3.7. DEPR, TRRR and

[17] In regressing math scores of a sample of people against their education level, IQ or smartness of each person can be considered as fixed effect of each person which is a unique property of each cross-section (person) that is independent of education level.

PNPS are significant with negative signs and AGRGDPR with positive sign. Especially, negative sign of DEPR is shocking. Individual effects capture the characteristics of each province and when these characteristics are controlled by fixed effects, DEPR may loose importance and it may even reflect the revelation of an intellectual position that is inversely correlated with theft-losses.

Table-3.9 Summary of TLR Regressions Results for the Whole Sample

	between	***fixed***	***random***	***FGLS***	***FGLS-lg***	***GMM***
tlr(-1)					0.8900 **	0.4339 **
gdpcr	-0.0160	-0.0361	-0.1465 **	-0.0541 **	0.0126	-0.0332
agrgdpr	-0.0518	0.0921 **	0.0860 **	0.0367	-0.0040	0.0951 *
depositr	-0.0474	0.0364	-0.0393	-0.0479 **	0.0037	-0.0169
resecr	0.1880 *	0.0234	0.0346	0.1647 **	0.0299 *	0.0825
indecr	-0.2386 **	-0.0295	-0.1302 **	-0.0759 **	-0.0118	0.0990 **
depr	0.8111 **	-0.2113 **	0.2229 **	0.8555 **	0.0842 **	-0.1623 **
pie	0.0001	-0.0000	-0.0000	0.0000	0.0000	0.0000
trrr	0.0002	-0.0006 *	-0.0006	-0.0001	-0.0002	0.0007
trpgdp	-0.0088	-0.0045	0.0173 **	0.0097	-0.0035 *	-0.0196
pnps	-10.342	-16.425 **	4.5393	-4.4765	2.7052 *	-5.8390
tur	0.8529 **	-0.0292	0.1935 **	0.2319 **	0.0807 **	0.1320
lwlps	-0.5580	-0.0250	-0.0518	0.2104 *	0.0630	-0.0417
dumjp	-0.0104	dropped	-0.0299	0.0041	0.0020	dropped
dum94		-0.0082	-0.0141	0.0072	dropped	dropped
dum95		0.0072	0.0072	0.0202 **	0.0228 **	dropped
dum96		0.0124 *	0.0182 **	0.0289 **	0.0178 **	0.0016
dum97		0.0182 **	0.0201 **	0.0243 **	0.0174 **	0.0023
dum98		0.0116 *	0.0180 **	0.0233 **	0.0133 **	-0.0028
dum99		0.0109	0.0262 **	0.0298 **	0.0176 **	0.0100
dum00		0.0162 **	0.0147 **	0.0121 **	0.0110 **	0.0079
_cons	0.1256	0.2971 **	0.2697 **	0.1017 **	-0.0086	-0.0007
# obs	605	605	605	605	525	433

* Significant at 10%
** Significant at 5%

Random effects method also captures individual cross sectional effects but this time they are not fixed for each individual (province) rather they are random. This method is preferable to fixed effect when there is no correlation between individual effects and the regressors. As seen on Table 3.7 above, this method gives AGRGDPR, DEPR, TRPGDP and TUR as significant with positive signs and GDPCR and INDECR with negative signs.

Up to now, several methods and trials have been used for regressions but especially for panel data analysis nothing has been done against heteroskedasticity and serial correlation. FGLS corrects the residual matrix against cross sectional heteroskedasticity and first order serial correlation. If there are such problems in the regressions employed especially inefficient and misleading results may emerge.

When this method used for TLR it actually gives reasonable results that confirm a-priori expectations. FGLS says that TLR is related with RESECR, DEPR, TUR and LWLPS positively, whereas it is related with GDPCR, DEPOSITR and INDECR negatively. Actually all these conclusions can be rationalized and are in harmony with a-priori predictions.

In the regressions above, a feature of time series called persistency has not been taken into considerations. Since panel data also has time variation, persistency should be considered. Persistency means that, if a variable is high for a time period, it will also be high and relatively close to previous period value. For instance, if 1$ is 1.5 million TL today, it will be probably close to 1.5 million TL tomorrow. It is very unlikely that its value will drop to 100 TL. Similarly, if TLR is 20% this year its value will be near to 20% next year. Its value is not expected to be 5% or 50% next year. This persistency problem can be handled by adding a lagged dependent variable into independent variables. Also, with its significant level and coefficient, degree of persistency can be inspected. A-priori it is thought that persistency in TLR is more than TLPC since TLPC is multiplication of TLR and GCPC.

With regard to all these mentioned above, FGLS method will be used by adding lagged dependent variable to take persistency into considerations. As seen on the summary Table 3.7, when regression of TLR has been performed, lagged dependent variable TLR(-1), RESECR, DEPR, PNPS and TUR appear significant with positive signs, while TRPGDP seems significant with negative sign. Actually, considering persistency changes things a lot. First of all, GDPCR, LWLPS, DEPOSITR and INDECR are not significant anymore. Secondly, PNPS and TRPGDP become significant. Also, it seems that lagged dependent variable should enter the model since it has a very high z value, 45.52.

The last method that is used for the regression analysis is generalized methods of moments (GMM) estimation. This method is suggested by Arellano and Bond in 1991 (Stata, 2003). It assumes that there is no autocorrelation in residuals. Stata gives hypothesis test result for this autocorrelation. This method automatically inserts lagged dependent variables into the regressors at wished order. Hence, it is ensured that persistency is captured when Arellano-Bond is used.

When it is used to regress TLR against all regressors for all provinces in the dataset, lagged dependent variable TLR1, AGRGDPR and INDECR are significant with positive signs and DEPR with negative signs.

3.5.2.2. TLR Regression for the Shrunk Sample

What about dropping provinces with theft-losses greater than 30%? As mentioned before, from histograms and descriptive statistics it seems that the dynamics of theft and losses in these provinces are different from the rest. Actually, most of visual tools show that pair wise relations between TLR and independent variables change discontinuously at nearly 30% of theft-losses. In order to clarify this thought, provinces with excessive TLR were dropped and regressions were done for remaining cities. If the results of these regressions are consistent with previous ones using the whole sample, then it can be concluded that provinces with TLR more than 30% are not driven by a different mechanism. Summary of this group's regressions can be seen on Table 3.10 below.

Table 3.10 Summary of TLR Regressions Results for the Shrunk Sample

	between	***fixed***	***random***	***FGLS***	***FGLS-lg***	***GMM***
tlr(-1)					0.8160 * *	0.1861 *
gdpcr	-0.0402	-0.0499	-0.0243	-0.0367 *	0.0007	-0.0799
agrgdpr	-0.1364 * *	0.0809 * *	0.0293	0.0523 * *	-0.0198	0.1008 * *
depositr	-0.0004	0.0422 *	0.0398 * *	0.0320 *	0.0031	-0.0186
resecr	0.1989 * *	0.1146 * *	0.1496 * *	0.1256 * *	0.0583 * *	0.0426
indecr	-0.0650	0.0255	0.0243	0.0030	0.0036	0.0918 * *
depr	0.4021 * *	0.0121	0.0587	0.1083 * *	0.0270	0.0119
pie	0.0000	-0.0000	-0.0000	0.0000	0.0000	-0.0000
trrr	-0.0004	-0.0006 * *	-0.0006 * *	-0.0003	-0.0003	-0.0004
trpgdp	0.0102	0.0038	0.0177 * *	0.0169 * *	0.0035 *	-0.0140
pnps	1.7890	7.3686	7.3350	3.0224	2.8783 *	0.3231
tur	0.1702	-0.0923 *	-0.0634	0.0142	0.0487 *	0.0061
lwlps	0.1470	0.2315	0.2345 *	0.2914 * *	0.1868 * *	-0.0103
dumjp	0.0002	dropped	-0.0044	0.0003	0.0021	dropped
dum94		-0.0176 * *	-0.0184 * *	-0.0094	dropped	dropped
dum95		-0.0059	-0.0059	0.0025	0.0187 * *	dropped
dum96		0.0039	0.0024	0.0085	0.0150 * *	0.0070
dum97		0.0097 *	0.0086 *	0.0088 *	0.0151 * *	0.0105 * *
dum98		0.0102 *	0.0094 *	0.0117 * *	0.0159 * *	0.0090 *
dum99		0.0065	0.0054	0.0099 * *	0.0142 * *	0.0138 * *
dum00		0.0135 * *	0.0133 * *	0.0131 * *	0.0142 * *	0.0110 * *
_cons	0.1503	0.1275 * *	0.1144 * *	0.0892 * *	0.0014	0.0007
# obs	484	484	484	484	420	348

* Significant at 10%
** Significant at 5%

Between estimator gives that RESECR and DEPR are significant with positive signs as whole sample case but INDECR and TUR loose their significance and AGRGDPR becomes important with negative sign. Also, t-value of DEPR is significantly reduced although it is still significant comparing the between estimator results of previous group regressions. Probably this serious reduction causes the reduction in between R-square of the model from 0.90 to 0.56.[18] Additionally, magnitude of the coefficient of DEPR drops from 0.8s to 0.4s. These results strengthen the thoughts stating there are different mechanisms. However, coefficient of RESECR remains almost same (about 0.2) when provinces with excessive TLR are dropped.

Fixed effect method yields AGRGDPR, DEPOSITR and RESECR with positive signs and TRRR and TUR with negative ones. Only, AGRGDPR and TRRR are consistent with previous group's fixed effect regression. This supports the suggestion that different mechanism exists between two group provinces with theft-losses less (group1) and more (group2) than 30%.

Comparing fixed effect's results to those obtained from the between estimator, there are also considerable differences. DEPOSITR, TRR and TUR emerge significant additionally in fixed effect and more importantly DEPR looses its significance. This probably means that DEPR is an effect that plays a role in cross sectional variation rather than time variation since fixed effects sweep cross sectional characteristics of provinces and only considers variation in time.

As for random effects, DEPOSITR, RESECR, TRPGDP and LWLPS appear significant positively and TRRR negatively. Results changed very much comparing to between estimator and fixed effects.

When FGLS method is used to deal with first order serial correlation and heteroskedasticity, AGRGDPR, DEPOSITR, RESECR, DEPR, TRPGDP and LWLPS are seem significant with positive signs and GDPCR with negative sign. Here, only DEPOSITR and TRPGDP are difficult to defend due to their signs. Nevertheless, positive sign of DEPOSITR may be explained since Ankara and Istanbul which have relatively high theft-loss ratios among first group cities have very high DEPOSITR values that nearly seem as outliers. However, when second group cities enter the regression theft-loss ratio of Ankara and Istanbul become relatively low. Thus, DEPOSITR is not seemed significant with positive sign when all cities are taken into

[18] This t-value and R-square reduction can be seen on Appendix-C by comparing detailed outputs on Table C.3 and Table C.9.

considerations. FGLS really yields results which as similar to those obtained from the random effects method rather than the between estimator and fixed effects.

If persistency is controlled by adding TLR(-1) to the right hand side of the regression equation in FGLS method, TLR(-1), RESECR, TRPGDP, PNPS, TUR and LWLPS appear significant all with positive signs. Unlike the case without lagged dependent variable, especially GDPCR and DEPR are not significant anymore. Incorporation of persistency changes the results.

Finally, GMM Arellano-Bond method yield only TLR(-1), AGRGDPR and INDECR as significant with positive sign. Compared to the case where GMM is used over the whole sample, significance of DEPR drops. Actually for most methods, dropping group-2 provinces reduces the significance of DEPR. This may have important implications for privatization.

3.5.2.3. TLPC Regression for the Whole Sample

Same methods and procedures employed for TLR have been repeated for TLPC to check whether similar reasons are effective in determination of these different but closely related dependent variables. Actually results are not similar much to results of TLR although there are similarities as seen on table 3.11 next page.

In between estimator, for both TLR and TLPC regressions, RESECR, INDECR, DEPR and TUR seem significant but the sign of RESECR turns to negative in TLPC regression. This means that gross consumption per capita (GCPC) component of TLPC is highly and inversely correlated with RESECR and it overweighs positive correlation of RESECR with TLR component. Moreover, AGRGDPR and PNPS with negative signs emerge as significant in TLPC regression.

As for fixed effects, DEPR, TRPGDP and TUR emerge effective with positive and RESECR and PNPS with negative signs. These results dramatically differ from the TLR case.

Random effects yield DEPR, TRPGDP and TUR with positive and AGRGDPCR, RESECR, INDECR and PNPS with negative signs. TLPC regression provides much more significant variables.

FGLS regression gives GDPCR, DEPR, TRPGDP and TUR as significant with positive signs and RESECR, INDECR and PNPS with negative signs. Actually as in TLR case FGLS yields similar results as random effects. However, if persistency is taken into account by adding lagged dependent variable TLPC(-)1 in FGLS, GDPPCR, DEPR and TUR come as significant with positive signs and INDECR with negative sign. The other variables lose their significance.

Lastly, in GMM, test for no autocorrelation can be rejected for both whole and shrunk sample.[19] Hence, it is not convenient to use Arellano Bond approach for TLPC regressions.

Table 3.11 Summary of TLPC Regressions Results for the Whole Sample

	between	***fixed***	***random***	***FGLS***	***FGLS-lg***	***GMM***
tlpc(-1)					0.9236 **	0.8736 **
gdpcr	0.0271	0.0638	-0.0121	0.1266 **	0.0315 **	0.3023 **
agrgdpr	-0.2730 **	-0.0440	-0.1021 *	0.0232	-0.0073	-0.0037
depositr	-0.0176	0.0350	-0.0131	0.0254	-0.0051	-0.0113
resecr	-0.5549 **	-0.2351 **	-0.3536 **	-0.0712 *	-0.0036	0.1677
indecr	-0.4990 **	-0.0966	-0.2211 **	-0.0567 **	-0.0294 **	0.1318 *
depr	0.7188 **	0.2048 **	0.5753 **	0.6228 **	0.0985 **	-0.1368
pie	0.0001	-0.0000	-0.0000	0.0000	0.0000	0.0000
trrr	-0.0004	-0.0003	-0.0002	0.0003	-0.0002	0.0019 **
trpgdp	-0.0024	0.0414 *	0.0297 **	0.0282 **	0.0019	-0.0433 *
pnps	-34.1307 **	-21.8084 *	-15.9455 **	-10.3112 **	-0.5076	15.2888
tur	1.4887 **	0.4600 **	0.7190 **	0.5108 **	0.1808 **	0.5263 **
lwlps	-0.3181	-0.2713	-0.3329	0.1910	0.0202	0.4820
dumjp	-0.0041	dropped **	-0.0092	-0.0113	-0.0029	dropped
dum94		-0.0844 **	-0.0728 **	-0.0381 **	dropped	dropped
dum95		-0.0677 **	-0.0550 **	-0.0246 **	0.0295 **	dropped
dum96		-0.0469 **	-0.0330 **	-0.0168 **	0.0300 **	-0.0001
dum97		-0.0314 **	-0.0219 *	-0.0048	0.0344 **	0.0060
dum98		-0.0208 *	-0.0110	0.0037	0.0285 **	-0.0020
dum99		0.0002	0.0169	0.0114 *	0.0327 **	0.0106
dum00		0.0152	0.0150	0.0145 **	0.0198 **	0.0162 **
_cons	0.4688 **	0.2911 **	0.3396 **	0.0298	-0.0062	-0.0007
# obs	605	605	605	605	526	436

* Significant at 10%
** Significant at 5%

3.5.2.4. TLPC Regression for the Shrunk Sample

Final group of regressions are TLPC regressions for the shrunk sample. Summary results of them are seen on Table 3.12.

[19] Results of these autocorrelation tests can be seen in Appendix-C on tables C.20 and C.26

For the between estimator the most striking point with this regression is that GDPCR comes out significant with positive sign. This is probably due to high correlation of GCPC and GDPCR. This event may be interpreted as the poor provinces' theft costs being lower than those of the rich provinces. Another striking point is that DEPR is not significant anymore. This means that for group-1 provinces, high DEPR ratio provinces have less gross consumption and this effect eliminates the positive effect of TLR. Nevertheless, when group-2 provinces[20] added, these provinces' gross consumptions are also high enough to keep positive relations between TLPC and DEPR.

For fixed effects, GDPCR, DEPOSITR and TRPGDP are significant with positive and TRRR with negative signs. For TLPC, difference of mechanisms for different groups reveals itself, too.

Table 3.12 Summary of TLPC Regressions Results for the Shrunk Sample

	between	***fixed***	***random***	***FGLS***	***FGLS-lg***	***GMM***
tlpc(-1)					0.7687 **	0.0394
gdpcr	0.1178 **	0.1422 **	0.1422 **	0.2029 **	0.0583 **	0.1572 *
agrgdpr	-0.0872	0.0325	-0.0153	0.0126	-0.0087	0.1661 **
depositr	0.0695	0.1006 **	0.0921 **	0.0730 **	0.0156 *	0.0929 *
resecr	-0.1022	0.0151	-0.0061	0.0111	0.0082	-0.0426
indecr	-0.1228 *	0.0212	0.0263	0.0145	-0.0079	0.0621
depr	0.1321	0.0493	0.0688	0.1020 *	0.0199	0.0470
pie	0.0001	0.0000	0.0000	0.00003 **	0.0000	0.0000
trrr	-0.0005	-0.0008 **	-0.0006 *	0.0001	-0.0003	0.0001
trpgdp	0.0096	0.0346 **	0.0281 **	0.0212 **	0.0085 **	0.0228
pnps	-9.8990	-3.4052	-4.8517	-4.1893	0.2320	-14.3734
tur	0.7036 **	0.0038	0.1059 *	0.2033 **	0.1623 **	0.2244 **
lwlps	-0.0158	0.2617	0.2363	0.3608 **	0.1847 **	0.1721
dumjp	0.0046	dropped	0.0090	-0.0033	-0.0033	dropped
dum94		-0.0552 **	-0.0547 **	-0.0393 **	dropped	dropped
dum95		-0.0401 **	-0.0398 **	-0.0268 **	0.0179 **	dropped
dum96		-0.0213 **	-0.0227 **	-0.0195 **	0.0193 **	0.0068
dum97		-0.0048	-0.0070	-0.0054	0.0236 **	0.0151 **
dum98		0.0036	0.0020	0.0029	0.0254 **	0.0133 *
dum99		-0.0056	-0.0053	0.0000	0.0209 **	0.0043
dum00		0.0240 **	0.0223 **	0.0189 **	0.0208 **	0.0246 **
_cons	0.1375	0.1005 *	0.0951 **	-0.0095	-0.0129	0.0061 **
# obs	484	484	484	484	419	349

* Significant at 10%
** Significant at 5%

[20] Almost all group-2 provinces' DEPR value is so high.

Random effects also give different results. GDPCR, DEPOSITR, TRPGDP and TUR are effective on TLPC positively, whereas effect of TRRR is negative.

In FGLS method, GDPCR, DEPOSITR, DEPR, PIE, TRPGDP, TUR and LWLPS emerge positively correlated with TLPC. There is no negatively correlated variable for this regression.

Additionally, dropping excessive cities leaves TLPC(-1), GDPCR, DEPOSITR, TRPGDP, TUR and LWLPS as significant with positive signs. DEPR and PIE loose significance comparing the case that ignores persistency.

3.6. Summary and Inference

It will be useful to summarize the main results of regressions made up to now, First of all, it can be said that there is a break even point at near 30% of theft-loss ratio. This means that two different groups of cities have different factors causing theft-losses although some factors are same. The most distinguishing factor is DEPR. It is the most significant factor effecting theft-loss ratio. Nevertheless, it loses significance when high theft-loss ratio cities were dropped from the regressions. Also, removing group-2 provinces reduces explanatory power of the model. The reason is that high variance in TLR is in harmony with especially DEPR. Dropping group-2 provinces removes not only high variance in TLR but also DEPR and TUR.

Secondly, it has been found that TLR and TLPC are different although they are correlated. Significant independent variables of the regression for these two dependent variables differ sufficiently. While income does not seem significant consistently for all methods of regression of TLR[21], for TLPC it seems consistently significant but with positive sign. Hence, if the aim is to reduce costs of theft-losses, subsidies to compensate the poor do not seem to be a useful option to consider. In fact, rich provinces theft-loss costs are much higher. However, if the concern is privatization and unit costs rather than total costs, then subsidization may be considered. On the other hand, the most convenient methods of FGLS and GMM make income insignificant when persistency is captured by using lagged dependent variables.

Thirdly, some of the variables that affect TLR and TLPC are factors that can be controlled by the distribution utilities, whereas some others are not. Especially, among

[21] Income seems negatively correlated with TLR in some regressions but in others seems insignificant especially when persistence is taken into consideration.

significant factors DEPR, INDECR and RESECR, cannot be controlled by the distribution utility but TUR and LWLPS can be controlled. This observation implies an important result that it does not seem logical to place all the burden of decreasing theft-losses on privatized utilities. Especially for the second group provinces, some of the burden should be placed on the state. It seems that in these provinces, social characteristics may overweigh economic ones.

4. IMPLICATIONS FOR PRIVATIZATION AND TARIFF DESIGN

At the beginning of this section, it should be admitted that all regressions made via different methods have not produced sufficiently robust and consistent results to drive clear and definite recommendations for privatization and tariff design. Nevertheless, this does not mean that nothing is obtained from the empirical analysis employed above.

4.1. Privatization Concern

With respect to privatization, inferences should be based on empirical results pertaining to the determinants of TLR. It has been found that, factors that drive TLR for the whole sample is a bit different from those that drive TLR in the sample which includes only provinces with theft-losses less than 30%. Especially DEPR and TUR seem significant when all provinces are taken into consideration. Nevertheless, they lose importance[22] when the second group cities with high TLR are dropped from the regressions. What should be the correct comment on this situation?

It can be said that TUR and especially DEPR are most important factors that drive theft-losses in provinces with extremely high theft-losses. Actually, it is very reasonable that 50-60% theft-loss ratios that probably prevail nowhere in the world, are caused by other than economical reasons. Actually, manual check for data and scatter plot diagrams of TUR and DEPR against TLR confirm this thought. When data is searched there is no province that has TLR more than 30% and relatively low DEPR at the same time. Also, scatter plot of DEPR against TLR shows a near linear relation for cities which have TLR more than 30%. Hence, privatization of these provinces' distribution utilities may not be a good idea since the theft reasons reflected by DEPR cannot be controlled by distribution utilities. Theft-loss reasons reflected by DEPR may be habits of free electricity, opposition to and collusion against the authority. Since there had been a low intensity war in most of those provinces between 1986 and 1999, the state which is also the singe electricity supplier had been in difficulty to control those regions

[22] They become insignificant or their t-values decreases.

and also it might have condoned electricity theft. After conflict in those regions is practically over, it may be difficult to break habits of people who are get used to thieve. Strong persistence in the regressions above supports this idea. Nevertheless, if DEPR reflects opposition against the authority of the state, transferring of electricity distribution utilities to the people of these regions may alleviate the problem of high theft. Other than this, it seems hard to expect privatized utilities to be successful enough in reduction of theft-losses in those regions.

Another, important factor effecting TLR in regressions on the full sample of provinces is TUR. Nevertheless, this variable looses importance when group-2 cities dropped from the regressions meaning that it is an important factor for group-2 cities. TUR is actually a factor that can be controlled by the distribution utility. It is a measure of the electrical intensity of the physical system. High intensity inflames technical losses of the grid. Hence, it may be thought that technical losses of group-2 provinces are also higher than group-1 cities. In addition to technical loss point of view, TUR captures also physical investment level of the corresponding provinces. High TUR shows that transformers are not enough for the load of the grid meaning that physical investments are not sufficient in the corresponding city.

However, all group-2 provinces' and most group-1 provinces' distribution facilities are owned by TEDAŞ. If TUR can be controlled by the distribution company, why does it differ across provinces? What might be the reason that pulls TUR upward? Probably, the mechanism operates like this. Distribution utilities possibly setup physical capacities for the amounts that they sell officially and they do not construct capacity for theft consumption. Actually, they cannot be blamed for this behavior of no investment for no return. Nevertheless, in group-2 cities, theft is somewhat higher driven by reasons which are reflected especially by DEPR. When theft is high, net consumption ratio[23] becomes low and since physical system is constructed for net consumption, this may cause overload in the grid and high transformer utilization ratios. Therefore, as explained in technical losses part of section-2, technical losses increase. Thus, it can be said that if a distribution utility does not take this into consideration, high theft may also cause high technical losses. Furthermore, high utilization and overload on the physical system may diminish the quality of the electricity causing frequent cutoffs and voltage instabilities. These quality problems may also deter honest consumers from using grid

[23] net consumption ratio is ratio of formal consumption to electricity drawn from the grid which is net consumption plus theft-losses

electricity and direct them to search for alternatives such as using generators and natural gas. This deterrence may reduce concentration of honest consumers and leading to more theft-loss ratios. Also, some consumers may think that the utility does not payments since it does not carry out its own job well, leading to increase in theft. Lastly, overload of the system may cause more frequent breakdowns in the physical system leading the rise of maintenance costs. Regarding all these results above, if privatization is the concern, investment on the physical grid should be encouraged by the government. This may be realized by reducing costs of franchising contracts for transfer of operating rights in return of getting a guarantee from the private participants that they are going to make required investments. All the advantages of making required investments must not be sacrificed for just single shot income from franchising contracts.

Another important factor which generally seems significant is RESECR focused on. It should be noted that RESECR generally remains significant when group-2 cities have been dropped. Its relevance with TLR seems positive meaning that theft-losses increase with residential electricity usage. It is required to make reasonable explanations (and recommendations if possible) for this result.

The first comment regarding this result may be that theft associated with residential consumption is higher relative to that associated with industrial consumption.[24] Actually, INDECR also seems negatively correlated with TLR in some regressions, although not as frequently or significantly as RESECR made. This also suggests that theft is more widespread among residences than among industrial establishments. The results are consistent. However, since the dependent variable includes both theft and losses, the conclusion that "theft is more widespread in residential consumption" may be wrong. Residential consumption may be associated with theft or technical losses or both. Since residences draw electricity from low voltage lines and industry get it from high or medium voltage, technical losses inflicted by residences and consumers other than industry, is higher than technical losses generated by the consumption of industry.[25] In addition to this, industry spreads its consumption

[24] In fact, INDECR is not the exact complement of RESECR but can be thought practically so. Correlation coefficient between them is -0.78. It should be noted that exact complement variables cannot be regressed together since it causes exact multicollinearity.

[25] As explained in technical losses part of section-2, on low voltage lines technical losses are higher since current is higher when voltage is low and technical loss is proportional to square of current.

better than other types of consumers (including residences) by operating at night. Therefore, as explained in technical losses part of section-2, industrial consumption likely causes lower technical losses relative to residential consumption. Thus, to improve allocative efficiency, residences should be charged more, as is the case in all developed countries.

Still, it is not possible to reach a definite conclusion on which type of consumption involves more theft. It could be that residences thieve less than industrial establishments but lower technical losses for industry end up residence having more TLR. This means that higher technical losses dominate lower theft. The other possibility is that residences actually both thieve more and inflict more technical losses, leading to regression result. The last possibility is that theft among residential and other consumer types (especially industry) is almost equal. Since left hand side variable includes both theft and technical loss, it is very hard to determine which of the cases mentioned above is correct. If somehow TLR can be decomposed as theft ratio TR and technical loss ratio LR, more clear and definite results can be obtained. Nevertheless, it is clear that residential consumption generates more costs to the system irrespective of whether that comes from theft or technical losses. Thus, naturally provinces with high residential electricity usage ratios have higher TLR. One conclusion that can be reached is that when distribution utilities are privatized, those distribution utilities which operate in provinces with high residential usage cannot be expected to reduce TLR to the levels of more industrial cities. For instance 5% TLR of Bilecik can never be succeeded by unindustrialized cities even if theft is reduced to 0 percent.[26]

4.2. Tariff Design Concern

Unfortunately the econometric analysis does not suggest strong and unambiguous policy recommendations regarding the design of distribution and retail tariffs either. The most important explanatory variable of tariff design is income which is captured by GDPCR in regressions done above. Nevertheless, it does not show consistency across different methods used. The most convenient method used can be thought as FGLS since it takes care of both cross sectional heteroskedasticity and first order serial

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[26] Of course, if such cities get industrialized they can succeed even less percentages at least theoretically.

correlation. In this method, GDPCR seems significant with a negative sign. However, when persistency is taken into consideration by adding a lagged dependent variable to the right hand side, GDPCR becomes insignificant. Hence, although importance of GDPCR may not be directly rejected, it cannot be accepted, either. If GDPCR were determined to be significant in regression of TLR with negative sign, this might suggest that a subsidy mechanism targeting consumers could help lower theft in low income cities[27]. Nevertheless, when the left-hand side variable is TLPC, GDPCR emerges significant but with a positive sign. This means that in fact, richer provinces inflict more theft-loss cost. The reason is the gross consumption component (GCPC) of TLPC. Since TLPC is the product of TLR and GCPC, high correlation of GCPC and GDPCR makes TLPC correlated with GDPCR. Actually, this high positive correlation between GCPC and GDPCR outweighs probable negative correlation between TLR and GDPCR. The inference obtained from this observation is that, if a subsidy scheme were designed, an average person in a city with high TLR could end up getting lower subsidies than an average person on a city with TLR. Actually; an average consumer in Kocaeli which has average TLR about 12% would get more subsidies for theft-losses than an average consumer in Kars which has average TLR about 40%. However, assuming that subsidies are financed by a "tax" on consumption of electricity, the consumer in Kocaeli would pay more to the virtual subsidy pool[28] than the consumer in Kars. Nevertheless, correlations between TLR and TLPC should not be underestimated which is 0.75.[29]

As explained before in section-2, the current tariff mechanism is opaque. The costs cannot be allocated to its components. Activity segments, provinces, consumer groups, institutions and even other sectors like natural gas subsidize each other. None of these groups are burdened by their own costs.

Theoretically one can say they help each other like adjacent touching houses do against earthquake. Actually, this is the reason that the system has survived up to now. However, stickiness of houses causes some of houses to support others making the

[27] The presumption here is that negative correlation between income and theft reflects higher incentives to steal among poorer sections of society.

[28] Virtual subsidy pool can be considered as an imaginary pool that collect all funds required to finance theft-losses. Later, this imaginary pool will be concretized as theft-loss fund.

[29] It can be noted that Şırnak, Diyarbakır, Mardin and Batman are the top 4 provinces with both highest TLR and TLPC ratios.

supporter weaker. Also in such a system, when one house collapses, it pulls down the others too, due to stickiness. Moreover, free rider condition is another problem of such systems. There is no incentive to make efforts to stand alone. The others would support you. Hence, in equilibrium no one tends to make any effort and the system becomes weaker over time.

In analogy above, the aim should make each cross sectional unit (province, activity, consumer group etc) survive on its own. However, this may not be possible in some cases. For provinces with high theft-losses, surviving without other's subsidies may not be possible, for instance. In such a situation, help or subsidy mechanism should be constructed in a way that free rider problem does not emerge and incentives for cost cutting are not eliminated. In fact, this help or subsidy would be designed to make needy cross sectional units strong enough to stand alone in the future.

A stronger case for the implementation of a subsidy scheme exists: especially for those provinces where theft is high, the alternative, making tariffs completely cost-based would result in extremely high retail prices. This would be both politically infeasible and also unfair since it would penalize those consumers in those provinces who do not take part in theft activities. The current situation actually does entail subsidization but at very high efficiency cost. None of the electricity companies and none of the distribution utilities have an incentive to cut costs. This system is not compatible with privatized regional electricity distribution companies. It is clear that this system should be changed. Motivated by these concerns, as mentioned before, Electricity Market Law 2001 suggests[30] disintegration of vertical segments of electricity and separation of regions (through the establishment of regional distribution companies). Also, it calls for separation of accounts to make the mechanism transparent. Moreover, it suggests cap regulations to force companies to operate efficiently. In addition to that, if a distribution utility needs to be subsidized, it would get subsidy directly from the treasury. Cross-subsidies are prohibited by the Law, 2001. Nevertheless, if the law is applied exactly, different prices emerge due to high variability of cost especially theft-loss costs. The law's suggestion only alleviates excessive prices by direct subsidies. Regarding this point, the government prepared the strategy document on February 2004 which proposes a privatization calendar for

[30] In fact, it dictates but the government does not apply its all articles.

electricity privatization. This document states that a mechanism is going to be created in order to equalize prices over all provinces.

Based on the law and the strategy document, we can identify the characteristics of a desirable mechanism: Such a mechanism would have the following conditions

- Helping financially weak provinces[31]
- Transparency
- Incentive for efficiency and cost cutting
- Uniform prices across provinces (this is not a strong necessity rather political reasons drive it)

In addition to all these, a question may be asked. How should such a subsidization mechanism be financed? The law's suggestion is direct subsidy from the government. However, this may not be the best way of subsidization. As long as the properties identified above are observed, any other alternative can be considered.

A Treasury subsidy, that is, a direct subsidy from the budget of the central government is the most general type of subsidies. It is financed by taxes which interfere with prices of different sectors' good. Instead of this, the subsidy can be financed by a tax imposed on electricity consumption as long as the conditions above are satisfied. The question that must be asked is: which one is better? Or more clearly, which one disturbs the economy less?

Regarding this question, price elasticity of electricity demand becomes important. If this elasticity is high, raising electricity prices to finance subsidies can inflict a large reduction in consumer surplus and creates a high welfare loss in terms of allocative efficiency. People would choose to consume less than they would, if prices were not increased to finance subsidies. Hence, price elasticity of electricity demand for Turkey is needed to reach a conclusion. Fortunately, Bakirtas, Karbuz and Bildirici had made a study in 2000 about income and price elasticities of electricity demand for Turkey. This study says that prices are insignificant in electricity demand. Thus, according to their result, demand is price inelastic. We can conclude that intervening electricity prices to create funds for theft-losses do not disturb the economy very much. Setting up a theft-loss fund to finance theft losses seems better than treasury subsidy if treasury would have to raise the necessary funds to cover theft-losses from taxation of more elastic

[31] Financial weakness comes from high theft-losses. Distribution utilities in those provinces cannot cover their costs.

goods. Certainly, amount of such a subsidy from theft-loss fund should be restricted with predetermined target theft-loss ratios. Most important property of these targets is that they should be declined in time and reaches zero in the long run. Hence, subsidy diminishes to zero at the end and each distribution utility survives on its own.

5. CONCLUSION

The aim of this thesis was to clarify factors that drive high variances in electricity theft-losses across provinces in Turkey by using econometric methods of panel data analysis. After that, suggestions for transition to private participation, tariff design and, if necessary, subsidy mechanisms would be made. Nevertheless, econometric work has not produced intended results. The reason of those unintended results is not inconsistency with our a-priory expectations rather it is inconsistency among results of different methods employed. These different methods were between effects, fixed effects, random effects, Feasible Generalized Least Square (FGLS) and Arellano Bond dynamic panel data estimation (GMM). While, similarity among results of between effects, random effects and FGLS exist, fixed effect and GMM give very different results. The most suitable method seems to be FGLS for two reasons: First, since it makes correction for both serial correlation and heteroskedasticity. Second, it avoids the important consequence of both fixed effect and GMM estimation, namely that in both cases much of the cross-sectional variation is swept away. FGLS generates results which are largely consistent with a-priori expectations. Still, in the regression equation of TLR, when persistence in the dependent variable is captured by a lagged dependent variable, GDPCR looses its significance.

On the other hand, the regression equations did produce some new information. First of all, the most significant variable emerging in the empirical study is vote ratio of Hadep (DEPR) which may indicate opposition to the authority. Theft-losses are positively correlated with Hadep vote ratio. Another result is that, transformer utility ratio (TUR) is also positively correlated with theft-losses. Nevertheless, when group-2 provinces are dropped from the regressions, both DEPR and TUR loose significance or at least loose t-value even if they still remain significant.[32] This supports the idea that different mechanism drives theft-losses. It may be better to treat group-2 provinces different than other provinces. In contrast to the prevailing idea that poverty is the reason of high theft-losses in group-2 provinces, the regression results do not support

[32] In some regressions, they become insignificant and in some others they remain significant but t-values decreases.

this idea. Some other essential reasons push theft and losses up.[33] The implication is that it may not be logical to expect an economic entity (a private distribution company) to control factors that are primarily non-economic in nature.

However, this does not mean that there is nothing a private distribution company can do in those regions. TUR is intensively a control variable of the distribution utility and as mentioned earlier, high theft may increase value of this variable if sufficient investments are not made. As a chain affect, this causes high technical losses and quality reduction in electricity as well as increase in maintenance costs.

Another significant variable that affects theft-losses is residential electricity consumption ratio RESECR. In contrast to DEPR and TUR, it is generally more significant when group-2 provinces were dropped from the regressions. It seems positively correlated with theft-losses ratio meaning that theft-losses are high in provinces with intense residential usage. One of the reasons of this result is clear that technical losses are higher for residential usage since residence use low voltage lines. Nevertheless, in terms of theft, nothing can be said exactly. If our dependent variable could be decomposed as theft and technical losses, then clearer results would be said whether residences or industries thieve more.

Regarding tariff design and subsidy mechanism, GDPCR does not seem to have a significant effect on TLR, contrary to a -priori expectations. Nevertheless, it seems to have a positive and significant effect on TLPC. This is consistent with results obtained in studies which show that the wealthy steal electricity for residential, industrial and business use (BRDC, 2000).

If GDPCR had emerged as a significant factor affecting the theft-loss ratio, then it might be conceived that a direct subsidy mechanism targeted to the poor might help reduce theft. Even when GDPCR is not taken as a significant actor, however, a subsidy mechanism may still be necessary during the transition period to enhance the political feasibility of reform and reduce the extent of inter-regional disparities. Regarding the financing of such a subsidy, the study of Bakirtas, Karbuz and Bildirici, 2000 shows that the price elasticity of electricity demand in Turkey is very low (in fact, insignificant). Therefore, direct subsidy from the treasury to regions with excessive

[33] Despite relative incomes of provinces have been captured by GDPCR in regression equations, income distributions within provinces have not been captured. It may be the case that in southeastern provinces with high theft-losses, income is mostly earn by today's feudal lords and poverty prevails extensively although per capita income seems relatively moderate.

theft-losses may not be rational, because funding theft-losses with a tax on electricity prices would result in a lower reduction in consumer welfare and may be a better option. Further research is needed to reach clearer result to determine whether theft-losses should be financed by direct treasury subsidy or with electricity price increase, in the transition period towards private participation.

APPENDIX A: THE DATA SET

In Appendix A, complete data set used for empirical analysis has been given.

Table A.1 the Panel Data

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1994	**ADANA**	0.2101	0.1079	0.3714	0.2253	0.1900	0.1919	0.6429	0.0667	7.9227	79.3298	0.6028	0.0020	0.1214	0.0369	0
1994	**ADIYAMAN**	0.1415	0.0837	0.2041	0.2223	0.0936	0.2367	0.6464	0.0949	10.2948	86.0561	0.3549	0.0029	0.2671	0.0362	0
1994	**AFYON**	0.1079	0.0588	0.2114	0.3222	0.3197	0.2006	0.5585	0.0074	4.8082	78.4379	0.3929	0.0019	0.1125	0.0206	0
1994	**AĞRI**	0.3681	0.1194	0.0770	0.4471	0.0945	0.5238	0.1064	0.1795	4.0211	90.1532	0.4833	0.0034	0.1906	0.0372	0
1994	**AKSARAY**	0.1753	0.0657	0.1803	0.3691	0.5267	0.4378	0.1780	0.0128	10.5824	80.0303	0.3446	0.0033	0.1100	0.0305	0
1994	**AMASYA**	0.1716	0.1202	0.2323	0.4000	0.1707	0.2931	0.4096	0.0098	2.8329	84.9593	0.5152	0.0032	0.1249	0.0266	0
1994	**ANKARA**	0.1602	0.1768	0.5391	0.0477	0.7763	0.3635	0.2174	0.0252	88.1410	87.6008	1.8351	0.0028	0.1424	0.0108	1
1994	**ANTALYA**	0.1349	0.0956	0.4592	0.2066	0.2573	0.2587	0.3023	0.0186	31.8840	80.2602	0.4265	0.0016	0.1314	0.0522	0
1994	**ARDAHAN**			0.1047	0.5839	0.1213			0.0650	12.8589	86.9565	0.3411				0
1994	**ARTVİN**	0.1299	0.1319	0.5308	0.1708	0.0957	0.1952	0.6917	0.0147	19.0693	81.7330	0.2674	0.0027	0.1801	0.0501	0
1994	**AYDIN**	0.1766	0.1452	0.4525	0.2973	0.2224	0.4520	0.2794	0.0321	11.0737	83.6359	0.3285	0.0018	0.1001	0.0178	0
1994	**BALIKESİR**	0.1045	0.0973	0.3989	0.3233	0.2521	0.2557	0.5338	0.0103	24.6293	86.0097	0.4749	0.0013	0.1307	0.0214	0
1994	**BARTIN**	0.1402	0.1252	0.1863	0.2437	0.3551	0.2728	0.3383	0.0112	6.0517	75.5725	0.5231	0.0018	0.1751	0.0280	1
1994	**BATMAN**	0.5559	0.4288	0.2071	0.2077	0.0385	0.2371	0.1646	0.3735	16.3299	86.6035	0.3168	0.0042	0.2239	0.0327	0
1994	**BAYBURT**	0.1307	0.0352	0.1277	0.3154	0.3361	0.5411	0.0642	0.0075	25.5058	86.0294	0.3541	0.0025	0.0609	0.0444	0
1994	**BİLECİK**	0.0321	0.1002	0.6454	0.1571	0.0896	0.0642	0.8498	0.0069	8.7801	84.1691	0.2868	0.0025	0.3531		0
1994	**BİNGÖL**	0.3609	0.0734	0.0922	0.4063	0.1782	0.5449	0.0495	0.0712	91.5192	90.3226	0.3843	0.0045	0.0905	0.0396	0
1994	**BİTLİS**	0.5127	0.1418	0.0950	0.3888	0.0616	0.4546	0.0360	0.1002	1.2187	76.5281	0.3782	0.0045	0.1286	0.0339	0
1994	**BOLU**	0.1204	0.1263	0.4187	0.3355	0.1186	0.2200	0.5471	0.0100	10.9671	77.9719	0.3536	0.0021	0.1614	0.0487	1
1994	**BURDUR**	0.1561	0.0939	0.3263	0.2925	0.2312	0.3145	0.4032	0.0098	9.2100	86.7946	0.3683	0.0017	0.1196	0.0249	0
1994	**BURSA**	0.0975	0.1658	0.5212	0.1471	0.2672	0.2000	0.6593	0.0137	23.4208	86.7452	0.7992	0.0017	0.1413	0.0147	0
1994	**ÇANAKKALE**	0.0864	0.1278	0.5182	0.2857	0.1400	0.1457	0.7132	0.0087	23.8119	81.3725	0.2931	0.0018	0.1791	0.0144	0
1994	**ÇANKIRI**	0.1428	0.0487	0.1843	0.3878	0.1169	0.4455	0.2266	0.0102	4.5700	85.8628	0.3132	0.0032	0.0869	0.0216	1
1994	**ÇORUM**	0.1065	0.0577	0.2857	0.2978	0.1605	0.2939	0.5266	0.0086	10.6985	81.1903	0.2545	0.0017	0.1031	0.0039	0
1994	**DENİZLİ**	0.1085	0.1013	0.4083	0.2220	0.3486	0.2269	0.5497	0.0140	16.1692	78.5782	0.3985	0.0018	0.1277	0.0240	0
1994	**DİYARBAKIR**	0.5699	0.4008	0.2401	0.3086	0.0704	0.3223	0.3505	0.4644	24.4948	81.1770	0.2477	0.0029	0.1899	0.0206	0
1994	**DÜZCE**															1
1994	**EDİRNE**	0.1154	0.1469	0.3422	0.3027	0.2593	0.1991	0.4017	0.0083	19.7426	88.3468	0.8108	0.0015	0.1447	0.0153	1

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1994	**ELAZIĞ**	0.0871	0.1345	0.3120	0.1287	0.1626	0.1143	0.7174	0.0391	21.1844	89.4766	0.4154	0.0045	0.3195	0.0275	0
1994	**ERZİNCAN**	0.1057	0.0454	0.2049	0.3391	0.2225	0.3365	0.1708	0.0115	105.4843	78.6957	0.3623	0.0044	0.0878	0.0253	0
1994	**ERZURUM**	0.2101	0.0925	0.1653	0.2071	0.1388	0.3493	0.2139	0.0589	22.5354	81.1254	0.5376	0.0037	0.1475	0.0400	0
1994	**ESKİŞEHİR**	0.1215	0.1197	0.4279	0.1207	0.2634	0.2618	0.5153	0.0073	32.1452	77.6279	0.6208	0.0017	0.1554	0.0280	0
1994	**GAZİANTEP**	0.1231	0.1096	0.2929	0.2080	0.1794	0.2036	0.6201	0.0667	9.2772	72.0426	0.3637	0.0023	0.2056	0.0188	0
1994	**GİRESUN**	0.1176	0.0699	0.2138	0.3018	0.2841	0.1933	0.6471	0.0136	3.5390	81.9465	0.4223	0.0020	0.1375	0.0869	0
1994	**GÜMÜŞHANE**	0.1951	0.0616	0.1589	0.3086	0.1841	0.4137	0.2652	0.0104	17.2056	86.9955	0.3062	0.0034	0.0778	0.0465	0
1994	**HAKKARİ**	0.2673	0.0587	0.0709	0.3542	0.0998	0.4138	0.0760	0.5437	20.0887	84.5133	0.5414	0.0115	0.0982	0.0777	0
1994	**HATAY**	0.1641	0.0950	0.3383	0.2403	0.2038	0.1194	0.7635	0.0317	13.0160	62.7027	0.5333	0.0020	0.1955	0.0170	0
1994	**IĞDIR**		0.0000	0.1215	0.5678	0.2117			0.2171	122.4654	88.1119	0.2948			0.0148	0
1994	**ISPARTA**	0.0947	0.0829	0.2396	0.2847	0.3153	0.1866	0.5510	0.0061	34.2585	86.5513	0.5486	0.0025	0.1194	0.0255	0
1994	**İÇEL**	0.2904	0.1537	0.4653	0.1788	0.1373	0.2353	0.5195	0.0790	55.3540	84.0499	0.6116	0.0020	0.1169	0.0261	0
1994	**İSTANBUL**	0.2073	0.2360	0.5635	0.0115	0.6020	0.2904	0.4787	0.0361	27.2707	78.0788	1.8598	0.0009	0.2223	0.0059	1
1994	**İZMİR**	0.0434	0.0905	0.6441	0.0751	0.2928	0.1354	0.6891	0.0365	34.0000	87.4211	0.9252	0.0018	0.2979	0.0118	0
1994	**K.MARAŞ**	0.1146	0.0814	0.2454	0.3006	0.0893	0.1442	0.6321	0.0273	5.5640	83.8658	0.3712	0.0028	0.1846	0.0292	0
1994	**KARABÜK**								0.0076							1
1994	**KARAMAN**	0.0504	0.0280	0.4366	0.5322	0.1890	0.2783	0.3062	0.0076	31.6366	75.0427	0.1821	0.0028	0.1019	0.0185	1
1994	**KARS**	0.3104	0.2407	0.1373	0.3314	0.1908	0.3257	0.2198	0.0680	21.3588	88.3858	0.4081	0.0023	0.1920	0.0165	0
1994	**KASTAMONU**	0.0984	0.0620	0.2674	0.3014	0.1512	0.2877	0.4997	0.0124	27.3088	90.4696	0.5003	0.0031	0.0985	0.0400	0
1994	**KAYSERİ**	0.0832	0.0742	0.2654	0.1124	0.3369	0.2543	0.5671	0.0088	10.1576	80.8022	0.6286	0.0021	0.1083	0.0263	0
1994	**KIRIKKALE**	0.0629	0.0573	0.4215	0.1172	0.0749	0.1619	0.6902	0.0080	6.8609	82.4138	0.3452	0.0049	0.2490	0.0136	1
1994	**KIRKLARELİ**	0.0768	0.1476	0.5896	0.0981	0.1452	0.1321	0.7430	0.0090	13.6072	77.0677	0.3982	0.0024	0.2339	0.0148	1
1994	**KIRŞEHİR**	0.1896	0.1151	0.2291	0.2669	0.3881	0.3414	0.4848	0.0424	38.1426	69.8138	0.3688	0.0039	0.1559	0.0272	0
1994	**KİLİS**								0.0093							0
1994	**KOCAELİ**	0.0735	0.2364	1.0000	0.0293	0.0824	0.0768	0.8525	0.0264	92.9485	96.8498	2.6683	0.0015	0.3191	0.0165	1
1994	**KONYA**	0.1312	0.0707	0.2720	0.2431	0.1781	0.1344	0.7140	0.0250	16.4428	79.8018	0.4651	0.0033	0.1239	0.0268	1
1994	**KÜTAHYA**	0.0853	0.0602	0.3645	0.1699	0.1536	0.2431	0.6087	0.0091	13.5237	89.1994	0.6529	0.0018	0.1296	0.0250	0
1994	**MALATYA**	0.1424	0.0986	0.3044	0.1813	0.1487	0.3081	0.4799	0.0287	41.6868	75.9539	0.3123	0.0026	0.1393	0.0424	0
1994	**MANİSA**	0.0962	0.0760	0.4927	0.2436	0.1434	0.2486	0.4640	0.0232	11.0924	86.3694	0.3170	0.0015	0.1474	0.0229	0
1994	**MARDİN**	0.4978	0.4017	0.1703	0.3703	0.0590	0.1623	0.3175	0.2201	7.8449	80.4348	0.2436	0.0033	0.2801	0.0239	0
1994	**MUĞLA**	0.1467	0.1660	0.5384	0.3097	0.2048	0.2431	0.3415	0.0137	99.8882	83.8332	0.3955	0.0017	0.1039	0.0894	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1994	**MUŞ**	0.5213	0.1378	0.0882	0.5252	0.0762	0.4159	0.1338	0.1675	1.5960	86.5443	0.3193	0.0031	0.1349		0
1994	**NEVŞEHİR**	0.1421	0.1377	0.4258	0.3218	0.2275	0.1902	0.2275	0.0090	9.4583	82.6033	0.2107	0.0029	0.0906	0.0208	0
1994	**NİĞDE**	0.0903	0.0819	0.2848	0.4228	0.1375	0.1306	0.5199	0.0079	9.3184	84.6680	0.3858	0.0035	0.1644	0.0308	0
1994	**ORDU**	0.2197	0.0964	0.1855	0.3318	0.2096	0.5874	0.2073	0.0146	5.7582	80.7860	0.3667	0.0020	0.1670	0.0450	0
1994	**OSMANİYE**															0
1994	**RİZE**	0.1648	0.1369	0.3463	0.2693	0.1329	0.3347	0.4030	0.0090	9.6072	67.8621	0.5337	0.0019	0.1446	0.0401	0
1994	**SAKARYA**	0.0970	0.0869	0.3311	0.2494	0.1802	0.2258	0.5351	0.0123	10.8950	73.0154	0.4059	0.0026	0.1997	0.0167	1
1994	**SAMSUN**	0.1633	0.1092	0.2850	0.2531	0.2204	0.3667	0.4348	0.0101	22.4235	83.5252	0.5517	0.0025	0.1427	0.0302	0
1994	**SİİRT**	0.4395	0.4749	0.1765	0.2718	0.0477	0.1835	0.4094	0.2667	6.1474	84.8387	0.2368	0.0027	0.1629	0.0598	0
1994	**SİNOP**	0.2046	0.1017	0.2241	0.2843	0.2598	0.4958	0.2738	0.0180	32.3235	86.6184	0.3466	0.0024	0.0994	0.0526	0
1994	**SİVAS**	0.0803	0.0509	0.2203	0.1670	0.2835	0.2333	0.5982	0.0121	32.0898	56.5117	0.3566	0.0026	0.1224	0.0266	0
1994	**ŞANLIURFA**	0.4215	0.3825	0.2018	0.4238	0.0550	0.2037	0.3370	0.1375	52.7508	87.0445	0.0366	0.0019	0.2506	0.0084	0
1994	**ŞIRNAK**		0.0000	0.0845	0.5813	0.0864			0.2595	7.3267	86.4945	5.5858				0
1994	**TEKİRDAĞ**	0.1040	0.1961	0.4908	0.1909	0.2467	0.1562	0.7067	0.0104	38.0516	82.2700	0.1745	0.0014	0.2242	0.0109	1
1994	**TOKAT**	0.1496	0.0538	0.2337	0.2436	0.0982	0.3645	0.4196	0.0072	5.6252	84.7969	0.5985	0.0026	0.1222	0.0266	0
1994	**TRABZON**	0.1856	0.1014	0.2550	0.3522	0.2903	0.4167	0.3052	0.0081	14.7061	89.7561	0.0366	0.0030	0.1361	0.0413	0
1994	**TUNCELİ**	0.2600	0.0557	0.1684	0.4712	0.2437	0.4690	0.0759	0.1698	40.7190	80.6522	2.2890	0.0055	0.0534	0.0454	0
1994	**UŞAK**	0.0599	0.0545	0.2887	0.2918	0.5092	0.2311	0.5774	0.0104	7.4046	86.8881	0.4569	0.0018	0.1433	0.0235	0
1994	**VAN**	0.4802	0.2069	0.1271	0.1976	0.0734	0.4020	0.2621	0.2774	16.9704	85.4562	0.4227	0.0042	0.1715	0.0662	0
1994	**YALOVA**								0.0284							0
1994	**YOZGAT**	0.0746	0.0324	0.1824	0.4034	0.2923	0.3146	0.4331	0.0105	14.3521	85.6354	0.2844	0.0023	0.1122	0.0187	0
1994	**ZONGULDAK**	0.1083	0.1199	0.3422	0.0842	0.2105	0.1008	0.8461	0.0092	24.1089	68.8922	0.8054	0.0023	0.2482	0.0192	1
1995	**ADANA**	0.2115	0.1127	0.3831	0.2102	0.1900	0.1938	0.6278	0.0667	10.3005	82.8690	0.6035	0.0018	0.1234	0.0369	0
1995	**ADIYAMAN**	0.1127	0.0771	0.1958	0.2247	0.0936	0.1189	0.6364	0.0949	12.1136	87.4800	0.3186	0.0028	0.1517	0.0362	0
1995	**AFYON**	0.0941	0.0530	0.2097	0.3184	0.3197	0.2008	0.5056	0.0074	7.0972	78.2893	0.3513		0.1124	0.0206	0
1995	**AĞRI**	0.5238	0.1905	0.0716	0.5777	0.0945	0.5281	0.0361	0.1795	6.6097	92.0676	0.5015	0.0032	0.1294	0.0372	0
1995	**AKSARAY**	0.1716	0.0669	0.1833	0.3846	0.5267	0.4124	0.1166	0.0128	7.7478	83.0932	0.3034	0.0031	0.0805	0.0305	0
1995	**AMASYA**	0.1728	0.1313	0.2365	0.3914	0.1707	0.3040	0.3716	0.0098	4.8608	89.1839	0.4996	0.0030	0.1298	0.0266	0
1995	**ANKARA**	0.1911	0.2254	0.5506	0.0457	0.7763	0.3328	0.2365	0.0252	85.1604	91.4084	1.6730	0.0025	0.1460	0.0108	1
1995	**ANTALYA**	0.1103	0.0846	0.4625	0.1908	0.2573	0.2639	0.3291	0.0186	24.3854	84.8977	0.4123	0.0015	0.0823	0.0522	0
1995	**ARDAHAN**			0.1103	0.7665	0.1213			0.0650	11.2517	88.8350	0.3067				0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1995	**ARTVİN**	0.1636	0.1595	0.5261	0.1759	0.0957	0.2208	0.6509	0.0147	19.1962	82.4159	0.2404	0.0024	0.1726	0.0501	0
1995	**AYDIN**	0.1715	0.1513	0.4560	0.2698	0.2224	0.3939	0.3439	0.0321	17.9733	87.1963	0.3210	0.0016	0.1031	0.0178	0
1995	**BALIKESİR**	0.0910	0.0971	0.3946	0.2955	0.2521	0.2672	0.5245	0.0103	29.8210	90.0671	0.5184	0.0012	0.1386	0.0214	0
1995	**BARTIN**	0.0499	0.0419	0.1951	0.2834	0.3551	0.2647	0.3757	0.0112	10.6110	83.0700	0.4220	0.0017	0.1498	0.0280	1
1995	**BATMAN**	0.5726	0.5062	0.2018	0.2054	0.0385	0.2292	0.4297	0.3735	28.2692	85.5908	0.2438	0.0041	0.2437	0.0327	0
1995	**BAYBURT**	0.1566	0.0457	0.1273	0.4202	0.3361	0.5403	0.0574	0.0075	39.3989	86.4322	0.3016	0.0026	0.0542	0.0444	0
1995	**BİLECİK**	0.0341	0.1149	0.7316	0.1372	0.0896	0.0611	0.8738	0.0069	19.0718	85.4326	0.2564	0.0022	0.2080		0
1995	**BİNGÖL**	0.3622	0.0869	0.0877	0.5158	0.1782	0.4675	0.0402	0.0712	212.0621	92.9539	0.3467	0.0043	0.1077	0.0396	0
1995	**BİTLİS**	0.5399	0.1562	0.0885	0.4113	0.0616	0.4353	0.0332	0.1002	3.5938	77.0723	0.3140	0.0044	0.1332	0.0339	0
1995	**BOLU**	0.1029	0.1152	0.4126	0.3156	0.1186	0.2003	0.5544	0.0100	13.7070	83.0110	0.3507	0.0019	0.1725	0.0487	1
1995	**BURDUR**	0.1679	0.1051	0.3315	0.2957	0.2312	0.3283	0.3196	0.0098	11.0356	89.1245	0.3435	0.0016	0.1187	0.0249	0
1995	**BURSA**	0.0765	0.1424	0.5254	0.1311	0.2672	0.1443	0.7100	0.0137	29.3112	90.6829	0.8440	0.0016	0.1583	0.0147	0
1995	**ÇANAKKALE**	0.0842	0.1415	0.5452	0.2741	0.1400	0.1411	0.7226	0.0087	34.7407	82.3271	0.2644	0.0016	0.1904	0.0144	0
1995	**ÇANKIRI**	0.1671	0.0639	0.1816	0.4215	0.1169	0.3682	0.2915	0.0102	4.9401	89.8698	0.2655	0.0031	0.0911	0.0216	1
1995	**ÇORUM**	0.1270	0.0745	0.2902	0.2889	0.1605	0.3230	0.5242	0.0086	11.8872	84.3928	0.2432	0.0016	0.1063	0.0039	0
1995	**DENİZLİ**	0.0923	0.0926	0.4236	0.2007	0.3486	0.2117	0.5588	0.0140	23.0394	81.8123	0.4077	0.0016	0.1319	0.0240	0
1995	**DİYARBAKIR**	0.5858	0.5456	0.2294	0.3082	0.0704	0.3038	0.2357	0.4644	59.4541	82.2242	0.2144	0.0025	0.2144	0.0206	0
1995	**DÜZCE**															1
1995	**EDİRNE**	0.0913	0.1250	0.3381	0.3155	0.2593	0.1829	0.4343	0.0083	11.1281	88.3109	0.8864	0.0012	0.1600	0.0153	1
1995	**ELAZIĞ**	0.1174	0.1747	0.2984	0.1473	0.1626	0.1332	0.7024	0.0391	32.6516	92.4571	0.3642	0.0043	0.2368	0.0275	0
1995	**ERZİNCAN**	0.1379	0.0637	0.1924	0.3941	0.2225	0.3548	0.1715	0.0115	265.1022	78.3378	0.3561	0.0042	0.0843	0.0253	0
1995	**ERZURUM**	0.2704	0.1283	0.1521	0.2632	0.1388	0.3212	0.1982	0.0589	19.5662	85.5794	0.5379	0.0035	0.1346	0.0400	0
1995	**ESKİŞEHİR**	0.1557	0.1633	0.4170	0.1214	0.2634	0.2474	0.5453	0.0073	33.9584	81.0643	0.6400	0.0016	0.1462	0.0280	0
1995	**GAZİANTEP**	0.1344	0.1359	0.3033	0.1857	0.1794	0.1950	0.6559	0.0667	9.2518	78.7157	0.3425	0.0020	0.1928	0.0188	0
1995	**GİRESUN**	0.1218	0.0808	0.2141	0.2636	0.2841	0.2823	0.5466	0.0136	3.3850	88.4525	0.4047	0.0019	0.1449	0.0869	0
1995	**GÜMÜŞHANE**	0.2139	0.0741	0.1585	0.3558	0.1841	0.3929	0.3173	0.0104	24.8353	89.6657	0.2676	0.0032	0.0827	0.0465	0
1995	**HAKKARİ**	0.6577	0.2899	0.0709	0.5495	0.0998	0.3352	0.0034	0.5437	19.0930	77.7429	0.3815	0.0087	0.1580	0.0777	0
1995	**HATAY**	0.1941	0.1184	0.3424	0.2153	0.2038	0.0984	0.7964	0.0317	9.5164	69.5702	0.5284	0.0019	0.1159	0.0170	0
1995	**IĞDIR**	0.5232	0.2125	0.1227	0.6200	0.2117	0.5145	0.0615	0.2171	163.4595	90.9804	0.3060	0.0031	0.1361	0.0148	0
1995	**ISPARTA**	0.0888	0.0837	0.2344	0.2877	0.3153	0.1725	0.5822	0.0061	36.8664	87.8492	0.4986	0.0023	0.1225	0.0255	0
1995	**İÇEL**	0.2939	0.1602	0.4501	0.1621	0.1373	0.2258	0.4968	0.0790	30.8053	88.7724	0.6634	0.0018	0.1270	0.0261	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1995	**İSTANBUL**	0.2465	0.3113	0.6062	0.0129	0.6020	0.2691	0.5189	0.0361	22.0129	79.8085	1.7464	0.0008	0.1980	0.0059	1
1995	**İZMİR**	0.0544	0.1167	0.6448	0.0676	0.2928	0.1250	0.7058	0.0365	34.8199	90.9408	1.0269	0.0017	0.2279	0.0118	0
1995	**K.MARAŞ**	0.1112	0.0924	0.2524	0.2898	0.0893	0.1682	0.5940	0.0273	8.8807	86.2144	0.3383	0.0026	0.1807	0.0292	0
1995	**KARABÜK**								0.0076		53.0047					1
1995	**KARAMAN**	0.0708	0.0436	0.4404	0.5079	0.1890	0.2626	0.3078	0.0076	64.8117	75.6513	0.1743	0.0025	0.0959	0.0185	1
1995	**KARS**	0.5212	0.3503	0.1269	0.4129	0.1908	0.2999	0.3478	0.0680	21.0718	84.4173	0.3479	0.0037	0.2308	0.0165	0
1995	**KASTAMONU**	0.1324	0.0899	0.2790	0.3182	0.1512	0.2955	0.4755	0.0124	26.0366	90.7616	0.4235	0.0031	0.0915	0.0400	0
1995	**KAYSERİ**	0.0791	0.0739	0.2688	0.1151	0.3369	0.2501	0.5754	0.0088	8.2694	87.0362	0.6621	0.0021	0.1094	0.0263	0
1995	**KIRIKKALE**	0.0873	0.0784	0.4569	0.1163	0.0749	0.2132	0.5824	0.0080	34.6161	90.3059	0.2940	0.0046	0.2072	0.0136	1
1995	**KIRKLARELİ**	0.0939	0.2049	0.6443	0.1031	0.1452	0.1165	0.7753	0.0090	24.2819	86.7461	0.4000	0.0019	0.2578	0.0148	1
1995	**KIRŞEHİR**	0.1917	0.1257	0.2367	0.2905	0.3881	0.3392	0.4231	0.0424	32.5972	71.5412	0.3161	0.0037	0.1420	0.0272	0
1995	**KİLİS**								0.0093		93.6434					0
1995	**KOCAELİ**	0.0982	0.2635	1.0000	0.0266	0.0824	0.0680	0.8710	0.0264	216.6241	97.5549	3.0766	0.0019	0.3761	0.0165	1
1995	**KONYA**	0.1155	0.0661	0.2673	0.2536	0.1781	0.1474	0.6863	0.0250	15.4564	80.8560	0.3957	0.0030	0.1239	0.0268	1
1995	**KÜTAHYA**	0.1158	0.0860	0.3538	0.1805	0.1536	0.2297	0.6203	0.0091	11.0896	86.2888	0.5896	0.0016	0.1360	0.0250	0
1995	**MALATYA**	0.1697	0.1267	0.2965	0.1811	0.1487	0.2838	0.4866	0.0287	46.2524	72.4745	0.2663	0.0025	0.1566	0.0424	0
1995	**MANİSA**	0.1063	0.0921	0.5010	0.2204	0.1434	0.2368	0.4940	0.0232	21.4871	85.0970	0.2987	0.0015	0.1416	0.0229	0
1995	**MARDİN**	0.6062	0.5676	0.1708	0.3678	0.0590	0.1861	0.3838	0.2201	3.7957	84.3674	0.2204	0.0031	0.2846	0.0239	0
1995	**MUĞLA**	0.1611	0.1989	0.5469	0.2684	0.2048	0.2410	0.3147	0.0137	41.0873	87.3538	0.3630	0.0015	0.0531	0.0894	0
1995	**MUŞ**	0.4797	0.1621	0.0823	0.5876	0.0762	0.3876	0.0399	0.1675	8.6828	85.1626	0.2809	0.0031	0.1563		0
1995	**NEVŞEHİR**	0.1026	0.1047	0.4246	0.2953	0.2275	0.1722	0.2024	0.0090	2.8457	84.6094	0.1962	0.0026	0.0802	0.0208	0
1995	**NİĞDE**	0.1000	0.0971	0.2859	0.3799	0.1375	0.1124	0.4945	0.0079	15.0361	88.2650	0.3882	0.0032	0.0984	0.0308	0
1995	**ORDU**	0.1014	0.0429	0.1866	0.2897	0.2096	0.4110	0.3559	0.0146	4.5103	88.2848	0.3399	0.0018	0.1085	0.0450	0
1995	**OSMANİYE**															0
1995	**RİZE**	0.1742	0.1669	0.3413	0.2343	0.1329	0.3013	0.4489	0.0090	10.2618	65.1978	0.4600	0.0016	0.1591	0.0401	0
1995	**SAKARYA**	0.1869	0.1575	0.3684	0.2313	0.1802	0.3083	0.3810	0.0123	11.8334	77.1624	0.3524	0.0023	0.1656	0.0167	1
1995	**SAMSUN**	0.2106	0.1478	0.2983	0.2334	0.2204	0.3833	0.3974	0.0101	40.7078	87.7265	0.5268	0.0022	0.1320	0.0302	0
1995	**SİİRT**	0.2836	0.2026	0.1635	0.3126	0.0477	0.1731	0.5349	0.2667	6.1622	84.8416	0.2035	0.0045	0.2142	0.0598	0
1995	**SİNOP**	0.2152	0.1106	0.2235	0.2975	0.2598	0.4690	0.2777	0.0180	38.1962	91.1800	0.3183	0.0023	0.0880	0.0526	0
1995	**SİVAS**	0.0737	0.0617	0.2153	0.1985	0.2835	0.1847	0.6731	0.0121	23.2406	62.5922	0.3655	0.0021	0.1401	0.0266	0
1995	**ŞANLIURFA**	0.4246	0.4516	0.1794	0.4646	0.0550	0.1719	0.1968	0.1375	53.3720	88.5886	0.0306	0.0018	0.2137	0.0084	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1995	**ŞIRNAK**		0.0000	0.0866	0.5920	0.0864			0.2595	7.4382	89.4745	5.1940				0
1995	**TEKİRDAĞ**	0.0760	0.1572	0.5124	0.1842	0.2467	0.1358	0.6940	0.0104	27.3593	84.3015	0.1448	0.0010	0.2501	0.0109	1
1995	**TOKAT**	0.1601	0.0593	0.2266	0.2618	0.0982	0.4519	0.3140	0.0072	3.4275	84.3293	0.5528	0.0024	0.1185	0.0266	0
1995	**TRABZON**	0.2130	0.1197	0.2589	0.2596	0.2903	0.4146	0.3158	0.0081	18.8167	92.2034	0.0299	0.0027	0.2328	0.0413	0
1995	**TUNCELİ**	0.2597	0.0956	0.1498	0.4953	0.2437	0.3800	0.0753	0.1698	75.3496	85.4404	2.2475	0.0049	0.0872	0.0454	0
1995	**UŞAK**	0.0975	0.1033	0.2961	0.2972	0.5092	0.2171	0.6123	0.0104	3.8044	91.0448	0.4093	0.0017	0.1479	0.0235	0
1995	**VAN**	0.4897	0.2151	0.1151	0.2891	0.0734	0.3581	0.2112	0.2774	18.3666	83.2363	0.3860	0.0039	0.1614	0.0662	0
1995	**YALOVA**								0.0284		90.5346					0
1995	**YOZGAT**	0.0982	0.0454	0.1774	0.4359	0.2923	0.2897	0.4560	0.0105	11.2467	87.2549	0.2433	0.0020	0.1204	0.0187	0
1995	**ZONGULDAK**	0.1409	0.1544	0.3320	0.0999	0.2105	0.1115	0.7518	0.0092	14.4525	82.6854	0.7156	0.0020	0.2323	0.0192	1
1996	**ADANA**	0.2161	0.1121	0.4171	0.2026	0.1864	0.1767	0.6357	0.0667	11.4755	84.3985	0.5360	0.0019	0.1023	0.0303	0
1996	**ADIYAMAN**	0.1562	0.1195	0.1920	0.2197	0.1038	0.1946	0.6507	0.0949	13.2644	84.3077	0.2199	0.0024	0.1916	0.0341	0
1996	**AFYON**	0.0957	0.0569	0.2245	0.3114	0.3158	0.2180	0.4661	0.0074	15.5214	78.5222	0.3228	0.0016	0.1090	0.0209	0
1996	**AĞRI**	0.5899	0.2308	0.0758	0.4366	0.1095	0.5843	0.0451	0.1795	11.4333	91.6996	0.4058	0.0030	0.1388	0.0354	0
1996	**AKSARAY**	0.1647	0.0749	0.1965	0.3427	0.4918	0.4180	0.1091	0.0128	13.0075	86.7940	0.3558	0.0030	0.0882	0.0263	0
1996	**AMASYA**	0.1929	0.1628	0.2444	0.3474	0.2005	0.2991	0.3461	0.0098	8.1765	87.9352	0.4017	0.0029	0.1364	0.0265	0
1996	**ANKARA**	0.2093	0.2619	0.5567	0.0438	1.0564	0.3568	0.2595	0.0252	94.7376	91.9463	1.5429	0.0024	0.1310	0.0106	1
1996	**ANTALYA**	0.0902	0.0776	0.4800	0.1934	0.2946	0.2502	0.2643	0.0186	36.3684	85.5393	0.4187	0.0014	0.0863	0.0513	0
1996	**ARDAHAN**	0.4694	0.1958	0.1287	0.5426	0.1630	0.6159	0.0282	0.0650	8.5000	90.0922	0.3188	0.0020	0.1771	0.0266	0
1996	**ARTVİN**	0.1634	0.1815	0.5565	0.1805	0.1065	0.2137	0.6561	0.0147	83.9455	83.9801	0.2113	0.0024	0.1664	0.0491	0
1996	**AYDIN**	0.1393	0.1358	0.4814	0.2953	0.2526	0.3208	0.2704	0.0321	20.8674	88.2675	0.3074	0.0015	0.1033	0.0205	0
1996	**BALIKESİR**	0.0953	0.1035	0.4119	0.3124	0.2781	0.2416	0.5039	0.0103	46.8420	90.0656	0.4803	0.0011	0.1407	0.0230	0
1996	**BARTIN**	0.1426	0.1230	0.1669	0.3024	0.3887	0.3227	0.5014	0.0112	21.9251	88.1238	0.4901	0.0014	0.1239	0.0250	1
1996	**BATMAN**	0.5701	0.5651	0.2155	0.1796	0.0436	0.2044	0.4625	0.3735	9.5587	85.6578	0.1994	0.0039	0.2138	0.0312	0
1996	**BAYBURT**	0.1435	0.0433	0.1294	0.2721	0.3222	0.5521	0.0658	0.0075	48.0312	90.2375	0.3086	0.0024	0.0732	0.0458	0
1996	**BİLECİK**	0.0398	0.1397	0.7684	0.1372	0.1026	0.0475	0.8896	0.0069	48.1722	82.7795	0.2431	0.0021	0.2165	0.0157	0
1996	**BİNGÖL**	0.3246	0.0849	0.1026	0.2346	0.1749	0.4786	0.0441	0.0712	350.8776	92.1875	0.3226	0.0040	0.1084	0.0381	0
1996	**BİTLİS**	0.4389	0.1290	0.0948	0.3175	0.0771	0.4271	0.0247	0.1002	5.3935	80.0412	0.2695	0.0040	0.1311	0.0325	0
1996	**BOLU**	0.1278	0.1598	0.4134	0.2758	0.1397	0.1947	0.5925	0.0100	24.0021	88.6424	0.3737	0.0018	0.1331	0.0334	1
1996	**BURDUR**	0.1787	0.1259	0.3696	0.2519	0.2391	0.3367	0.3286	0.0098	17.9611	88.2913	0.3007	0.0016	0.1155	0.0282	0
1996	**BURSA**	0.1110	0.2318	0.5410	0.1418	0.3043	0.1488	0.7182	0.0137	79.1622	90.7137	0.7874	0.0015	0.1253	0.0126	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1996	**ÇANAKKALE**	0.0724	0.1287	0.5662	0.2778	0.1702	0.1399	0.7161	0.0087	58.0956	86.1938	0.2801	0.0015	0.1857	0.0147	0
1996	**ÇANKIRI**	0.1245	0.0528	0.2009	0.3641	0.1452	0.3643	0.3078	0.0102	14.1881	88.7689	0.2740	0.0027	0.0870	0.0183	1
1996	**ÇORUM**	0.0628	0.0388	0.3169	0.2782	0.1677	0.3302	0.4662	0.0086	25.5605	86.4951	0.2339	0.0015	0.0885	0.0279	0
1996	**DENİZLİ**	0.1199	0.1484	0.4575	0.2022	0.3585	0.2057	0.5792	0.0140	26.6234	81.5851	0.3841	0.0015	0.1529	0.0230	0
1996	**DİYARBAKIR**	0.6150	0.5694	0.2314	0.2918	0.0824	0.3043	0.2059	0.4644	60.5942	82.1994	0.1871	0.0027	0.2034	0.0152	0
1996	**DÜZCE**															1
1996	**EDİRNE**	0.0912	0.1367	0.3558	0.2970	0.3005	0.1671	0.5229	0.0083	24.5460	90.3149	0.8280	0.0011	0.1901	0.0159	1
1996	**ELAZIĞ**	0.1105	0.1823	0.3104	0.1438	0.1724	0.1368	0.6820	0.0391	32.1452	93.7951	0.3249	0.0041	0.3004	0.0277	0
1996	**ERZİNCAN**	0.1359	0.0651	0.1993	0.3534	0.2212	0.3600	0.1205	0.0115	28.8210	81.2500	0.3311	0.0040	0.0858	0.0265	0
1996	**ERZURUM**	0.2478	0.1286	0.1582	0.2100	0.1513	0.3649	0.1770	0.0589	31.7144	85.9049	0.4629	0.0034	0.1366	0.0134	0
1996	**ESKİŞEHİR**	0.1701	0.1911	0.4456	0.1598	0.3128	0.2351	0.5604	0.0073	42.2725	85.2054	0.5951	0.0021	0.1462	0.0382	0
1996	**GAZİANTEP**		0.0000	0.3318	0.1497	0.1984			0.0667	14.8307	86.7698	0.3857				0
1996	**GİRESUN**	0.0835	0.0476	0.2290	0.2964	0.2894	0.4312	0.3127	0.0136	5.2729	89.1138	0.3859	0.0016	0.1178	0.0796	0
1996	**GÜMÜŞHANE**	0.2285	0.0823	0.1748	0.2723	0.1869	0.4344	0.2728	0.0104	44.0875	91.2000	0.2518	0.0037	0.0807	0.0447	0
1996	**HAKKARİ**		0.0000	0.0614	0.2480	0.1212			0.5437	25.9013	85.9310	0.5578				0
1996	**HATAY**	0.1867	0.1236	0.3565	0.2105	0.2315	0.1128	0.7999	0.0317	13.7403	77.5200	0.5806	0.0018	0.1428	0.0186	0
1996	**IĞDIR**	0.5320	0.2485	0.1427	0.4401	0.2059	0.5281	0.0603	0.2171	118.4682	88.8508	0.3073	0.0033	0.1518	0.0145	0
1996	**ISPARTA**	0.0724	0.0755	0.2454	0.2946	0.3386	0.1664	0.5836	0.0061	45.1121	91.6741	0.4975	0.0021	0.1336	0.0267	0
1996	**İÇEL**	0.3463	0.2041	0.4297	0.1993	0.1774	0.2317	0.5285	0.0790	56.1375	90.3239	0.6345	0.0020	0.1576	0.0283	0
1996	**İSTANBUL**	0.2059	0.2810	0.6418	0.0084	0.7771	0.2912	0.4136	0.0361	29.6860	83.0629	1.6838	0.0006	0.2367	0.0051	1
1996	**İZMİR**	0.0804	0.1694	0.6734	0.0725	0.3459	0.1486	0.6769	0.0365	42.5388	91.3926	1.0271	0.0016	0.2722	0.0107	0
1996	**K.MARAŞ**	0.1737	0.1909	0.2678	0.2777	0.0990	0.1489	0.6179	0.0273	18.2224	87.0315	0.2984	0.0025	0.2160	0.0293	0
1996	**KARABÜK**			0.7070	0.0467	0.2565			0.0076	7.4139	64.7036	0.2255				1
1996	**KARAMAN**	0.0737	0.0517	0.4910	0.5611	0.1787	0.2558	0.3256	0.0076	76.4846	73.4945	0.1888	0.0021	0.1038	0.0187	1
1996	**KARS**	0.4674	0.3013	0.1356	0.3232	0.2364	0.2859	0.3644	0.0680	22.2930	84.2351	0.3619	0.0039	0.2461	0.0180	0
1996	**KASTAMONU**	0.1165	0.0918	0.3108	0.2960	0.1680	0.2830	0.4736	0.0124	80.9135	90.2124	0.3777	0.0028	0.1133	0.0387	0
1996	**KAYSERİ**	0.0878	0.0976	0.2898	0.1019	0.3372	0.2274	0.6079	0.0088	11.3348	88.1286	0.6042	0.0023	0.1210	0.0262	0
1996	**KIRIKKALE**	0.1089	0.0908	0.5278	0.1047	0.0699	0.1484	0.6813	0.0080	101.4957	93.7798	0.4299	0.0044	0.1791	0.0136	1
1996	**KIRKLARELİ**	0.1104	0.2705	0.6698	0.0962	0.1765	0.1101	0.7773	0.0090	29.2380	88.7456	0.4476	0.0017	0.2346	0.0137	1
1996	**KIRŞEHİR**	0.2002	0.1451	0.2725	0.2680	0.3369	0.3218	0.4384	0.0424	26.9896	80.0847	0.3030	0.0035	0.1356	0.0236	0
1996	**KİLİS**	0.3500	0.1091	0.3281	0.5130	0.0617	0.5363	0.1242	0.0093	6.9057	90.4206	0.1804	0.0009	0.0850	0.0155	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1996	**KOCAELİ**	0.1225	0.3482	1.0000	0.0317	0.1216	0.0684	0.8736	0.0264	112.9154	98.3109	4.0424	0.0018	0.3488	0.0171	1
1996	**KONYA**	0.1398	0.0889	0.2857	0.2476	0.1814	0.1329	0.7340	0.0250	22.0407	81.7567	0.3508	0.0029	0.1260	0.0266	1
1996	**KÜTAHYA**	0.0984	0.0816	0.3978	0.1572	0.1413	0.2263	0.6123	0.0091	21.0389	91.2564	0.4179	0.0015	0.1497	0.0237	0
1996	**MALATYA**	0.1592	0.1307	0.3004	0.2165	0.1763	0.2612	0.5125	0.0287	53.3852	73.3595	0.2616	0.0023	0.1655	0.0414	0
1996	**MANİSA**	0.1158	0.1133	0.5345	0.2523	0.1634	0.2272	0.5120	0.0232	12.1449	88.4892	0.2727	0.0013	0.1495	0.0190	0
1996	**MARDİN**	0.5466	0.7564	0.1837	0.3382	0.0652	0.2008	0.2318	0.2201	2.8940	78.2609	0.1710	0.0024	0.2574	0.0327	0
1996	**MUĞLA**	0.1669	0.2276	0.6071	0.2557	0.2250	0.2481	0.2794	0.0137	70.0450	88.6357	0.3614	0.0014	0.0983	0.0314	0
1996	**MUŞ**	0.4759	0.1709	0.0864	0.4285	0.0927	0.3470	0.0363	0.1675	33.7759	82.7133	0.2479	0.0030	0.1572		0
1996	**NEVŞEHİR**	0.1090	0.1396	0.4791	0.3132	0.2136	0.1549	0.1926	0.0090	17.9083	86.0729	0.1765	0.0024	0.0862	0.0226	0
1996	**NİĞDE**	0.0880	0.0982	0.3168	0.3647	0.1400	0.1260	0.4531	0.0079	24.8039	84.9251	0.3199	0.0028	0.1048	0.0317	0
1996	**ORDU**	0.1310	0.0620	0.2079	0.3360	0.2183	0.3890	0.3715	0.0146	5.0079	89.0226	0.3111	0.0017	0.1261	0.0443	0
1996	**OSMANİYE**	0.1409					0.6356	0.0713			81.7067		0.0009	0.2733		0
1996	**RİZE**	0.1976	0.2151	0.3939	0.2627	0.1556	0.3120	0.4664	0.0090	25.6333	77.8933	0.5066	0.0015	0.1737	0.0396	0
1996	**SAKARYA**	0.2029	0.1817	0.3966	0.2601	0.1912	0.3386	0.3405	0.0123	14.6066	80.2144	0.3410	0.0021	0.1853	0.0246	1
1996	**SAMSUN**	0.2209	0.1724	0.3307	0.2279	0.2323	0.3407	0.4608	0.0101	79.4106	90.0298	0.5146	0.0021	0.1354	0.0230	0
1996	**SİİRT**	0.3703	0.3025	0.1632	0.2993	0.0653	0.1687	0.4948	0.2667	3.0158	87.4036	0.1918	0.0044	0.2350	0.0613	0
1996	**SİNOP**	0.2140	0.1211	0.2442	0.2757	0.2657	0.4748	0.2494	0.0180	47.8716	91.9312	0.2855	0.0022	0.0961	0.0467	0
1996	**SİVAS**	0.0963	0.0785	0.2280	0.1694	0.2941	0.2329	0.6251	0.0121	106.9172	64.1659	0.3365	0.0015	0.1044	0.0263	0
1996	**ŞANLIURFA**	0.5285	0.5941	0.1868	0.4141	0.0708	0.2119	0.1968	0.1375	91.6719	92.2414	0.0375	0.0017	0.2192	0.0083	0
1996	**ŞIRNAK**			0.0938	0.4588	0.0926			0.2595	10.8603	92.5440	6.1547				0
1996	**TEKİRDAĞ**			0.5517	0.1576	0.2803			0.0104	25.2070	83.0897	0.1289				1
1996	**TOKAT**	0.1792	0.0733	0.2419	0.2246	0.1069	0.4458	0.3217	0.0072	7.3577	87.0592	0.5577	0.0023	0.1165	0.0263	0
1996	**TRABZON**	0.2019	0.1243	0.2643	0.2465	0.3297	0.4146	0.2549	0.0081	30.4215	92.8690	0.0319	0.0026	0.1146	0.0409	0
1996	**TUNCELİ**	0.2639	0.1149	0.1587	0.4164	0.2512	0.3410	0.0562	0.1698	157.4261	89.8375	2.7992	0.0046	0.0927	0.0456	0
1996	**UŞAK**	0.1106	0.1388	0.3192	0.2737	0.4939	0.2061	0.6248	0.0104	10.9687	90.4940	0.3786	0.0015	0.1562	0.0223	0
1996	**VAN**	0.5103	0.2363	0.1209	0.2010	0.0953	0.4299	0.1949	0.2774	23.2638	89.4753	0.3781	0.0037	0.2354	0.0665	0
1996	**YALOVA**			0.7832	0.0749	0.1897			0.0284	3.7645	89.4256	0.1844				0
1996	**YOZGAT**	0.1020	0.0504	0.1896	0.4192	0.2856	0.3067	0.4232	0.0105	24.2558	88.5914	0.2337	0.0019	0.1218	0.0189	0
1996	**ZONGULDAK**	0.1453	0.2194	0.3634	0.1149	0.2582	0.1021	0.8383	0.0092	30.8114	91.0126	1.0151	0.0015	0.2104	0.0181	1
1997	**ADANA**	0.2500	0.2011	0.4571	0.1206	0.2129	0.1991	0.6350	0.0737	16.7789	85.3548	0.5262	0.0016	0.1430	0.0256	0
1997	**ADIYAMAN**	0.1797	0.1397	0.1780	0.2668	0.1050	0.1980	0.6544	0.0752	15.4934	86.6680	0.1991	0.0024	0.1957	0.0290	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1997	**AFYON**	0.1079	0.0731	0.2144	0.3429	0.2958	0.2013	0.5044	0.0112	23.4242	81.4223	0.3314	0.0015	0.1099	0.0224	0
1997	**AĞRI**	0.4102	0.1769	0.0718	0.5066	0.1200	0.5225	0.1041	0.3373	17.7461	93.6934	0.4256	0.0029	0.1076	0.0242	0
1997	**AKSARAY**	0.1890	0.0987	0.2130	0.5207	0.4001	0.4624	0.0991	0.0108	15.8293	93.0918	0.4521	0.0029	0.0909	0.0285	0
1997	**AMASYA**	0.1876	0.1748	0.2472	0.3858	0.1734	0.2726	0.4008	0.0089	16.4833	89.6717	0.3458	0.0027	0.1389	0.0295	0
1997	**ANKARA**	0.1894	0.2540	0.5081	0.0430	1.0696	0.0004	0.2464	0.0157	118.8191	93.2939	1.6329	0.0023	0.1483	0.0179	1
1997	**ANTALYA**	0.1421	0.1394	0.4406	0.1792	0.2988	0.2485	0.2131	0.0248	65.4433	87.4162	0.4205	0.0013	0.0820	0.0508	0
1997	**ARDAHAN**	0.5543	0.2266	0.1044	0.4917	0.1807	0.5912	0.0604	0.0784	10.4677	93.4077	0.3545	0.0022	0.1868	0.0584	0
1997	**ARTVİN**	0.1592	0.1621	0.4617	0.1586	0.1379	0.2396	0.5801	0.0129	79.2415	89.9410	0.2527	0.0022	0.1420	0.0584	0
1997	**AYDIN**	0.1322	0.1426	0.4281	0.2358	0.2631	0.3529	0.2710	0.0374	32.0392	90.6426	0.3340	0.0013	0.1038	0.0236	0
1997	**BALIKESİR**	0.0971	0.1119	0.3584	0.2175	0.2832	0.2600	0.4261	0.0104	53.8782	92.0495	0.5377	0.0010	0.1380	0.0228	0
1997	**BARTIN**	0.2420	0.2744	0.1629	0.2579	0.4033	0.3380	0.4705	0.0140	39.8256	89.6920	0.4909	0.0013	0.1320	0.0273	1
1997	**BATMAN**	0.5893	0.7059	0.2403	0.2813	0.0434	0.1963	0.4520	0.4340	10.8723	86.8442	0.1840	0.0037	0.2896	0.0192	0
1997	**BAYBURT**	0.1749	0.0584	0.1215	0.2202	0.4084	0.5247	0.0417	0.0145	35.5377	92.6166	0.3099	0.0026	0.0566	0.0446	0
1997	**BİLECİK**	0.0386	0.1236	0.7020	0.1201	0.1085	0.0529	0.9048	0.0106	94.6193	81.3487	0.2552	0.0019	0.1762	0.0163	0
1997	**BİNGÖL**	0.3308	0.1135	0.1000	0.2982	0.1784	0.4050	0.0299	0.1287	366.8032	92.2878	0.3186	0.0041	0.1252	0.0377	0
1997	**BİTLİS**	0.4581	0.1605	0.1008	0.4487	0.1093	0.4086	0.0170	0.1370	5.0872	95.0137	0.2676	0.0042	0.1455	0.0318	0
1997	**BOLU**	0.0906	0.1253	0.3777	0.2546	0.1422	0.2332	0.5237	0.0116	53.3005	90.6743	0.3534	0.0017	0.1590	0.0428	1
1997	**BURDUR**	0.1847	0.1457	0.3492	0.2613	0.2379	0.2879	0.3932	0.0089	26.5315	92.8111	0.3183	0.0014	0.1040	0.0287	0
1997	**BURSA**	0.0696	0.1566	0.5033	0.0740	0.2951	0.1601	0.5820	0.0172	88.5141	91.5617	0.7802	0.0014	0.1354	0.0137	0
1997	**ÇANAKKALE**	0.0930	0.1686	0.4971	0.2199	0.1728	0.1686	0.6877	0.0105	68.9935	85.4958	0.3338	0.0014	0.1865	0.0144	0
1997	**ÇANKIRI**	0.1252	0.0622	0.1901	0.2992	0.1580	0.3242	0.3195	0.0073	11.9406	91.6056	0.2788	0.0026	0.0968	0.0181	1
1997	**ÇORUM**	0.1082	0.0795	0.3097	0.2275	0.1744	0.3133	0.4801	0.0076	62.4502	89.5075	0.2374	0.0014	0.1014	0.0268	0
1997	**DENİZLİ**	0.1185	0.1743	0.4562	0.2153	0.3480	0.2008	0.5860	0.0192	42.3414	91.7179	0.3969	0.0014	0.1413	0.0230	0
1997	**DİYARBAKIR**	0.6370	0.6968	0.2133	0.2665	0.0871	0.3230	0.1767	0.4590	68.0001	83.5871	0.1933	0.0027	0.2051	0.0171	0
1997	**DÜZCE**															1
1997	**EDİRNE**	0.0762	0.1242	0.3566	0.3078	0.2899	0.1865	0.5258	0.0113	53.4827	92.3373	0.7819	0.0010	0.1933	0.0147	1
1997	**ELAZIĞ**	0.1014	0.1803	0.2768	0.1528	0.1725	0.1400	0.6755	0.0494	21.8617	94.2863	0.3259	0.0039	0.2682	0.0272	0
1997	**ERZİNCAN**	0.1218	0.0654	0.1919	0.3471	0.2149	0.3395	0.1686	0.0106	54.1143	87.6241	0.3361	0.0040	0.0883	0.0266	0
1997	**ERZURUM**	0.2505	0.1281	0.1346	0.2121	0.1593	0.3656	0.1977	0.0617	36.0351	86.0919	0.4525	0.0032	0.1347	0.0310	0
1997	**ESKİŞEHİR**	0.1069	0.1390	0.4270	0.1233	0.3160	0.2262	0.5674	0.0085	55.8286	91.9269	0.6316	0.0015	0.1309	0.0373	0
1997	**GAZİANTEP**	0.0780	0.1252	0.3302	0.1109	0.1814	0.2147	0.6252	0.0548	34.6957	91.3865	0.3984	0.0018	0.2199	0.0183	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1997	GİRESUN	0.1827	0.1175	0.2149	0.3448	0.3441	0.3505	0.4099	0.0109	8.8798	84.8432	0.3079	0.0016	0.1382	0.0502	0
1997	GÜMÜŞHANE	0.2100	0.0784	0.1544	0.3130	0.2813	0.4265	0.2064	0.0118	101.4780	94.5055	0.2654	0.0027	0.0817	0.0439	0
1997	HAKKARİ	0.5521	0.3266	0.0674	0.3249	0.0996	0.5245	0.0067	0.4608	48.7157	91.2756	0.5482	0.0076	0.1646	0.0768	0
1997	HATAY	0.1624	0.1217	0.3471	0.2134	0.2151	0.1184	0.7821	0.0257	16.9880	91.2621	0.5472	0.0017	0.1441	0.0204	0
1997	IĞDIR	0.5911	0.3341	0.1180	0.5122	0.2463	0.5311	0.0445	0.0884	163.3485	86.5798	0.4089	0.0034	0.1772	0.0141	0
1997	ISPARTA	0.0721	0.0866	0.2831	0.2456	0.2994	0.1653	0.5750	0.2975	61.4902	92.0329	0.4403	0.0019	0.1357	0.0258	0
1997	İÇEL	0.3093	0.2142	0.4353	0.2071	0.1738	0.2336	0.5835	0.0109	51.9471	93.1290	0.5432	0.0016	0.1288	0.0233	0
1997	İSTANBUL	0.2524	0.3769	0.6205	0.0067	0.8255	0.2321	0.5575	0.0403	34.9525	84.9675	1.6427	0.0010	0.2357	0.0050	1
1997	İZMİR	0.0913	0.2128	0.6292	0.0562	0.3424	0.1476	0.6798	0.0436	42.9990	90.6457	0.9868	0.0014	0.2185	0.0126	0
1997	K.MARAŞ	0.1238	0.1512	0.2324	0.2707	0.1116	0.1267	0.6507	0.0176	33.9494	88.7773	0.3167	0.0024	0.2872	0.0291	0
1997	KARABÜK	0.0991	0.1093	0.7569	0.0439	0.2324	0.2543	0.5768	0.0118	7.1360	77.9611	0.2261	0.0018	0.1313	0.0211	1
1997	KARAMAN	0.0686	0.0586	0.4278	0.6027	0.1634	0.2438	0.3879	0.0079	29.8241	77.0027	0.2050	0.0019	0.1186	0.0365	1
1997	KARS	0.3913	0.2424	0.1154	0.3269	0.2237	0.3029	0.3624	0.1750	31.8313	87.1108	0.3661	0.0038	0.1222	0.0323	0
1997	KASTAMONU	0.1092	0.0924	0.3031	0.3140	0.1774	0.2625	0.5259	0.0149	69.2917	90.8723	0.3510	0.0027	0.0927	0.0396	0
1997	KAYSERİ	0.0849	0.1190	0.2878	0.1337	0.3149	0.2019	0.6446	0.0106	20.1598	90.7365	0.5990	0.0020	0.1450	0.0291	0
1997	KIRIKKALE	0.1293	0.1006	0.3919	0.1004	0.0755	0.1736	0.6558	0.0094	68.2820	95.6184	0.6217	0.0042	0.2467	0.0723	1
1997	KIRKLARELİ	0.2025	0.5676	0.6354	0.1187	0.1768	0.1082	0.7834	0.0103	33.4362	93.0533	0.4100	0.0016	0.2103	0.0135	1
1997	KIRŞEHİR	0.1530	0.1181	0.2548	0.3150	0.3063	0.3349	0.3958	0.0249	30.4324	91.3297	0.3335	0.0032	0.1128	0.0259	0
1997	KİLİS	0.3244	0.1642	0.3637	0.2248	0.0794	0.5247	0.0941	0.0085	15.4310	86.7841	0.1284	0.0020	0.0978	0.0182	0
1997	KOCAELİ	0.1118	0.3428	1.0000	0.0259	0.1092	0.0987	0.7247	0.0308	69.9100	98.2589	3.8333	0.0016	0.2983	0.0175	1
1997	KONYA	0.0894	0.0647	0.2760	0.2804	0.1738	0.1527	0.6650	0.0245	28.6097	86.4075	0.3610	0.0027	0.1022	0.0261	1
1997	KÜTAHYA	0.1221	0.1069	0.3101	0.1655	0.1565	0.1652	0.6060	0.0079	30.9979	92.7749	0.4095	0.0014	0.1454	0.0161	0
1997	MALATYA	0.1765	0.1449	0.2494	0.1932	0.1732	0.2477	0.5209	0.0230	37.2633	77.8240	0.2789	0.0022	0.1800	0.0416	0
1997	MANİSA	0.0950	0.1029	0.5498	0.1975	0.1529	0.2462	0.4774	0.0356	18.0347	91.0129	0.2678	0.0012	0.1471	0.0193	0
1997	MARDİN	0.6447	0.8165	0.1715	0.3081	0.0673	0.1461	0.3128	0.2526	3.3622	84.0914	0.1907	0.0029	0.2277	0.0234	0
1997	MUĞLA	0.1490	0.2391	0.5735	0.1729	0.2383	0.2668	0.2684	0.0158	152.4619	88.2089	0.3500	0.0013	0.1018	0.0301	0
1997	MUŞ	0.4620	0.1964	0.0819	0.5309	0.1006	0.2837	0.1272	0.3180	100.0992	89.5090	0.2661	0.0030	0.1752		0
1997	NEVŞEHİR	0.1206	0.1555	0.4427	0.3747	0.2116	0.1641	0.2130	0.0093	37.8431	89.9226	0.1971	0.0022	0.0808	0.0229	0
1997	NİĞDE	0.1038	0.1158	0.3071	0.4703	0.1335	0.1503	0.4741	0.0089	33.9116	93.3095	0.3132	0.0027	0.1043	0.0250	0
1997	ORDU	0.1395	0.0795	0.1941	0.4126	0.2285	0.3571	0.4343	0.0176	11.7868	90.5734	0.3389	0.0016	0.1372	0.0595	0
1997	OSMANİYE	0.2247	0.0269	0.2247	0.2895	0.0778	0.2611	0.4936	0.0162	4.5331	85.5390	0.1730	0.0017	0.0566	0.0100	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1997	**RİZE**	0.1755	0.1809	0.2915	0.2049	0.1942	0.3664	0.5883	0.0114	25.8086	92.0710	0.6024	0.0015	0.1335	0.0398	0
1997	**SAKARYA**	0.1521	0.1553	0.3823	0.1776	0.1911	0.2953	0.4344	0.0147	19.0350	85.0801	0.3668	0.0019	0.1771	0.0242	1
1997	**SAMSUN**	0.2091	0.1803	0.3083	0.2400	0.2442	0.3515	0.4167	0.0099	74.3569	93.1221	0.5255	0.0020	0.1304	0.0315	0
1997	**SİİRT**	0.4327	0.4068	0.1491	0.2957	0.0805	0.1664	0.4999	0.2212	3.2805	90.8383	0.2055	0.0048	0.2394	0.0594	0
1997	**SİNOP**	0.2341	0.1525	0.2424	0.3106	0.2757	0.4807	0.2239	0.0179	68.6345	93.5017	0.2769	0.0021	0.0954	0.0461	0
1997	**SİVAS**	0.1030	0.0643	0.2161	0.2014	0.2944	0.3294	0.4470	0.0068	129.8029	71.1931	0.3586	0.0022	0.0762	0.0251	0
1997	**ŞANLIURFA**	0.4899	0.6068	0.1969	0.4051	0.0700	0.1954	0.1552	0.1656	86.6498	93.7924	0.0548	0.0018	0.2406	0.0085	0
1997	**ŞIRNAK**	0.7349	0.7489	0.1058	0.3897	0.0773	0.1868	0.0042	0.2408	17.4520	93.0457	6.3199	0.0035	0.3641	0.0387	0
1997	**TEKİRDAĞ**	0.1188	0.2784	0.5414	0.1331	0.2605	0.1141	0.7221	0.0169	51.3781	88.6485	0.1238		0.2675	0.0107	1
1997	**TOKAT**	0.2388	0.1164	0.2353	0.2346	0.1118	0.3635	0.4103	0.0070	10.3197	90.4914	0.5355	0.0022	0.1239	0.0251	0
1997	**TRABZON**	0.2192	0.1350	0.2334	0.2586	0.3259	0.4290	0.2011	0.0078	38.2190	93.3232	0.0329	0.0024	0.1289	0.0426	0
1997	**TUNCELİ**	0.2565	0.1603	0.1519	0.4206	0.2919	0.3066	0.0518	0.1337	260.9042	94.3828	4.0026	0.0053	0.1088	0.0474	0
1997	**UŞAK**	0.0882	0.1267	0.2876	0.2693	0.5178	0.1851	0.6504	0.0130	14.8369	93.1248	0.4081	0.0015	0.1611	0.0222	0
1997	**VAN**	0.4712	0.2539	0.1103	0.2135	0.1190	0.3867	0.1959	0.3571	27.3125	92.9285	0.4363	0.0040	0.1830	0.0347	0
1997	**YALOVA**	0.1400	0.1754	0.8073	0.0565	0.1980	0.3786	0.2907	0.0323	19.6203	92.0835	0.2879	0.0010	0.1717	0.0078	0
1997	**YOZGAT**	0.1756	0.1031	0.1543	0.3808	0.3017	0.3080	0.4189	0.0095	37.3836	92.2939	0.2934	0.0018	0.1420	0.0191	0
1997	**ZONGULDAK**	0.1145	0.1421	0.3641	0.0910	0.2709	0.0847	0.8596	0.0119	31.5901	89.1441	0.8869	0.0020	0.2458	0.0081	1
1998	**ADANA**	0.2445	0.1980	0.4844	0.1277	0.2293	0.1979	0.6178	0.0737	12.9050	83.2763	0.4974	0.0015	0.1457	0.0280	0
1998	**ADIYAMAN**	0.1443	0.1143	0.1857	0.2602	0.1042	0.1920	0.4944	0.0752	15.4431	87.3582	0.1762	0.0023	0.2003	0.0211	0
1998	**AFYON**	0.0934	0.0683	0.2282	0.3389	0.2798	0.2117	0.4897	0.0112	16.9925	86.4283	0.3162	0.0013	0.1157	0.0286	0
1998	**AĞRI**	0.4608	0.2287	0.0763	0.4755	0.1780	0.4630	0.0968	0.3373	11.3985	96.0226	0.6600	0.0028	0.1742	0.0236	0
1998	**AKSARAY**	0.1718	0.1060	0.1999	0.4626	0.4264	0.3795	0.1331	0.0108	18.8559	89.4188	0.3771	0.0024	0.1068	0.0253	0
1998	**AMASYA**	0.1543	0.1482	0.2801	0.3911	0.1665	0.2955	0.4207	0.0089	5.3968	91.4990	0.3130	0.0026	0.1301	0.0315	0
1998	**ANKARA**	0.2096	0.2980	0.5457	0.0482	1.1099	0.3521	0.2628	0.0157	70.8401	94.1818	1.8120	0.0019	0.1488	0.0168	1
1998	**ANTALYA**	0.1523	0.1627	0.4489	0.1820	0.3059	0.1814	0.4461	0.0248	63.1235	87.0271	0.4103	0.0011	0.0882	0.0498	0
1998	**ARDAHAN**	0.5005	0.2177	0.1108	0.4871	0.2349	0.3638	0.0686	0.0784	10.3724	94.2077	0.5368	0.0021	0.1565	0.0589	0
1998	**ARTVİN**	0.1816	0.2070	0.5230	0.1373	0.1477	0.2477	0.5648	0.0129	712.2868	90.0690	0.2580	0.0020	0.1514	0.0537	0
1998	**AYDIN**	0.1277	0.1488	0.4685	0.2592	0.2644	0.3387	0.2680	0.0374	23.7981	91.4279	0.2975	0.0012	0.1103	0.0233	0
1998	**BALIKESİR**	0.0947	0.1241	0.3959	0.2651	0.2856	0.2867	0.4212	0.0104	36.7129	86.1000	0.4743	0.0010	0.1582	0.0215	0
1998	**BARTIN**	0.1770	0.1785	0.1568	0.2528	0.4112	0.3790	0.4309	0.0140	17.8749	86.8561	0.5841	0.0014	0.1142	0.0287	1
1998	**BATMAN**	0.5898	0.8017	0.2506	0.2393	0.0504	0.1886	0.3842	0.4340	10.3526	84.0645	0.1543	0.0036	0.2780	0.0189	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1998	BAYBURT	0.1382	0.0510	0.1277	0.3119	0.2822	0.5844	0.0350	0.0145	9.9755	92.2615	0.3165	0.0024	0.0615	0.0422	0
1998	BİLECİK	0.0647	0.1864	0.6775	0.1377	0.1217	0.0366	0.9272	0.0106	144.6934	84.8132	0.2582	0.0018	0.1691	0.0177	0
1998	BİNGÖL	0.3399	0.1274	0.1020	0.3633	0.1844	0.4218	0.0278	0.1287	310.9524	91.6867	0.2785	0.0036	0.1255	0.0344	0
1998	BİTLİS	0.4652	0.1816	0.0954	0.4545	0.0814	0.3921	0.0171	0.1370	15.8508	91.7858	0.2456	0.0040	0.1551	0.0321	0
1998	BOLU	0.1205	0.1722	0.4100	0.3767	0.1518	0.2060	0.5990	0.0116	43.1630	90.0737	0.3405		0.2661	0.0264	1
1998	BURDUR	0.1741	0.1531	0.3861	0.2938	0.2479	0.2841	0.4090	0.0089	18.3695	93.0931	0.2941	0.0013	0.1087	0.0265	0
1998	BURSA	0.0913	0.2059	0.5445	0.0994	0.2926	0.1660	0.7069	0.0172	226.6277	93.0164	0.7642	0.0013	0.1337	0.0177	0
1998	ÇANAKKALE	0.1151	0.1963	0.4840	0.2751	0.1997	0.1658	0.6481	0.0105	66.1845	83.7871	0.3241	0.0016	0.1766	0.0142	0
1998	ÇANKIRI	0.0948	0.0488	0.2183	0.3585	0.1507	0.3547	0.3206	0.0073	9.6060	93.7170	0.2552	0.0026	0.0986	0.0181	1
1998	ÇORUM	0.1268	0.0993	0.3389	0.2334	0.1680	0.3215	0.4522	0.0076	67.0441	87.6512	0.2095	0.0014	0.1064	0.0281	0
1998	DENİZLİ	0.1142	0.1831	0.4818	0.1886	0.3669	0.2017	0.5204	0.0192	32.9587	90.6377	0.3698	0.0013	0.1510	0.0227	0
1998	DİYARBAKIR	0.6737	0.8509	0.2290	0.2483	0.0903	0.3376	0.0773	0.4590	64.2860	85.0242	0.1692	0.0028	0.2175	0.0188	0
1998	DÜZCE															1
1998	EDİRNE	0.0982	0.1650	0.4328	0.3699	0.2516	0.2037	0.5094	0.0113	33.4992	89.8801	0.6439	0.0011	0.1986	0.0162	1
1998	ELAZIĞ	0.1339	0.2488	0.3021	0.1851	0.1749	0.1353	0.6747	0.0494	46.6861	93.3526	0.2857	0.0036	0.2063	0.0269	0
1998	ERZİNCAN	0.1153	0.0655	0.2085	0.3551	0.2101	0.3320	0.1652	0.0106	26.1919	90.3898	0.3003	0.0039	0.0848	0.0027	0
1998	ERZURUM	0.2731	0.1513	0.1379	0.2385	0.1618	0.3691	0.1825	0.0617	27.9128	86.7478	0.4250	0.0030	0.1371	0.0297	0
1998	ESKİŞEHİR	0.1312	0.1615	0.5027	0.1240	0.2906	0.2539	0.5444	0.0085	54.8536	89.8205	0.5383	0.0014	0.1032	0.0134	0
1998	GAZİANTEP	0.1594	0.2817	0.3322	0.0844	0.2123	0.1681	0.6233	0.0548	39.8311	88.5999	0.3653	0.0017	0.2227	0.0192	0
1998	GİRESUN	0.1944	0.1428	0.2590	0.4035	0.2877	0.3383	0.4211	0.0109	44.3435	88.4227	0.2907	0.0015	0.1559	0.0503	0
1998	GÜMÜŞHANE	0.1602	0.0620	0.1800	0.3649	0.1841	0.4409	0.1682	0.0118	42.7983	93.2005	0.2264	0.0026	0.0829	0.0433	0
1998	HAKKARİ	0.5626	0.4070	0.0709	0.4914	0.1001	0.3131	0.0166	0.4608	17.1855	92.7461	0.6203	0.0072	0.1900	0.0733	0
1998	HATAY	0.1935	0.1638	0.3556	0.2110	0.2581	0.1197	0.7623	0.0257	10.5764	94.1837	0.4872	0.0015	0.1580	0.0184	0
1998	IĞDIR	0.5100	0.3243	0.1357	0.4813	0.2755	0.5458	0.0303	0.0884	39.5882	88.6964	0.4567	0.0033	0.1871	0.0132	0
1998	ISPARTA	0.0719	0.0902	0.2893	0.3430	0.2981	0.1869	0.5432	0.2975	47.4741	92.1797	0.4128	0.0018	0.1390	0.0258	0
1998	İÇEL	0.3167	0.2379	0.4507	0.2097	0.1705	0.2431	0.5571	0.0109	53.7515	91.7904	0.4663	0.0015	0.1075	0.0342	0
1998	İSTANBUL	0.2416	0.3569	0.6282	0.0048	0.8771	0.2442	0.5373	0.0403	46.5808	85.1066	1.8807	0.0010	0.1780	0.0079	1
1998	İZMİR	0.1026	0.2322	0.6511	0.0679	0.3549	0.1685	0.6487	0.0436	64.8712	91.0307	0.8787	0.0013	0.2013	0.0133	0
1998	K.MARAŞ	0.0953	0.1253	0.2505	0.2216	0.1052	0.1328	0.6758	0.0176	28.8128	87.5955	0.2845	0.0023	0.2773	0.0291	0
1998	KARABÜK	0.0687	0.1028	0.7852	0.0449	0.2354	0.2084	0.6521	0.0118	8.2640	90.5553	0.1733	0.0018	0.1281	0.0208	1
1998	KARAMAN	0.0694	0.0636	0.4270	0.5351	0.1524	0.2587	0.3261	0.0079	16.7304	82.1777	0.1825	0.0017	0.1094	0.0367	1

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1998	**KARS**	0.3632	0.2439	0.1354	0.3529	0.2147	0.2532	0.3665	0.1750	28.6731	91.0744	0.3236	0.0036	0.1803	0.0311	0
1998	**KASTAMONU**	0.1341	0.1245	0.3160	0.3222	0.1969	0.2598	0.5250	0.0149	48.5218	93.3985	0.3527	0.0026	0.0933	0.0395	0
1998	**KAYSERİ**	0.0850	0.1268	0.3026	0.1249	0.3353	0.2042	0.6303	0.0106	11.1943	92.9246	0.5757	0.0022	0.1380	0.0268	0
1998	**KIRIKKALE**	0.2033	0.1685	0.3796	0.1074	0.0765	0.1924	0.6699	0.0094	38.6724	91.0891	0.4764	0.0039	0.1889	0.0745	1
1998	**KIRKLARELİ**	0.1077	0.2552	0.6438	0.1144	0.1898	0.1069	0.8048	0.0103	43.4169	90.0391	0.4079	0.0016	0.1606	0.0134	1
1998	**KIRŞEHİR**	0.1772	0.1472	0.2677	0.2871	0.3009	0.3043	0.4107	0.0249	22.4874	92.8095	0.2943	0.0030	0.1165	0.0258	0
1998	**KİLİS**	0.2500	0.1416	0.3932	0.1939	0.0908	0.4612	0.0933	0.0085	7.5409	89.4198	0.1600	0.0018	0.1055	0.0177	0
1998	**KOCAELİ**	0.1233	0.3470	1.0000	0.0255	0.1549	0.0965	0.7329	0.0308	35.4177	98.0008	3.1660	0.0015	0.2573	0.0170	1
1998	**KONYA**	0.1166	0.0936	0.3057	0.2446	0.1717	0.2434	0.4573	0.0245	17.2173	86.0854	0.3217	0.0027	0.0997	0.0259	1
1998	**KÜTAHYA**	0.1012	0.0897	0.3133	0.1592	0.1611	0.2247	0.3972	0.0079	14.9698	91.1610	0.3840	0.0013	0.1466	0.0159	0
1998	**MALATYA**	0.1833	0.1575	0.2518	0.2086	0.1887	0.2558	0.4862	0.0230	30.0511	91.4275	0.2699	0.0020	0.1706	0.0408	0
1998	**MANİSA**	0.1140	0.1288	0.5800	0.2408	0.1566	0.2326	0.4968	0.0356	14.5197	91.9453	0.2736	0.0012	0.1445	0.0195	0
1998	**MARDİN**	0.6300	0.9606	0.1899	0.3310	0.0750	0.1636	0.2751	0.2526	2.6618	83.8309	0.1664	0.0028	0.2541	0.0230	0
1998	**MUĞLA**	0.1585	0.2847	0.6092	0.2285	0.2565	0.2302	0.2470	0.0158	133.3841	85.9445	0.3364	0.0013	0.0978	0.0605	0
1998	**MUŞ**	0.5034	0.2358	0.0847	0.4845	0.1087	0.2894	0.1213	0.3180	54.0488	88.7962	0.2384	0.0030	0.1764		0
1998	**NEVŞEHİR**	0.0981	0.1468	0.4308	0.4130	0.2303	0.1654	0.1787	0.0093	66.6754	89.9324	0.1892	0.0021	0.0863	0.0227	0
1998	**NİĞDE**	0.0937	0.1225	0.3209	0.5986	0.1472	0.1268	0.4516	0.0089	26.9245	91.8386	0.2794	0.0025	0.1060	0.0248	0
1998	**ORDU**	0.1263	0.0794	0.2075	0.3735	0.2425	0.3888	0.3656	0.0176	14.3795	91.7049	0.3508	0.0015	0.1872	0.0597	0
1998	**OSMANİYE**		0.0000	0.2019	0.2446	0.1187			0.0162	6.6196	89.7473	0.1984				0
1998	**RİZE**	0.1566	0.1788	0.3149	0.1635	0.2057	0.3146	0.4667	0.0114	41.5432	92.7644	0.5434	0.0014	0.1088	0.0372	0
1998	**SAKARYA**	0.1821	0.2031	0.4104	0.2440	0.1854	0.3109	0.3858	0.0147	15.2382	84.3088	0.3338	0.0018	0.1453	0.0237	1
1998	**SAMSUN**	0.1656	0.1650	0.3507	0.2088	0.2299	0.3497	0.2938	0.0099	43.0623	93.5533	0.3807	0.0019	0.1435	0.0304	0
1998	**SİİRT**	0.4152	0.4630	0.1531	0.2284	0.0780	0.1976	0.4728	0.2212	4.9362	91.4936	0.1984	0.0047	0.2466	0.0594	0
1998	**SİNOP**	0.2278	0.1692	0.2621	0.2989	0.2816	0.4839	0.2300	0.0179	75.7026	91.3537	0.2730	0.0020	0.0968	0.0454	0
1998	**SİVAS**	0.1429	0.1041	0.2375	0.1974	0.2770	0.3009	0.4852	0.0068	225.7204	91.1985	0.3408	0.0021	0.0874	0.0251	0
1998	**ŞANLIURFA**	0.3599	0.5272	0.2014	0.3716	0.0792	0.1662	0.1585	0.1656	67.5373	94.0709	0.0804	0.0019	0.2456	0.0090	0
1998	**ŞIRNAK**	0.6340	0.8177	0.1024	0.3296	0.0854	0.1288	0.5212	0.2408	17.3928	91.9046	6.2146	0.0034	0.4409	0.0427	0
1998	**TEKİRDAĞ**	0.1247	0.3113	0.5629	0.1470	0.2672	0.1167	0.6961	0.0169	41.6094	90.5623	0.1182	0.0012	0.2561	0.0103	1
1998	**TOKAT**	0.1903	0.1047	0.2825	0.2687	0.0974	0.3915	0.3890	0.0070	10.3650	90.3091	0.4404	0.0022	0.1270	0.0003	0
1998	**TRABZON**	0.2034	0.1381	0.2421	0.2048	0.3274	0.4457	0.1906	0.0078	28.6457	95.8054	0.0320	0.0022	0.1545	0.0423	0
1998	**TUNCELİ**	0.2594	0.1886	0.1749	0.3691	0.3427	0.2968	0.0450	0.1337	332.6652	92.3077	4.2512	0.0049	0.1122	0.0482	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1998	**UŞAK**	0.1192	0.1823	0.3083	0.2576	0.5246	0.1917	0.6268	0.0130	7.8707	90.6241	0.3897	0.0014	0.1734	0.0218	0
1998	**VAN**	0.5381	0.3151	0.1206	0.2371	0.1138	0.2859	0.1200	0.3571	15.4445	91.5227	0.3937	0.0037	0.1594	0.0320	0
1998	**YALOVA**	0.1200	0.1712	0.8291	0.0478	0.2133	0.1419	0.7093	0.0323	13.1261	89.6332	0.2562	0.0010	0.1955	0.0085	0
1998	**YOZGAT**	0.1584	0.0982	0.1751	0.4183	0.2658	0.3032	0.4091	0.0095	26.0489	90.1408	0.2934	0.0017	0.1415	0.0200	0
1998	**ZONGULDAK**	0.1396	0.1787	0.3686	0.1007	0.3068	0.0990	0.8234	0.0119	30.8633	92.9531	0.7789	0.0020	0.2501	0.0083	1
1999	**ADANA**	0.2352	0.2052	0.5192	0.1277	0.3436	0.2088	0.6062	0.0737	10.2332	80.3364	0.4502	0.0014	0.1371	0.0293	0
1999	**ADIYAMAN**	0.1163	0.0920	0.2012	0.2307	0.1487	0.2104	0.6090	0.0752	13.6056	84.7920	0.1496	0.0024	0.1934	0.0215	0
1999	**AFYON**	0.1024	0.0786	0.2505	0.3631	0.3432	0.2205	0.4817	0.0112	12.4214	80.5340	0.2757	0.0012	0.1170	0.0225	0
1999	**AĞRI**	0.3771	0.2256	0.0964	0.5858	0.1504	0.3410	0.0943	0.3373	7.5868	96.7582	1.0943	0.0029	0.2115	0.0236	0
1999	**AKSARAY**	0.1822	0.1226	0.2178	0.4272	0.5203	0.3759	0.1359	0.0108	14.9454	85.6751	0.2808	0.0024	0.0835	0.0329	0
1999	**AMASYA**	0.1838	0.1906	0.3095	0.3630	0.2162	0.3210	0.3784	0.0089	20.2501	87.0577	0.2924	0.0026	0.1348	0.0319	0
1999	**ANKARA**	0.1943	0.2836	0.5829	0.0515	1.4625	0.3442	0.2424	0.0157	50.3472	92.2943	1.9350	0.0017	0.1488	0.0178	1
1999	**ANTALYA**	0.1424	0.1558	0.4607	0.1759	0.4311	0.2767	0.1953	0.0248	52.0382	80.7447	0.3693	0.0011	0.0918	0.0466	0
1999	**ARDAHAN**	0.4823	0.2549	0.1364	0.6107	0.3407	0.6053	0.0265	0.0784	16.1479	96.1256	1.3366	0.0023	0.1755	0.0602	0
1999	**ARTVİN**	0.1919	0.2302	0.4432	0.2410	0.2355	0.2518	0.5616	0.0129	315.7971	90.1946	0.4893	0.0018	0.1422	0.0538	0
1999	**AYDIN**	0.0826	0.0969	0.4643	0.2363	0.3675	0.3767	0.2232	0.0374	40.0481	85.6501	0.2920	0.0011	0.1051	0.0245	0
1999	**BALIKESİR**	0.0978	0.1330	0.4127	0.2258	0.3983	0.2794	0.4121	0.0104	41.8105	80.5882	0.5620	0.0009	0.1653	0.0208	0
1999	**BARTIN**	0.1731	0.1917	0.1777	0.2583	0.6690	0.3766	0.4082	0.0140	34.2389	85.7881	0.5429		0.2191	0.0214	1
1999	**BATMAN**	0.6068	0.9569	0.2401	0.2070	0.0722	0.1643	0.3899	0.4340	5.7935	88.6219	0.2007	0.0034	0.2539	0.0194	0
1999	**BAYBURT**	0.1896	0.0792	0.1643	0.3670	0.2647	0.5298	0.0378	0.0145	51.2022	86.0465	0.2183	0.0025	0.0673	0.0413	0
1999	**BİLECİK**	0.0562	0.1443	0.7638	0.1338	0.1566	0.0430	0.9241	0.0106	81.4963	78.4338	0.1933	0.0018	0.1479	0.0174	0
1999	**BİNGÖL**	0.3987	0.1804	0.1212	0.4393	0.1962	0.4541	0.0374	0.1287	291.7804	87.2080	0.2246	0.0036	0.1404	0.0333	0
1999	**BİTLİS**	0.4872	0.2276	0.1087	0.5056	0.1064	0.3692	0.0180	0.1370	14.9762	88.1043	0.2090	0.0037	0.1827	0.0316	0
1999	**BOLU**	0.0991	0.0869	0.4586	0.4221	0.1297	0.1531	0.6706	0.0116	34.3121	81.7208	0.2496	0.0018	0.1767	0.0260	1
1999	**BURDUR**	0.1739	0.1665	0.4271	0.2804	0.3183	0.2921	0.3966	0.0089	10.2767	90.4300	0.2680	0.0016	0.1141	0.0292	0
1999	**BURSA**	0.1428	0.2539	0.5899	0.1109	0.3702	0.1501	0.7132	0.0172	58.4536	89.5043	0.6575	0.0012	0.0885	0.0139	0
1999	**ÇANAKKALE**	0.1111	0.1856	0.5276	0.2454	0.2533	0.1940	0.5977	0.0105	48.2450	82.1471	0.2753	0.0016	0.1736	0.0139	0
1999	**ÇANKIRI**	0.1585	0.0861	0.2334	0.3367	0.2017	0.3689	0.3165	0.0073	2.0634	88.2625	0.2326	0.0024	0.0978	0.0172	1
1999	**ÇORUM**	0.1293	0.1073	0.3646	0.2323	0.2373	0.3342	0.4306	0.0076	124.9851	84.4941	0.1968	0.0014	0.0872	0.0195	0
1999	**DENİZLİ**	0.0974	0.1517	0.5374	0.1847	0.4784	0.2072	0.5914	0.0192	29.9780	82.9983	0.3416	0.0012	0.1406	0.0225	0
1999	**DİYARBAKIR**	0.7155	1.0381	0.2328	0.2473	0.1312	0.3303	0.0756	0.4590	46.4525	81.9567	0.1697	0.0024	0.2549	0.0188	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1999	**DÜZCE**	0.2043					0.3054	0.4819					0.0012	0.1380	0.0269	1
1999	**EDİRNE**	0.1377	0.2436	0.4496	0.3551	0.3460	0.2374	0.4937	0.0113	33.5133	91.6341	0.5927		0.4835	0.0146	1
1999	**ELAZIĞ**	0.1242	0.2313	0.3200	0.2404	0.2278	0.1577	0.6338	0.0494	19.9190	89.6514	0.2796	0.0036	0.2001	0.0266	0
1999	**ERZİNCAN**	0.1336	0.0806	0.2320	0.4028	0.2829	0.3484	0.1412	0.0106	84.2001	85.3136	0.2652	0.0039	0.0872	0.0257	0
1999	**ERZURUM**	0.2866	0.1822	0.1668	0.3203	0.1847	0.3461	0.1700	0.0617	38.1887	81.8516	0.3493	0.0030	0.1539	0.0293	0
1999	**ESKİŞEHİR**	0.1652	0.1781	0.5256	0.1343	0.4206	0.2728	0.5134	0.0085	53.2221	87.1827	0.4780	0.0013	0.0898	0.0132	0
1999	**GAZİANTEP**	0.1820	0.3331	0.3541	0.1017	0.3319	0.1680	0.6149	0.0548	35.2713	84.5000	0.3682	0.0015	0.2033	0.0212	0
1999	**GİRESUN**	0.1019	0.0828	0.2879	0.3790	0.3767	0.3169	0.3349	0.0109	38.5306	86.4308	0.3244	0.0014	0.1506	0.0449	0
1999	**GÜMÜŞHANE**	0.2074	0.0865	0.2097	0.4495	0.2047	0.4948	0.1283	0.0118	51.2016	87.5212	0.1926	0.0026	0.0835	0.0418	0
1999	**HAKKARİ**	0.5415	0.4885	0.0721	0.4655	0.1363	0.3951	0.0223	0.4608	14.3711	96.9124	1.5992	0.0090	0.2215	0.0798	0
1999	**HATAY**	0.2346	0.2169	0.3897	0.1917	0.3800	0.1253	0.7103	0.0257	11.6410	83.7187	0.4277	0.0013	0.1400	0.0180	0
1999	**IĞDIR**	0.6073	0.4575	0.1550	0.5262	0.3348	0.5542	0.0388	0.0884	37.1009	87.5943	0.5525	0.0028	0.1962	0.0138	0
1999	**ISPARTA**	0.0954	0.1194	0.3172	0.3127	0.3795	0.1948	0.5171	0.2975	30.0010	89.5268	0.4249	0.0018	0.1375	0.0252	0
1999	**İÇEL**	0.3129	0.2556	0.4941	0.2170	0.2445	0.2626	0.5137	0.0109	48.2473	87.9088	0.4269	0.0012	0.1094	0.0325	0
1999	**İSTANBUL**	0.2211	0.3226	0.6628	0.0049	1.2201	0.2719	0.5232	0.0403	49.7936	82.1386	1.9055	0.0009	0.1676	0.0081	1
1999	**İZMİR**	0.1005	0.2285	0.6846	0.0623	0.5060	0.1887	0.6141	0.0436	43.5825	88.2198	0.8298	0.0012	0.1967	0.0133	0
1999	**K.MARAŞ**	0.1124	0.1562	0.2783	0.2094	0.1361	0.1424	0.6615	0.0176	29.1578	86.8087	0.2308	0.0021	0.2011	0.0275	0
1999	**KARABÜK**	0.0801	0.1296	0.9051	0.0400	0.3043	0.2060	0.6410	0.0118	16.9466	74.9381	0.1439	0.0018	0.1465	0.0205	1
1999	**KARAMAN**	0.0628	0.0626	0.4667	0.5404	0.1817	0.2464	0.2976	0.0079	10.8260	81.5167	0.1479	0.0017	0.1146	0.0394	1
1999	**KARS**	0.3688	0.2692	0.1532	0.4184	0.2550	0.2477	0.3444	0.1750	35.1977	84.4248	0.2905	0.0033	0.1779	0.0299	0
1999	**KASTAMONU**	0.1070	0.1039	0.3583	0.2944	0.2507	0.2738	0.4994	0.0149	51.8526	89.2570	0.3205	0.0026	0.0940	0.0391	0
1999	**KAYSERİ**	0.0878	0.1197	0.3378	0.1395	0.4362	0.2228	0.5958	0.0106	16.2298	88.4121	0.5169	0.0020	0.1232	0.0257	0
1999	**KIRIKKALE**	0.1267	0.1126	0.4964	0.0833	0.0795	0.1927	0.4906	0.0094	41.6606	93.6348	0.3751		0.0966	0.0739	1
1999	**KIRKLARELİ**	0.1253	0.2844	0.6921	0.1185	0.2546	0.1285	0.7667	0.0103	32.0045	86.7188	0.3542	0.0015	0.1467	0.0126	1
1999	**KIRŞEHİR**	0.1449	0.1202	0.2929	0.3026	0.3933	0.3440	0.4210	0.0249	38.4845	89.3332	0.2559	0.0028	0.1145	0.0250	0
1999	**KİLİS**	0.3435	0.2305	0.4293	0.1783	0.1038	0.5396	0.1081	0.0085	17.4361	86.5930	0.1249	0.0018	0.1521	0.0175	0
1999	**KOCAELİ**	0.1217	0.2891	1.0000	0.0311	0.2529	0.1268	0.7809	0.0308	40.6578	97.3541	3.4503	0.0013	0.1915	0.0182	1
1999	**KONYA**	0.1254	0.1076	0.3204	0.2602	0.2275	0.1687	0.6167	0.0245	18.8634	81.2382	0.3142	0.0025	0.1067	0.0255	1
1999	**KÜTAHYA**	0.0745	0.0670	0.3415	0.1738	0.1978	0.2419	0.5614	0.0079	33.6145	85.4750	0.3246	0.0012	0.1466	0.0157	0
1999	**MALATYA**	0.1893	0.1669	0.2607	0.1598	0.2749	0.2834	0.3932	0.0230	29.0468	88.6934	0.2519	0.0019	0.1413	0.0473	0
1999	**MANİSA**	0.0949	0.1090	0.6319	0.1859	0.2208	0.2628	0.4390	0.0356	5.2098	87.9653	0.2492	0.0011	0.1359	0.0193	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
1999	**MARDİN**	0.6371	1.2035	0.1904	0.2270	0.0958	0.1276	0.2885	0.2526	3.6118	81.8888	0.1851	0.0030	0.2996	0.0235	0
1999	**MUĞLA**	0.1354	0.2484	0.6201	0.2187	0.3434	0.2558	0.3288	0.0158	227.0686	81.0285	0.3491	0.0013	0.0984	0.0584	0
1999	**MUŞ**	0.5458	0.2993	0.1016	0.5543	0.1277	0.2759	0.1228	0.3180	49.0988	80.9982	0.1799	0.0030	0.1957	0.0284	0
1999	**NEVŞEHİR**	0.0801	0.1329	0.4538	0.3590	0.2793	0.1671	0.1532	0.0093	40.5237	87.9840	0.1815	0.0019	0.0868	0.0224	0
1999	**NİĞDE**	0.1113	0.1631	0.3749	0.6023	0.1847	0.1465	0.4115	0.0089	20.6887	89.2015	0.2633	0.0022	0.1001	0.0245	0
1999	**ORDU**	0.1318	0.0885	0.2399	0.3515	0.3051	0.3902	0.3286	0.0176	35.6175	88.0924	0.2951	0.0013	0.2046	0.0596	0
1999	**OSMANİYE**	0.1749	0.0714	0.2235	0.2579	0.1728	0.4717	0.2646	0.0162	3.9544	83.6103	0.1799	0.0017	0.1592	0.0100	0
1999	**RİZE**	0.1597	0.2068	0.3827	0.2198	0.2412	0.3113	0.4898	0.0114	42.5580	90.8691	0.4508	0.0014	0.1481	0.0375	0
1999	**SAKARYA**	0.1892	0.2143	0.4302	0.2327	0.2681	0.3493	0.3502	0.0147	19.6444	65.6636	0.2106	0.0017	0.1385	0.0253	1
1999	**SAMSUN**	0.2100	0.2327	0.3834	0.2345	0.3303	0.3496	0.4278	0.0099	42.5086	90.3581	0.3928	0.0017	0.1416	0.0295	0
1999	**SİİRT**	0.3577	0.4424	0.1895	0.1960	0.0964	0.1837	0.4074	0.2212	10.3102	87.8982	0.1598	0.0047	0.2512	0.0587	0
1999	**SİNOP**	0.2145	0.1819	0.2938	0.2963	0.3772	0.4643	0.2154	0.0179	35.8072	86.9938	0.2676	0.0019	0.0800	0.0446	0
1999	**SİVAS**	0.1260	0.0945	0.2720	0.2264	0.3274	0.3271	0.4514	0.0068	188.8096	78.3439	0.2713	0.0020	0.0866	0.0250	0
1999	**ŞANLIURFA**	0.4424	0.7291	0.2113	0.3543	0.1070	0.3146	0.1250	0.1656	59.0734	91.7541	0.0789	0.0019	0.2463	0.0091	0
1999	**ŞIRNAK**	0.6453	1.0923	0.0935	0.2733	0.1581	0.0980	0.7472	0.2408	5.4465	90.4135	6.8000	0.0036	0.5941	0.0657	0
1999	**TEKİRDAĞ**	0.1251	0.3223	0.6533	0.1240	0.3103	0.1213	0.7447	0.0169	27.3059	85.5492	0.0980	0.0011	0.2406	0.0099	1
1999	**TOKAT**	0.1817	0.1085	0.2917	0.2771	0.1441	0.3985	0.3669	0.0070	6.2467	86.9869	0.4496	0.0021	0.1285	0.0245	0
1999	**TRABZON**	0.2150	0.1557	0.2875	0.2806	0.3815	0.4650	0.1747	0.0078	26.2395	92.9770	0.0286	0.0021	0.1517	0.0394	0
1999	**TUNCELİ**	0.2882	0.2569	0.2137	0.4153	0.4080	0.3161	0.0922	0.1337	570.2263	88.4119	3.5610	0.0047	0.1101	0.0485	0
1999	**UŞAK**	0.1179	0.1813	0.3283	0.2587	0.7169	0.2250	0.5982	0.0130	7.6191	87.0056	0.3535	0.0012	0.1572	0.0210	0
1999	**VAN**	0.5585	0.3807	0.1325	0.2425	0.1514	0.4089	0.1549	0.3571	14.3499	92.3178	0.6056	0.0033	0.1419	0.0297	0
1999	**YALOVA**	0.1708	0.2406	0.8908	0.0606	0.2620	0.1594	0.7245	0.0323	19.3175	83.1222	0.2075	0.0010	0.1981	0.0086	0
1999	**YOZGAT**	0.1487	0.0988	0.1916	0.3903	0.3029	0.3237	0.3716	0.0095	11.2415	88.2357	0.4223	0.0016	0.1262	0.0215	0
1999	**ZONGULDAK**	0.1417	0.1846	0.4012	0.0980	0.4294	0.1069	0.8146	0.0119	26.1541	91.7352	0.7455		0.1870	0.0085	1
2000	**ADANA**	0.2357	0.2087	0.4417	0.1231	0.2987	0.2202	0.5169	0.0927	13.9340	80.6700	0.3545	0.0013	0.1463	0.0301	0
2000	**ADIYAMAN**	0.2089	0.2187	0.1813	0.2254	0.1257	0.2056	0.5978	0.1193	18.7646	79.8537	0.1502	0.0021	0.2082	0.0020	0
2000	**AFYON**	0.0993	0.0805	0.2340	0.2997	0.2780	0.2305	0.4881	0.0108	17.7760	80.3229	0.2311	0.0012	0.1135	0.0243	0
2000	**AĞRI**	0.3689	0.2240	0.0800	0.6122	0.0975	0.4550	0.0672	0.3510	7.2605	93.8346	0.4951	0.0028	0.2103	0.0547	0
2000	**AKSARAY**	0.1550	0.1021	0.1873	0.3997	0.3898	0.3499	0.1465	0.0163	12.3202	88.8502	0.2910	0.0024	0.0848	0.0328	0
2000	**AMASYA**	0.1645	0.1635	0.2623	0.2972	0.1732	0.3237	0.3913	0.0131	43.9003	90.6687	0.2649	0.0025	0.1336	0.0314	0
2000	**ANKARA**	0.2061	0.3072	0.5478	0.0466	1.3895	0.3524	0.2363	0.0242	43.9150	93.9518	1.5572	0.0017	0.1470	0.0180	1

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
2000	**ANTALYA**	0.1749	0.1949	0.3938	0.1598	0.3726	0.2792	0.1860	0.0279	46.1205	83.5391	0.3234	0.0010	0.0965	0.0644	0
2000	**ARDAHAN**	0.4620	0.2422	0.1023	0.6480	0.2645	0.5773	0.0308	0.1618	24.3053	89.1731	0.4112	0.0023	0.1550	0.0582	0
2000	**ARTVİN**	0.1762	0.2124	0.3547	0.2319	0.1879	0.2634	0.5316	0.0092	1,188.9808	87.2059	0.3281	0.0017	0.1524	0.0502	0
2000	**AYDIN**	0.2251	0.2693	0.4353	0.2669	0.2806	0.3380	0.2293	0.0500	55.6479	86.8694	0.2223		0.1059	0.0239	0
2000	**BALIKESİR**	0.1557	0.2306	0.3809	0.2734	0.3136	0.2628	0.4532	0.0161	48.6641	87.4281	0.4185	0.0009	0.1723	0.0203	0
2000	**BARTIN**	0.2111	0.2228	0.1509	0.2755	0.5920	0.3874	0.2826	0.0150	38.7636	88.7688	0.5419	0.0012	0.1204	0.0256	1
2000	**BATMAN**	0.5657	0.8601	0.1889	0.2096	0.0691	0.2090	0.3433	0.4716	6.8277	87.0772	0.1877	0.0032	0.2426	0.0181	0
2000	**BAYBURT**	0.1376	0.0665	0.1361	0.4028	0.2105	0.4956	0.0247	0.0060	7.7667	86.2192	0.2045	0.0025	0.0786	0.0402	0
2000	**BİLECİK**	0.0681	0.1857	0.6762	0.1377	0.1437	0.0391	0.9258	0.0105	90.2239	78.6615	0.1595	0.0019	0.1495	0.0171	0
2000	**BİNGÖL**	0.3966	0.1915	0.1033	0.4880	0.1543	0.4909	0.0199	0.2212	252.0257	84.0953	0.1865	0.0036	0.1458	0.0326	0
2000	**BİTLİS**	0.4496	0.2179	0.0827	0.5681	0.0988	0.4044	0.0191	0.2956	15.9798	89.4283	0.2159	0.0039	0.1965	0.0315	0
2000	**BOLU**	0.0873	0.1711	0.7261	0.3814	0.1421	0.2010	0.6093	0.0140	31.2315	60.3174	0.0840	0.0018	0.1893	0.0262	1
2000	**BURDUR**	0.1693	0.1670	0.3700	0.2532	0.2400	0.3061	0.3696	0.0084	15.5258	91.9936	0.2185	0.0017	0.1107	0.0285	0
2000	**BURSA**	0.1633	0.2619	0.5486	0.0929	0.3349	0.1374	0.7423	0.0210	73.1608	89.6078	0.6312	0.0011	0.0768	0.0152	0
2000	**ÇANAKKALE**	0.1119	0.2003	0.5011	0.2282	0.1956	0.1914	0.5935	0.0101	57.2953	83.3649	0.2193	0.0015	0.1635	0.0139	0
2000	**ÇANKIRI**	0.1109	0.0587	0.2060	0.3335	0.1713	0.3755	0.3061	0.0158	5.3675	90.7841	0.2123	0.0024	0.0975	0.0384	1
2000	**ÇORUM**	0.1604	0.1342	0.3331	0.2185	0.1846	0.3292	0.4245	0.0193	105.4041	86.2745	0.1627	0.0013	0.1041	0.0195	0
2000	**DENİZLİ**	0.0807	0.1326	0.4943	0.1418	0.3909	0.1904	0.6225	0.0184	27.3890	84.0001	0.2997	0.0012	0.1403	0.0221	0
2000	**DİYARBAKIR**	0.6754	1.0748	0.2017	0.2339	0.1059	0.2489	0.1343	0.5618	51.3068	81.1771	0.1750	0.0023	0.2427	0.0248	0
2000	**DÜZCE**	0.1890	0.2430	0.2523	0.2509	0.3404	0.3621	0.3431	0.0162	33.4091	56.7686	0.1281	0.0011	0.1663	0.0273	1
2000	**EDİRNE**	0.1414	0.2378	0.4292	0.3750	0.2625	0.2426	0.4442	0.0088	37.7197	90.8604	0.3578	0.0010	0.1565	0.0144	1
2000	**ELAZIĞ**	0.1369	0.2399	0.2526	0.2595	0.1924	0.1642	0.6212	0.0710	24.6147	88.1773	0.2734	0.0035	0.2013	0.0267	0
2000	**ERZİNCAN**	0.1645	0.0917	0.1625	0.4312	0.2395	0.3309	0.1208	0.0136	32.1130	81.9471	0.2633	0.0040	0.0911	0.0255	0
2000	**ERZURUM**	0.2600	0.1601	0.1405	0.3320	0.1591	0.3386	0.1991	0.0985	43.4685	83.1441	0.3398	0.0029	0.1637	0.0281	0
2000	**ESKİŞEHİR**	0.1478	0.1697	0.4624	0.1173	0.3516	0.2678	0.5322	0.0124	41.7684	90.3808	0.3908	0.0012	0.0984	0.0128	0
2000	**GAZİANTEP**	0.2021	0.3907	0.3100	0.1211	0.2109	0.1549	0.6257	0.0801	38.4091	83.3454	0.2866	0.0015	0.2557	0.0196	0
2000	**GİRESUN**	0.1042	0.0820	0.2074	0.2876	0.3356	0.3126	0.4132	0.0129	86.2339	86.2196	0.2890	0.0013	0.1668	0.0446	0
2000	**GÜMÜŞHANE**	0.2024	0.0756	0.1571	0.5075	0.1506	0.4937	0.1364	0.0103	84.3384	87.8670	0.1664	0.0027	0.0888	0.0412	0
2000	**HAKKARİ**	0.6516	0.7010	0.0731	0.6299	0.0949	0.2611	0.0104	0.4523	17.3400	93.3333	0.5435	0.0071	0.2506	0.0639	0
2000	**HATAY**	0.2348	0.2356	0.3511	0.2198	0.3193	0.1495	0.7032	0.0343	12.6083	88.1786	0.5374	0.0013	0.1341	0.0185	0
2000	**IĞDIR**	0.4871	0.3704	0.1243	0.4869	0.2895	0.4962	0.0254	0.3270	23.6078	80.6173	0.7735	0.0025	0.2407	0.0127	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
2000	ISPARTA	0.0885	0.1055	0.2546	0.3162	0.3300	0.2092	0.4849	0.0109	39.7171	89.8016	0.3553	0.0018	0.1355	0.0247	0
2000	İÇEL	0.3468	0.2973	0.4254	0.2175	0.2642	0.2417	0.4949	0.0960	52.5672	90.6641	0.4334	0.0012	0.1165	0.0309	0
2000	İSTANBUL	0.2365	0.3638	0.6044	0.0057	1.0804	0.2966	0.4603	0.0552	53.6196	89.0579	1.8794	0.0008	0.1738	0.0085	1
2000	İZMİR	0.0893	0.2128	0.6123	0.0781	0.4194	0.1787	0.5911	0.0518	59.3477	90.5719	0.8026	0.0011	0.2046	0.0126	0
2000	K.MARAŞ	0.1203	0.1901	0.2482	0.2229	0.1190	0.1440	0.6649	0.0319	278.6048	88.8261	0.2538	0.0020	0.2142	0.0232	0
2000	KARABÜK	0.0658	0.1136	0.7894	0.0408	0.2480	0.1967	0.6460	0.0143	36.1381	74.6744	0.1370	0.0017	0.1638	0.0189	1
2000	KARAMAN	0.1024	0.1001	0.3747	0.5302	0.1585	0.2471	0.3022	0.0125	13.3991	83.0408	0.1408	0.0016	0.0984	0.0383	1
2000	KARS	0.4103	0.3329	0.1297	0.3733	0.2042	0.2946	0.3474	0.2008	38.0383	82.3698	0.2553	0.0033	0.1789	0.0304	0
2000	KASTAMONU	0.0962	0.0909	0.3069	0.2785	0.2033	0.2950	0.4712	0.0141	59.0575	86.4672	0.2728	0.0025	0.0927	0.0385	0
2000	KAYSERİ	0.0881	0.1250	0.3000	0.1239	0.3467	0.2349	0.5776	0.0155	17.4830	90.5288	0.4375	0.0018	0.1338	0.0252	0
2000	KIRIKKALE	0.1671	0.1418	0.3698	0.0915	0.0763	0.2329	0.2887	0.0096	57.9925	94.5474	0.4793	0.0035	0.1822	0.0847	1
2000	KIRKLARELİ	0.1756	0.4705	0.6418	0.1164	0.2030	0.1326	0.7142	0.0085	35.2608	86.2283	0.3261	0.0016	0.2453	0.0134	1
2000	KIRŞEHİR	0.1536	0.1192	0.2490	0.2711	0.3092	0.3439	0.4437	0.0407	117.8585	89.1131	0.2142	0.0026	0.1063	0.0240	0
2000	KİLİS	0.3315	0.2527	0.3960	0.2509	0.1184	0.4821	0.0822	0.0226	27.1335	84.1306	0.0832	0.0024	0.1353	0.0167	0
2000	KOCAELİ	0.1334	0.3430	1.0000	0.0324	0.2181	0.1078	0.7896	0.0394	46.3665	93.7627	3.2286	0.0012	0.2028	0.0163	1
2000	KONYA	0.1092	0.0906	0.2739	0.2485	0.1790	0.1713	0.5971	0.0315	28.1620	81.1099	0.2431	0.0024	0.1079	0.0251	1
2000	KÜTAHYA	0.0714	0.0673	0.3017	0.1569	0.1716	0.2414	0.5539	0.0096	53.7285	84.8003	0.2696	0.0012	0.1503	0.0154	0
2000	MALATYA	0.1866	0.1856	0.2536	0.1714	0.1926	0.2539	0.4616	0.0419	34.2596	84.8010	0.2138	0.0017	0.1561	0.0449	0
2000	MANİSA	0.1136	0.1352	0.5950	0.1563	0.1657	0.2590	0.4340	0.0394	9.1216	88.3409	0.1881	0.0010	0.1325	0.0189	0
2000	MARDİN	0.5830	1.1574	0.1632	0.2561	0.0853	0.1438	0.1842	0.3961	1.9448	82.7790	0.1723	0.0028	0.2958	0.0224	0
2000	MUĞLA	0.1386	0.2602	0.6085	0.2282	0.2368	0.2546	0.2669	0.0172	114.7055	82.3231	0.2542	0.0012	0.0988	0.0590	0
2000	MUŞ	0.5183	0.3318	0.0814	0.5524	0.1209	0.2821	0.1061	0.3789	58.9540	83.7611	0.1866	0.0027	0.2380	0.0253	0
2000	NEVŞEHİR	0.0994	0.1603	0.3928	0.3535	0.2033	0.1616	0.1661	0.0116	17.7463	85.9644	0.1411	0.0019	0.0878	0.0230	0
2000	NİĞDE	0.1389	0.1873	0.3079	0.5235	0.1489	0.1471	0.3547	0.0130	21.2787	89.8169	0.2109	0.0021	0.0966	0.0242	0
2000	ORDU	0.1655	0.1173	0.1975	0.3206	0.2416	0.3853	0.4176	0.0144	43.9920	87.0655	0.2530	0.0013	0.1779	0.0635	0
2000	OSMANİYE	0.1604	0.0682	0.1896	0.2514	0.1428	0.4757	0.2248	0.0217	21.9613	83.0339	0.1664	0.0017	0.1460	0.0095	0
2000	RİZE	0.1536	0.1695	0.2933	0.2128	0.2046	0.3296	0.4506	0.0060	36.0759	90.6569	0.4052	0.0014	0.1396	0.0189	0
2000	SAKARYA	0.1927	0.3418	0.4126	0.2450	0.2275	0.3189	0.3577	0.0168	55.7483	54.3379	0.1371	0.0015	0.1577	0.0235	1
2000	SAMSUN	0.1785	0.1457	0.3280	0.2135	0.2619	0.3610	0.3931	0.0126	33.5969	91.7236	0.3607	0.0017	0.1454	0.0047	0
2000	SİİRT	0.3760	0.5124	0.1748	0.2514	0.0722	0.2128	0.4302	0.3219	7.4177	87.3976	0.1420	0.0050	0.2538	0.0582	0
2000	SİNOP	0.1937	0.1506	0.2357	0.2961	0.2887	0.4789	0.2135	0.0161	51.3961	89.5149	0.2361	0.0019	0.0687	0.0179	0

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
2000	SİVAS	0.1373	0.1027	0.2235	0.1908	0.2591	0.3065	0.4461	0.0117	57.7357	80.0362	0.2608	0.0019	0.1126	0.0245	0
2000	ŞANLIURFA	0.5958	1.0815	0.2010	0.3670	0.0824	0.2103	0.1349	0.1936	102.1757	95.3570	0.1536	0.0018	0.2670	0.0087	0
2000	ŞIRNAK	0.5982	0.9423	0.0775	0.2728	0.1302	0.1440	0.3365	0.4595	9.8588	89.3653	7.7597	0.0031	0.4639	0.0360	0
2000	TEKİRDAĞ	0.1365	0.3682	0.5794	0.1188	0.2487	0.1193	0.7035	0.0168	28.4892	90.1739	0.0862	0.0011	0.2529	0.0109	1
2000	TOKAT	0.1274	0.0660	0.2243	0.2489	0.1184	0.3877	0.3782	0.0130	7.6906	90.0176	0.4196	0.0021	0.1302	0.0243	0
2000	TRABZON	0.1695	0.1125	0.2178	0.2049	0.3446	0.5100	0.1524	0.0081	33.6072	94.3214	0.0274	0.0020	0.1534	0.0042	0
2000	TUNCELİ	0.2934	0.2292	0.1442	0.4741	0.3716	0.3381	0.0880	0.3256	435.7642	82.4982	3.1390	0.0047	0.1175	0.0475	0
2000	UŞAK	0.0931	0.1575	0.2839	0.2416	0.5942	0.1881	0.6219	0.0158	20.2467	89.0008	0.2992	0.0013	0.1646	0.0204	0
2000	VAN	0.4935	0.3734	0.1163	0.2941	0.1010	0.3639	0.1392	0.4090	18.9570	91.7082	0.3450	0.0030	0.1597	0.0268	0
2000	YALOVA	0.1616	0.2711	0.8495	0.0524	0.2398	0.1286	0.7713	0.0396	29.0128	74.3537	0.2154	0.0014	0.1059	0.0106	0
2000	YOZGAT	0.1486	0.0951	0.1702	0.3501	0.2048	0.2965	0.4341	0.0149	7.0213	85.1948	0.2376	0.0017	0.1541	0.0353	0
2000	ZONGULDAK	0.1462	0.1992	0.3662	0.0908	0.2686	0.1035	0.8284	0.0124	34.1783	92.9590	0.7249	0.0018	0.2707	0.0194	1
2001	ADANA	0.2422	0.2085	0.4146	0.1274	0.2987	0.2117	0.5042	0.0927	6.0125	80.4717	0.3510	0.0011	0.1464	0.0291	0
2001	ADIYAMAN	0.1724	0.1711	0.1825	0.2213	0.1257	0.2297	0.4110	0.1193	11.6829	80.8210	0.1632	0.0020	0.1885	0.0215	0
2001	AFYON	0.0873	0.0692	0.2292	0.2997	0.2780	0.2375	0.4110	0.0108	16.0779	78.2481	0.2370	0.0013	0.1072	0.0245	0
2001	AĞRI	0.3189	0.2133	0.0798	0.5224	0.0975	0.4781	0.1536	0.3510	4.8829	93.7139	0.4194	0.0027	0.2289	0.0550	0
2001	AKSARAY	0.1067	0.0703	0.1637	0.3780	0.3898	0.3441	0.1357	0.0163	7.3435	85.6842	0.3104	0.0022	0.0715	0.0334	0
2001	AMASYA	0.1496	0.1480	0.2404	0.2662	0.1732	0.2969	0.3301	0.0131	47.7080	90.5013	0.2577	0.0023	0.1300	0.0287	0
2001	ANKARA	0.1988	0.2781	0.5081	0.0409	1.3895	0.3686	0.2149	0.0242	28.5951	92.7239	2.0909	0.0017	0.1302	0.0176	1
2001	ANTALYA	0.1670	0.1844	0.4067	0.1362	0.3726	0.2631	0.1719	0.0279	46.3940	83.4982	0.3414	0.0009	0.0981	0.0462	0
2001	ARDAHAN	0.3679	0.1851	0.1174	0.6842	0.2645	0.5296	0.0216	0.1618	23.2451	88.3110	0.2717	0.0025	0.1471	0.0589	0
2001	ARTVİN	0.1654	0.1876	0.3695	0.2350	0.1879	0.2952	0.4604	0.0092	1,215.0240	84.7369	0.2748	0.0018	0.1433	0.0475	0
2001	AYDIN	0.1283	0.1509	0.3979	0.2456	0.2806	0.3882	0.2225	0.0500	52.7421	87.6941	0.2500	0.0011	0.1003	0.0238	0
2001	BALIKESİR	0.1246	0.1791	0.3590	0.2619	0.3136	0.2563	0.4194	0.0161	73.9125	85.2663	0.4138	0.0009	0.1436	0.0200	0
2001	BARTIN	0.1480	0.1477	0.1565	0.2698	0.5920	0.4235	0.1758	0.0150	39.9747	87.1995	0.4849	0.0012	0.1084	0.0286	1
2001	BATMAN	0.5156	0.7355	0.1864	0.1981	0.0691	0.2227	0.2880	0.4716	22.9649	85.8076	0.1674	0.0032	0.2472	0.0180	0
2001	BAYBURT	0.1184	0.0560	0.1470	0.4156	0.2105	0.4913	0.0375	0.0060	7.4913	86.6848	0.1975	0.0027	0.0751	0.0392	0
2001	BİLECİK	0.0536	0.1352	0.6677	0.1238	0.1437	0.0394	0.9259	0.0105	38.0024	64.1759	0.1410	0.0018	0.1354	0.0175	0
2001	BİNGÖL	0.3970	0.2207	0.1165	0.3807	0.1543	0.3697	0.0204	0.2212	159.5393	82.0879	0.1692	0.0034	0.1560	0.0320	0
2001	BİTLİS	0.4464	0.2277	0.0895	0.5162	0.0988	0.3729	0.0178	0.2956	13.3914	89.0320	0.2028	0.0039	0.1806	0.0344	0
2001	BOLU	0.1515	0.2119	0.6285	0.5169	0.1421	0.1978	0.5313	0.0140	25.1315	39.8924	0.1413	0.0016	0.1505	0.0235	1

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
2001	**BURDUR**	0.1393	0.1339	0.3576	0.2256	0.2400	0.2139	0.3427	0.0084	8.3907	90.2859	0.2234	0.0016	0.1056	0.0282	0
2001	**BURSA**	0.1471	0.2094	0.5229	0.0857	0.3349	0.1485	0.7207	0.0210	59.0673	84.9993	0.5698	0.0011	0.0704	0.0149	0
2001	**ÇANAKKALE**	0.0936	0.1537	0.4407	0.2383	0.1956	0.2130	0.5024	0.0101	106.7019	83.7653	0.2447	0.0014	0.1469	0.0153	0
2001	**ÇANKIRI**	0.1208	0.0621	0.1979	0.3235	0.1713	0.3693	0.3024	0.0158	3.6190	89.8723	0.1842	0.0022	0.0811	0.0373	1
2001	**ÇORUM**	0.1391	0.1126	0.3065	0.2195	0.1846	0.3496	0.3787	0.0193	49.0055	85.2620	0.1760	0.0012	0.0977	0.0180	0
2001	**DENİZLİ**	0.0738	0.1214	0.5112	0.1303	0.3909	0.1868	0.6251	0.0184	32.4914	81.6770	0.3136	0.0010	0.1427	0.0224	0
2001	**DİYARBAKIR**	0.6270	1.0579	0.2155	0.2585	0.1059	0.2112	0.1241	0.5618	32.3539	83.1739	0.1611	0.0024	0.2465	0.0268	0
2001	**DÜZCE**	0.1105	0.1151	0.2409	0.2717	0.3404	0.3391	0.4246	0.0162	22.7887	33.1960	0.1992	0.0011	0.1294	0.0249	1
2001	**EDİRNE**	0.1491	0.2266	0.3860	0.3560	0.2625	0.2547	0.3701	0.0088	30.4511	89.7334	0.3708	0.0010	0.1265	0.0139	1
2001	**ELAZIĞ**	0.1605	0.2120	0.2482	0.2577	0.1924	0.2138	0.5001	0.0710	15.8574	88.5558	0.2671	0.0033	0.1826	0.0263	0
2001	**ERZİNCAN**	0.1237	0.0666	0.1752	0.4304	0.2395	0.3751	0.1054	0.0136	15.9915	84.2677	0.2491	0.0040	0.0881	0.0293	0
2001	**ERZURUM**	0.2828	0.1786	0.1500	0.2872	0.1591	0.3500	0.1616	0.0985	31.3645	81.3618	0.2918	0.0026	0.1521	0.0253	0
2001	**ESKİŞEHİR**	0.1197	0.1313	0.5193	0.0995	0.3516	0.2664	0.5046	0.0124	29.4149	89.7062	0.3350	0.0012	0.0924	0.0128	0
2001	**GAZİANTEP**	0.1856	0.3370	0.3125	0.1017	0.2109	0.1653	0.6099	0.0801	20.2944	82.4375	0.2911	0.0014	0.2084	0.0209	0
2001	**GİRESUN**	0.1190	0.0854	0.2427	0.3404	0.3356	0.3658	0.3099	0.0129	88.0661	87.0799	0.2432	0.0012	0.1589	0.0433	0
2001	**GÜMÜŞHANE**	0.2093	0.0788	0.1596	0.5589	0.1506	0.4822	0.1352	0.0103	324.5299	87.0355	0.1614	0.0025	0.0873	0.0409	0
2001	**HAKKARİ**	0.6254	0.6478	0.0803	0.6772	0.0949	0.2917	0.0203	0.4523	20.3948	86.2958	0.2351	0.0068	0.2234	0.0637	0
2001	**HATAY**	0.1627	0.1621	0.3401	0.2068	0.3193	0.1774	0.6259	0.0343	12.2355	90.0821	0.5628	0.0011	0.1102	0.0180	0
2001	**IĞDIR**	0.3856	0.3079	0.1268	0.5145	0.2895	0.4444	0.0232	0.3270	16.7547	70.6012	0.7503	0.0029	0.2389	0.0130	0
2001	**ISPARTA**	0.0789	0.0885	0.2616	0.2997	0.3300	0.2053	0.4709	0.0109	24.6066	90.1685	0.3531	0.0016	0.1280	0.0237	0
2001	**İÇEL**	0.2761	0.2315	0.4233	0.2229	0.2642	0.2728	0.4785	0.0960	20.7067	92.4111	0.4463	0.0012	0.1190	0.0317	0
2001	**İSTANBUL**	0.2496	0.3650	0.5614	0.0072	1.0804	0.2839	0.4551	0.0552	22.4724	90.5484	1.9110	0.0008	0.1661	0.0080	1
2001	**İZMİR**	0.0842	0.1934	0.5941	0.0832	0.4194	0.1852	0.5830	0.0518	42.7098	87.6321	0.7541	0.0009	0.1898	0.0117	0
2001	**K.MARAŞ**	0.0942	0.1484	0.2655	0.2047	0.1190	0.1480	0.6547	0.0319	249.3045	84.7547	0.2441	0.0018	0.2064	0.0237	0
2001	**KARABÜK**	0.0625	0.0883	0.6724	0.0467	0.2480	0.1459	0.7397	0.0143	10.6791	67.7410	0.1470	0.0016	0.1247	0.0183	1
2001	**KARAMAN**	0.0729	0.0743	0.3717	0.5623	0.1585	0.2336	0.2620	0.0125	15.1341	85.3099	0.1406	0.0013	0.0966	0.0378	1
2001	**KARS**	0.4241	0.3532	0.1445	0.3599	0.2042	0.3044	0.3310	0.2008	32.9225	83.9467	0.2401	0.0032	0.1696	0.0299	0
2001	**KASTAMONU**	0.1096	0.1030	0.3009	0.2702	0.2033	0.2693	0.4711	0.0141	24.1526	86.0971	0.2701	0.0023	0.0884	0.0379	0
2001	**KAYSERİ**	0.0884	0.1230	0.3041	0.1232	0.3467	0.2321	0.5732	0.0155	15.1005	89.0025	0.4201	0.0016	0.1302	0.0246	0
2001	**KIRIKKALE**	0.1451	0.1037	0.3648	0.0825	0.0763	0.2412	0.3653	0.0096	86.8428	94.4744	0.3256	0.0036	0.1474	0.0824	1
2001	**KIRKLARELİ**	0.1003	0.2227	0.6428	0.1119	0.2030	0.0878	0.8087	0.0085	41.8541	71.9053	0.2442	0.0015	0.1482	0.0137	1

Year	Province	tlr	tlpc	gdpcr	agrgdpr	depositr	resecr	indecr	depr	pie	trrr	trpgdp	pnps	tur	lwlps	dumjp
2001	KIRŞEHİR	0.1439	0.1179	0.2549	0.3010	0.3092	0.3695	0.3356	0.0407	39.0274	87.5614	0.2131	0.0024	0.1098	0.0321	0
2001	KİLİS	0.3318	0.2545	0.4079	0.2735	0.1184	0.4466	0.1116	0.0226	31.2903	83.5585	0.0840	0.0025	0.1351	0.0168	0
2001	KOCAELİ	0.1633	0.4294	1.0000	0.0317	0.2181	0.0901	0.8268	0.0394	70.3759	96.7684	3.5674	0.0011	0.1657	0.0200	1
2001	KONYA	0.0787	0.0650	0.2459	0.2439	0.1790	0.1778	0.5624	0.0315	14.1480	81.7942	0.2811	0.0023	0.1011	0.0261	1
2001	KÜTAHYA	0.1036	0.0940	0.3063	0.1550	0.1716	0.2790	0.5045	0.0096	36.1964	85.6793	0.2631	0.0005	0.1142	0.0151	0
2001	MALATYA	0.1751	0.1740	0.2558	0.1507	0.1926	0.2524	0.4429	0.0419	30.9425	83.0626	0.1994	0.0016	0.3737	0.0465	0
2001	MANİSA	0.0927	0.1006	0.5789	0.1540	0.1657	0.2630	0.4081	0.0394	8.3969	87.0088	0.1888	0.0010	0.1204	0.0189	0
2001	MARDİN	0.5931	1.2056	0.1927	0.3532	0.0853	0.1429	0.1808	0.3961	1.3363	81.9078	0.1499	0.0027	0.2706	0.0222	0
2001	MUĞLA	0.1340	0.2433	0.5546	0.2215	0.2368	0.2618	0.2339	0.0172	94.3972	81.8284	0.2914	0.0011	0.0950	0.0849	0
2001	MUŞ	0.5115	0.3518	0.0871	0.6469	0.1209	0.2970	0.1001	0.3789	35.2325	79.6349	0.1735	0.0027	0.2028	0.0264	0
2001	NEVŞEHİR	0.0553	0.0900	0.3874	0.2984	0.2033	0.1746	0.1531	0.0116	14.2656	83.7123	0.1457	0.0018	0.0834	0.0239	0
2001	NİĞDE	0.1235	0.1593	0.3021	0.5007	0.1489	0.1707	0.2602	0.0130	12.3595	88.8084	0.2174	0.0019	0.0851	0.0267	0
2001	ORDU	0.1463	0.0955	0.2226	0.3229	0.2416	0.4033	0.3771	0.0144	66.4273	85.4733	0.2382	0.0012	0.1674	0.0492	0
2001	OSMANİYE	0.1392	0.0558	0.1948	0.2347	0.1428	0.4632	0.2339	0.0217	45.1381	84.7106	0.1757	0.0016	0.1319	0.0274	0
2001	RİZE	0.1341	0.1425	0.3063	0.2651	0.2046	0.3430	0.4381	0.0060	17.8168	92.2739	0.4093	0.0014	0.1343	0.0415	0
2001	SAKARYA	0.2417	0.3241	0.3816	0.3001	0.2275	0.3176	0.3727	0.0168	35.7348	35.3449	0.2042	0.0013	0.1487	0.0220	1
2001	SAMSUN	0.1999	0.2199	0.3228	0.2172	0.2619	0.3657	0.3015	0.0126	34.7572	90.7646	0.3580	0.0015	0.1446	0.0328	0
2001	SİİRT	0.4389	0.6268	0.1993	0.2122	0.0722	0.1651	0.5052	0.3219	4.0963	87.5429	0.1237	0.0051	0.2535	0.0581	0
2001	SİNOP	0.1886	0.1489	0.2467	0.2963	0.2887	0.4657	0.1851	0.0161	107.0365	90.1064	0.2318	0.0018	0.0663	0.1174	0
2001	SİVAS	0.1227	0.0904	0.2361	0.1917	0.2591	0.3073	0.4280	0.0117	29.5428	73.4346	0.2356	0.0016	0.1087	0.0243	0
2001	ŞANLIURFA	0.6665	1.1534	0.2049	0.4127	0.0824	0.1748	0.1631	0.1936	81.4074	96.3394	0.2293	0.0016	0.2374	0.0085	0
2001	ŞIRNAK	0.5285	1.0013	0.0885	0.3960	0.1302	0.2562	0.2724	0.4595	7.3452	88.4452	6.8348	0.0033	0.5738	0.0323	0
2001	TEKİRDAĞ	0.1359	0.3164	0.5556	0.1152	0.2487	0.1351	0.7443	0.0168	10.2069	89.9439	0.0832	0.0009	0.1432	0.0099	1
2001	TOKAT	0.1564	0.0789	0.2224	0.2330	0.1184	0.4174	0.3137	0.0130	7.4109	89.4473	0.4036	0.0019	0.1275	0.0236	0
2001	TRABZON	0.1840	0.1144	0.2383	0.2162	0.3446	0.5175	0.1233	0.0081	28.4805	96.4195	0.0249	0.0018	0.1248	0.0359	0
2001	TUNCELİ	0.2624	0.2022	0.1635	0.5007	0.3716	0.3631	0.0839	0.3256	471.7347	81.9461	2.9098	0.0047	0.1111	0.0456	0
2001	UŞAK	0.0822	0.1376	0.2685	0.2172	0.5942	0.1978	0.6235	0.0158	8.5998	89.3728	0.3306	0.0011	0.1641	0.0199	0
2001	VAN	0.5838	0.5081	0.1225	0.3346	0.1010	0.4055	0.0781	0.4090	13.0343	89.2366	0.2486	0.0032	0.1801	0.0280	0
2001	YALOVA	0.1883	0.2829	0.8030	0.0526	0.2398	0.1444	0.7421	0.0396	19.3771	82.3527	0.2321	0.0015	0.1160	0.0165	0
2001	YOZGAT	0.1199	0.0747	0.1556	0.3179	0.2048	0.3020	0.3341	0.0149	3.8276	78.5304	0.2136	0.0014	0.1418	0.0338	0
2001	ZONGULDAK	0.1311	0.1738	0.3778	0.1027	0.2686	0.1182	0.7813	0.0124	31.5791	81.9745	0.6340	0.0016	0.2422	0.0262	1

Table A.2 Additional Data for Year 2000 Regression

Province	pthschr	asphrr	ruralpopr	drinkvr	insuredwpc	murderpc	injpc	kidnpc	robbpc	theftpc	theftpa
ADANA	0.189	55.56	0.151319	91	25.9562787	0.035792	0.434384	0.049349	0.027115	0.918117	0.768924
ADIYAMAN	0.087	37.47	0.367061	82	9.06249678	0.014517	0.125812	0.017743	0.006452	0.420988	0.559308
AFYON	0.183	76.38	0.209022	95	22.4086437	0.011109	0.137013	0.053077	0.035796	0.280199	0.323572
AĞRI	0.054	16.76	0.475216	63	7.94608169	0.022829	0.144586	0.022829	0.01522	0.426148	0.640533
AKSARAY	0.127	77.12	0.173736	94	30.3782228	0.022625	0.231279	0.082959	0.020111	0.392168	0.656758
AMASYA	0.225	57.03	0.340625	98	11.8996824	0.008215	0.082145	0.09036	0.019167	0.706447	0.473695
ANKARA	0.285	65.43	0.066256	99	84.6288864	0.022856	0.437775	0.085395	0.019088	1.54113	0.759518
ANTALYA	0.176	54.38	0.174371	86	19.0651518	0.024631	0.267422	0.096178	0.08093	3.311108	0.955668
ARDAHAN	0.105	28.82	0.718674	65	4.86055012	0	0.08152	0.059287	0	0.133397	0.369959
ARTVİN	0.468	11.49	0.502529	69	5.18548181	0.005186	0.046678	0.057051	0.010373	0.233389	0.330972
AYDIN	0.23	58.59	0.29152	93	14.2190855	0.034782	0.303548	0.101183	0.035835	0.945425	0.928839
BALIKESİR	0.237	57.37	0.369922	90	12.1624494	0.013977	0.283277	0.083865	0.023296	0.530213	0.227913
BARTIN	0.311	36.95	0.710622	78	2.63853517	0.016209	0.124272	0.043225	0	0.297173	0.21248
BATMAN	0.034	23.21	0.264872	58	12.7336802	0.056412	0.354269	0.040617	0.002256	0.690487	1.806771
BAYBURT	0.156	28.16	0.402572	98	11.4526841	0	0.07159	0.020454	0	0.357951	0.227428
BİLECİK	0.433	70.41	0.306881	97	16.7665143	0.030968	0.134196	0.015484	0.005161	0.366459	0.723477
BİNGÖL	0.066	23.21	0.37927	74	8.45698784	0.003917	0.235019	0.015668	0.007834	0.348612	0.190404
BİTLİS	0.051	27.88	0.308106	77	13.0193782	0.010343	0.100848	0.007758	0.018101	0.281857	0.918033
BOLU	0.389	39.74	0.454853	97	5.63950617	0.014787	0.136777	0.103507	0.003697	0.54341	0.240696
BURDUR	0.178	85.78	0.314255	97	18.0950817	0.007786	0.186864	0.093432	0.027251	0.836996	0.189915
BURSA	0.346	76.6	0.156738	94	29.6728243	0.020106	0.317385	0.113454	0.033031	2.34999	0.811945
ÇANAKKALE	0.272	68.8	0.418483	95	11.5874852	0.012931	0.191804	0.11422	0.015086	0.648685	0.272698
ÇANKIRI	0.23	52.87	0.363199	82	11.2631057	0.007436	0.130123	0.007436	0.003718	0.45729	0.179598
ÇORUM	0.177	45.7	0.424037	98	10.3387581	0.016728	0.127129	0.085311	0.023419	0.834705	0.756573
DENİZLİ	0.225	81.28	0.225832	66	18.682545	0.027376	0.264233	0.080936	0.019044	0.721286	0.490365
DİYARBAKIR	0.033	21.42	0.268474	51	10.8005198	0.032471	0.557177	0.036161	0.005166	0.656067	0.817761
DÜZCE	0.358	50.76	0.466851	97	4.90259017	0.015978	0.194929	0.08628	0.012782	0.425008	1.518219
EDİRNE	0.332	78.88	0.328776	90	19.161975	0.01241	0.223382	0.039712	0.009928	0.054604	0.344052

Province	pthschr	asphrr	ruralpopr	drinkvr	insuredwpc	murderpc	injpc	kidnpc	robbpc	theftpc	theftpa
ELAZIĞ	0.097	41.69	0.22293	83	14.5367251	0.026294	0.383887	0.038564	0.028047	0.425957	0.19411
ERZİNCAN	0.182	32.79	0.201944	93	23.0902995	0.009513	0.091957	0.044393	0.009513	0.196598	0.198955
ERZURUM	0.114	26.55	0.343235	94	13.275972	0.007452	0.252298	0.051098	0.009581	0.294879	0.210615
ESKİŞEHİR	0.359	61.88	0.142156	95	29.7389636	0.011364	0.254263	0.096591	0.024148	1.133528	0.802162
GAZİANTEP	0.112	90.7	0.161659	77	23.3241373	0.03193	0.621464	0.074763	0.064638	3.548107	0.923777
GİRESUN	0.224	11.14	0.351635	81	6.39138729	0.019106	0.143296	0.043944	0.019106	0.401229	0.931733
GÜMÜŞHANE	0.158	17.13	0.337614	93	11.1291123	0	0.096575	0.021461	0.005365	0.187784	0.648508
HAKKARİ	0.07	21.8	0.319091	87	10.042623	0.012841	0.072766	0.047084	0.008561	0.226858	6.369427
HATAY	0.125	77.15	0.225909	92	14.5364085	0.019528	0.238401	0.034174	0.007323	0.445883	0.400287
IĞDIR	0.11	35.35	0.371548	62	11.5655701	0.005961	0.274197	0.113255	0.059608	0.751061	0.214823
ISPARTA	0.218	82.98	0.192862	95	30.4714666	0.01368	0.130933	0.066444	0.021496	0.353714	0.364412
İÇEL	0.167	68.78	0.145772	77	24.6704028	0.02116	0.390548	0.138445	0.035669	1.631715	0.560447
İSTANBUL	0.273	97.78	0.014557	60	328.117153	0.106101	0.426416	0.066942	0.038152	3.105914	8.247548
İZMİR	0.294	84.28	0.095551	95	41.6630615	0.03032	0.480663	0.083826	0.014863	1.765403	1.484181
K.MARAŞ	0.148	47.95	0.265585	83	11.026678	0.01593	0.286737	0.047789	0.012943	0.604338	0.8726
KARABÜK	0.338	31.43	0.290844	79	7.95026929	0.022131	0.221308	0.075245	0.035409	0.641795	1.353668
KARAMAN	0.172	77.1	0.282898	92	23.2161498	0.016496	0.23094	0.065983	0.045363	0.313419	0.029212
KARS	0.107	25.3	0.530242	82	8.46779083	0.01523	0.216267	0.115749	0.024368	0.392937	0.182983
KASTAMONU	0.277	25.39	0.557135	79	4.28546675	0.010564	0.150536	0.021128	0.002641	0.24297	0.290217
KAYSERİ	0.225	68.42	0.157013	100	36.9675712	0.02007	0.443458	0.077414	0.021982	0.640338	0.754483
KIRIKKALE	0.195	70.75	0.112351	74	58.8687316	0.015687	0.321578	0.078434	0.010458	1.124215	2.097401
KIRKLARELİ	0.328	85.5	0.281279	100	28.888259	0.015247	0.186011	0.158567	0.024395	0.756241	0.374521
KIRŞEHİR	0.198	80.07	0.231603	99	23.2693907	0.019724	0.256408	0.06706	0.035503	0.757388	0.928649
KİLİS	0.2	76.8	0.359056	77	9.30218273	0.086687	0.225385	0.052012	0	0.390089	1.057082
KOCAELİ	0.338	79.35	0.085243	99	38.6078962	0.026812	0.258061	0.081272	0.031001	0.654369	1.790763
KONYA	0.133	70.34	0.115385	92	49.9368891	0.020436	0.208905	0.06585	0.016349	0.448691	0.431075
KÜTAHYA	0.26	59.56	0.269813	98	17.25778	0.004586	0.154397	0.044332	0.010701	0.342426	0.409796
MALATYA	0.108	22.49	0.188119	85	14.9410798	0.02239	0.233326	0.060099	0.018855	0.558569	0.786005
MANİSA	0.243	75.36	0.273083	87	13.0430086	0.01989	0.292775	0.11536	0.024663	0.582367	0.424505
MARDİN	0.071	42.16	0.271008	84	13.176512	0.021427	0.101422	0.039997	0.005714	0.482824	0.120724

Province	pthschr	asphrr	ruralpopr	drinkvr	insuredwpc	murderpc	injpc	kidnpc	robbpc	theftpc	theftpa
MUĞLA	0.222	65.01	0.345753	83	12.4858676	0.012639	0.178357	0.08005	0.030896	1.433878	0.497782
MUŞ	0.037	34.98	0.410282	82	10.4106571	0.006651	0.148544	0.017737	0.002217	0.565353	0.314317
NEVŞEHİR	0.178	97.05	0.214256	100	30.8982031	0.006466	0.40087	0.071122	0.032328	0.649798	0.400604
NİĞDE	0.186	91.96	0.194934	100	34.6641859	0.020199	0.150049	0.054826	0.028856	0.401093	0.362004
ORDU	0.183	18.06	0.28204	76	6.09612108	0.010158	0.11061	0.053048	0.010158	0.183974	0.512379
OSMANİYE	0.13	52.71	0.234373	84	12.3000814	0.010857	0.29966	0.067315	0.019543	1.007554	0.563409
RİZE	0.263	13.64	0.357769	76	4.00038841	0.010944	0.205198	0.032832	0	0.484267	0.358089
SAKARYA	0.292	79.37	0.297667	97	11.3604083	0.01747	0.184105	0.170667	0.014782	0.714918	1.22083
SAMSUN	0.218	28.76	0.401489	78	5.55905406	0.019123	0.311783	0.075659	0.032425	0.463933	0.689681
SİİRT	0.081	26.93	0.312874	81	13.2600434	0	0.219588	0.011358	0.003786	0.200658	0.162127
SİNOP	0.259	21.84	0.565922	90	4.02182283	0.013207	0.132065	0.057228	0.004402	0.515055	1.022372
SİVAS	0.206	31.39	0.311462	96	14.3272554	0.009287	0.269319	0.038474	0.00796	0.319734	0.505433
ŞANLIURFA	0.04	29.12	0.325316	86	8.0560911	0.011958	0.182186	0.010551	0.015475	0.330607	0.373676
ŞIRNAK	0.077	31.82	0.236162	77	16.5334667	0.0057	0.076956	0.017101	0.0057	0.213767	0.182789
TEKİRDAĞ	0.393	97.46	0.195989	97	27.1276538	0.016102	0.254406	0.115932	0.043474	0.644066	1.748604
TOKAT	0.171	38.96	0.248191	100	16.4928033	0.016981	0.151619	0.083694	0.013343	0.277767	0.498364
TRABZON	0.174	7.98	0.235611	92	7.49533172	0.011305	0.166489	0.086327	0.009249	0.3227	0.917398
TUNCELİ	0.336	5.9	0.316504	77	6.92085778	0.010514	0.136678	0.094623	0	0.357465	0.40833
UŞAK	0.3	72.85	0.319913	69	11.0263648	0.012436	0.52855	0.136801	0.015546	0.724424	0.404992
VAN	0.091	24.18	0.404658	71	11.141561	0.011506	0.147276	0.027614	0.016108	0.361285	0.756401
YALOVA	0.316	94.3	0.174832	79	28.4081525	0.011944	0.191106	0.083609	0.035832	1.027197	2.953149
YOZGAT	0.17	55.52	0.299716	96	17.6081373	0.013246	0.08095	0.045626	0.008831	0.264927	0.67904
ZONGULDAK	0.31	56.4	0.396019	56	4.83949571	0.012959	0.200861	0.090711	0.022678	0.366085	0.172253

APPENDIX B: MEAN AND VARIANCE COMPARISON TESTS

In Appendix B, Stata outputs for testing equality of independent panel variables' means and variances using whole and shrunk sample are displayed. Each tests show whether an independent variable's mean or variance calculated using whole sample (all provinces) is different from the one calculated using shrunk sample.

Table B.1 Testing the Equality of Means of GDPCR for Whole and Shrunk Sample

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
gdpcr	633	.3270467	.0073417	.1847133	.3126296	.3414638
dgdpcr	499	.3707648	.0079479	.1775416	.3551493	.3863802
combined	1132	.3463182	.0054332	.1828016	.3356579	.3569785
diff		-.0437181	.0108198		-.0649482	-.0224879

Satterthwaite's degrees of freedom: 1086.89

Ho: mean(gdpcr) - mean(dgdpcr) = diff = 0

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
t = -4.0405	t = -4.0405	t = -4.0405
P < t = 0.0000	P > |t| = 0.0001	P > t = 1.0000

Table B.2 Testing the Equality of Means of RESECR for Whole and Shrunk Sample

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
resecr	623	.278128	.0048779	.1217521	.2685489	.2877072
dresecr	495	.2645649	.0051273	.1140742	.254491	.2746388
combined	1118	.2721229	.0035456	.1185536	.265166	.2790797
diff		.0135631	.0070769		-.0003228	.0274491

Satterthwaite's degrees of freedom: 1086.21

Ho: mean(resecr) - mean(dresecr) = diff = 0

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
t = 1.9165	t = 1.9165	t = 1.9165
P < t = 0.9722	P > |t| = 0.0556	P > t = 0.0278

Table B.3 Testing the Equality of Means of INDECR for Whole and Shrunk Sample

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
indecr	623	.4095809	.0089321	.2229451	.3920401	.4271216
dindecr	496	.4640149	.0089941	.200309	.4463435	.4816863
combined	1119	.4337089	.006422	.2148255	.4211084	.4463095
diff		-.054434	.0126758		-.0793056	-.0295625

Satterthwaite's degrees of freedom: 1100.78

Ho: mean(indecr) - mean(dindecr) = diff = 0

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
t = -4.2943	t = -4.2943	t = -4.2943
P < t = 0.0000	P > |t| = 0.0000	P > t = 1.0000

Table B.4 Testing the Equality of Means of DEPOSITR for Whole and Shrunk Sample

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
depositr	633	.2373885	.0066729	.1678877	.2242847	.2504923
ddepos~r	499	.2672277	.0078014	.1742697	.2519	.2825554
combined	1132	.250542	.0050913	.1712966	.2405526	.2605314
diff		-.0298392	.0102659		-.0499833	-.0096951

Satterthwaite's degrees of freedom: 1050.28

Ho: mean(depositr) - mean(ddepositr) = diff = 0

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
t = -2.9066	t = -2.9066	t = -2.9066
P < t = 0.0019	P > |t| = 0.0037	P > t = 0.9981

Table B.5 Testing the Equality of Means of DEPR for Whole and Shrunk Sample

```
Two-sample t test with unequal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
    depr |     639    .0709599    .0046194    .1167723    .0618888    .0800311
   ddepr |     503    .0250174     .001644    .0368706    .0217875    .0282473
---------+--------------------------------------------------------------------
combined |    1142    .0507243     .002767    .0935057    .0452954    .0561532
---------+--------------------------------------------------------------------
    diff |            .0459425    .0049033                .0363176    .0555674
------------------------------------------------------------------------------
Satterthwaite's degrees of freedom:  793.662

                   Ho: mean(depr) - mean(ddepr) = diff = 0

     Ha: diff < 0               Ha: diff != 0              Ha: diff > 0
       t =   9.3698               t =   9.3698               t =   9.3698
   P < t =   1.0000          P > |t| =   0.0000          P > t =   0.0000
```

Table B.6 Testing the Equality of Means of PIE for Whole and Shrunk Sample

```
Two-sample t test with unequal variances

------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
     pie |     633    46.61494    3.629714    91.32175    39.48718    53.74269
    dpie |     499    47.84753    4.350183    97.17572    39.30056     56.3945
---------+--------------------------------------------------------------------
combined |    1132    47.15828    2.791098    93.90706    41.68197    52.63459
---------+--------------------------------------------------------------------
    diff |           -1.232593     5.66559               -12.34992    9.884737
------------------------------------------------------------------------------
Satterthwaite's degrees of freedom:  1036.81

                    Ho: mean(pie) - mean(dpie) = diff = 0

     Ha: diff < 0               Ha: diff != 0              Ha: diff > 0
       t =  -0.2176               t =  -0.2176               t =  -0.2176
   P < t =   0.4139          P > |t| =   0.8278          P > t =   0.5861
```

Table B.7 Testing the Equality of Means of TRRR for Whole and Shrunk Sample

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
trrr	637	86.18518	.2830265	7.143266	85.6294	86.74096
dtrrr	502	85.75747	.3395219	7.607109	85.09041	86.42453
combined	1139	85.99667	.2178163	7.351098	85.56931	86.42404
diff		.4277162	.4420171		-.4396283	1.295061

Satterthwaite's degrees of freedom: 1042.62

Ho: mean(trrr) - mean(dtrrr) = diff = 0

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
t = 0.9676	t = 0.9676	t = 0.9676
P < t = 0.8333	P > |t| = 0.3334	P > t = 0.1667

Table B.8 Testing the Equality of Means of TRPGDP for Whole and Shrunk Sample

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
trpgdp	633	.5363982	.0341201	.8584433	.4693958	.6034006
dtrpgdp	499	.4961545	.0267247	.5969844	.4436474	.5486615
combined	1132	.5186583	.0224222	.7543982	.4746646	.562652
diff		.0402438	.0433404		-.0447942	.1252818

Satterthwaite's degrees of freedom: 1113.47

Ho: mean(trpgdp) - mean(dtrpgdp) = diff = 0

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
t = 0.9286	t = 0.9286	t = 0.9286
P < t = 0.8233	P > |t| = 0.3533	P > t = 0.1767

Table B.9 Testing the Equality of Means of PNPS for Whole and Shrunk Sample

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pnps	615	.0022886	.0000465	.0011537	.0021972	.0023799
dpnps	488	.0020166	.0000383	.0008471	.0019413	.002092
combined	1103	.0021683	.0000312	.0010377	.0021069	.0022296
diff		.000272	.0000603		.0001537	.0003903

Satterthwaite's degrees of freedom: 1094.67

Ho: mean(pnps) - mean(dpnps) = diff = 0

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
t = 4.5115	t = 4.5115	t = 4.5115
P < t = 1.0000	P > |t| = 0.0000	P > t = 0.0000

Table B.10 Testing the Equality of Means of TUR for Whole and Shrunk Sample

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
tur	623	.1560958	.0025903	.0646537	.151009	.1611826
dtur	496	.1447589	.002458	.0547423	.1399295	.1495883
combined	1119	.1510707	.0018145	.0606973	.1475105	.1546309
diff		.0113369	.0035709		.0043304	.0183434

Satterthwaite's degrees of freedom: 1112.76

Ho: mean(tur) - mean(dtur) = diff = 0

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
t = 3.1748	t = 3.1748	t = 3.1748
P < t = 0.9992	P > |t| = 0.0015	P > t = 0.0008

Table B.11 Testing the Equality of Means of LWLPS for Whole and Shrunk Sample

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
lwlps	616	.0289822	.000638	.0158343	.0277294	.0302351
dlwlps	493	.0279732	.0006784	.0150637	.0266402	.0293061
combined	1109	.0285337	.0004654	.0154977	.0276206	.0294468
diff		.0010091	.0009313		-.0008183	.0028364

Satterthwaite's degrees of freedom: 1074.62

Ho: mean(lwlps) - mean(dlwlps) = diff = 0

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
t = 1.0835	t = 1.0835	t = 1.0835
P < t = 0.8606	P > |t| = 0.2788	P > t = 0.1394

Table B.12 Testing the Equality of Means of AGRGDPR for Whole and Shrunk Sample

Two-sample t test with unequal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
agrgdpr	633	.7424493	.0532177	1.338931	.6379444	.8469543
dagrgdpr	499	.7255186	.0622562	1.390698	.6032014	.8478357
combined	1132	.734986	.0404637	1.361411	.6555936	.8143785
diff		.0169308	.0819021		-.1437797	.1776412

Satterthwaite's degrees of freedom: 1049.95

Ho: mean(agrgdpr) - mean(dagrgdpr) = diff = 0

Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
t = 0.2067	t = 0.2067	t = 0.2067
P < t = 0.5819	P > |t| = 0.8363	P > t = 0.4181

Table B.13 Testing the Equality of Variances of GDPCR for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
gdpcr	633	.3270467	.0073417	.1847133	.3126296	.3414638
dgdpcr	499	.3707648	.0079479	.1775416	.3551493	.3863802
combined	1132	.3463182	.0054332	.1828016	.3356579	.3569785

Ho: sd(gdpcr) = sd(dgdpcr)

```
F(632,498) observed   = F_obs           =    1.082
F(632,498) lower tail = F_L   = 1/F_obs =    0.924
F(632,498) upper tail = F_U   = F_obs   =    1.082

  Ha: sd(1) < sd(2)         Ha: sd(1) != sd(2)          Ha: sd(1) > sd(2)
 P < F_obs = 0.8236     P < F_L + P > F_U = 0.3503     P > F_obs = 0.1764
```

Table B.14 Testing the Equality of Variances of RESECR for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
resecr	623	.278128	.0048779	.1217521	.2685489	.2877072
dresecr	495	.2645649	.0051273	.1140742	.254491	.2746388
combined	1118	.2721229	.0035456	.1185536	.265166	.2790797

Ho: sd(resecr) = sd(dresecr)

```
F(622,494) observed   = F_obs           =    1.139
F(622,494) lower tail = F_L   = 1/F_obs =    0.878
F(622,494) upper tail = F_U   = F_obs   =    1.139

  Ha: sd(1) < sd(2)         Ha: sd(1) != sd(2)          Ha: sd(1) > sd(2)
 P < F_obs = 0.9358     P < F_L + P > F_U = 0.1267     P > F_obs = 0.0642
```

Table B.15 Testing the Equality of Variances of INDECR for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
indecr	623	.4095809	.0089321	.2229451	.3920401	.4271216
dindecr	496	.4640149	.0089941	.200309	.4463435	.4816863
combined	1119	.4337089	.006422	.2148255	.4211084	.4463095

```
                        Ho: sd(indecr) = sd(dindecr)

             F(622,495) observed   = F_obs           =    1.239
             F(622,495) lower tail = F_L   = 1/F_obs =    0.807
             F(622,495) upper tail = F_U   = F_obs   =    1.239

   Ha: sd(1) < sd(2)          Ha: sd(1) != sd(2)           Ha: sd(1) > sd(2)
  P < F_obs = 0.9937      P < F_L + P > F_U = 0.0121      P > F_obs = 0.0063
```

Table B.16 Testing the Equality of Variances of DEPOSITR for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
depositr	633	.2373885	.0066729	.1678877	.2242847	.2504923
ddepos~r	499	.2672277	.0078014	.1742697	.2519	.2825554
combined	1132	.250542	.0050913	.1712966	.2405526	.2605314

```
                      Ho: sd(depositr) = sd(ddepositr)

             F(632,498) observed   = F_obs           =    0.928
             F(632,498) lower tail = F_L   = F_obs   =    0.928
             F(632,498) upper tail = F_U   = 1/F_obs =    1.077

   Ha: sd(1) < sd(2)          Ha: sd(1) != sd(2)           Ha: sd(1) > sd(2)
  P < F_obs = 0.1882      P < F_L + P > F_U = 0.3788      P > F_obs = 0.8118
```

Table B.17 Testing the Equality of Variances of DEPR for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
depr	639	.0709599	.0046194	.1167723	.0618888	.0800311
ddepr	503	.0250174	.001644	.0368706	.0217875	.0282473
combined	1142	.0507243	.002767	.0935057	.0452954	.0561532

```
                         Ho: sd(depr) = sd(ddepr)

            F(638,502) observed   = F_obs           =   10.030
            F(638,502) lower tail = F_L   = 1/F_obs =    0.100
            F(638,502) upper tail = F_U   = F_obs   =   10.030

   Ha: sd(1) < sd(2)         Ha: sd(1) != sd(2)          Ha: sd(1) > sd(2)
  P < F_obs = 1.0000     P < F_L + P > F_U = 0.0000     P > F_obs = 0.0000
```

Table B.18 Testing the Equality of Variances of PIE for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pie	633	46.61494	3.629714	91.32175	39.48718	53.74269
dpie	499	47.84753	4.350183	97.17572	39.30056	56.3945
combined	1132	47.15828	2.791098	93.90706	41.68197	52.63459

```
                          Ho: sd(pie) = sd(dpie)

            F(632,498) observed   = F_obs           =    0.883
            F(632,498) lower tail = F_L   = F_obs   =    0.883
            F(632,498) upper tail = F_U   = 1/F_obs =    1.132

Ha: sd(pie) < sd(dpie)      Ha: sd(pie) != sd(dpie)    Ha: sd(pie) > sd(dpie)
  P < F_obs = 0.0705     P < F_L + P > F_U = 0.1428     P > F_obs = 0.9295
```

Table B.19 Testing the Equality of Variances of TRRR for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
trrr	637	86.18518	.2830265	7.143266	85.6294	86.74096
dtrrr	502	85.75747	.3395219	7.607109	85.09041	86.42453
combined	1139	85.99667	.2178163	7.351098	85.56931	86.42404

```
                    Ho: sd(trrr) = sd(dtrrr)

             F(636,501) observed   = F_obs          =    0.882
             F(636,501) lower tail = F_L   = F_obs   =    0.882
             F(636,501) upper tail = F_U   = 1/F_obs =    1.134

   Ha: sd(1) < sd(2)        Ha: sd(1) != sd(2)         Ha: sd(1) > sd(2)
 P < F_obs = 0.0674     P < F_L + P > F_U = 0.1367     P > F_obs = 0.9326
```

Table B.20 Testing the Equality of Variances of TRPGDP for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
trpgdp	633	.5363982	.0341201	.8584433	.4693958	.6034006
dtrpgdp	499	.4961545	.0267247	.5969844	.4436474	.5486615
combined	1132	.5186583	.0224222	.7543982	.4746646	.562652

```
                  Ho: sd(trpgdp) = sd(dtrpgdp)

             F(632,498) observed   = F_obs          =    2.068
             F(632,498) lower tail = F_L   = 1/F_obs =    0.484
             F(632,498) upper tail = F_U   = F_obs   =    2.068

   Ha: sd(1) < sd(2)        Ha: sd(1) != sd(2)         Ha: sd(1) > sd(2)
 P < F_obs = 1.0000     P < F_L + P > F_U = 0.0000     P > F_obs = 0.0000
```

Table B.21 Testing the Equality of Variances of PNPS for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pnps	615	.0022886	.0000465	.0011537	.0021972	.0023799
dpnps	488	.0020166	.0000383	.0008471	.0019413	.002092
combined	1103	.0021683	.0000312	.0010377	.0021069	.0022296

```
                         Ho: sd(pnps) = sd(dpnps)

             F(614,487) observed   = F_obs           =    1.855
             F(614,487) lower tail = F_L   = 1/F_obs =    0.539
             F(614,487) upper tail = F_U   = F_obs   =    1.855

   Ha: sd(1) < sd(2)         Ha: sd(1) != sd(2)          Ha: sd(1) > sd(2)
  P < F_obs = 1.0000     P < F_L + P > F_U = 0.0000     P > F_obs = 0.0000
```

Table B.22 Testing the Equality of Variances of TUR for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
tur	623	.1560958	.0025903	.0646537	.151009	.1611826
dtur	496	.1447589	.002458	.0547423	.1399295	.1495883
combined	1119	.1510707	.0018145	.0606973	.1475105	.1546309

```
                          Ho: sd(tur) = sd(dtur)

             F(622,495) observed   = F_obs           =    1.395
             F(622,495) lower tail = F_L   = 1/F_obs =    0.717
             F(622,495) upper tail = F_U   = F_obs   =    1.395

Ha: sd(tur) < sd(dtur)      Ha: sd(tur) != sd(dtur)    Ha: sd(tur) > sd(dtur)
  P < F_obs = 0.9999     P < F_L + P > F_U = 0.0001     P > F_obs = 0.0001
```

Table B.23 Testing the Equality of Variances of LWLPS for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
lwlps	616	.0289822	.000638	.0158343	.0277294	.0302351
dlwlps	493	.0279732	.0006784	.0150637	.0266402	.0293061
combined	1109	.0285337	.0004654	.0154977	.0276206	.0294468

```
                      Ho: sd(lwlps) = sd(dlwlps)

             F(615,492) observed   = F_obs           =    1.105
             F(615,492) lower tail = F_L   = 1/F_obs =    0.905
             F(615,492) upper tail = F_U   = F_obs   =    1.105

   Ha: sd(1) < sd(2)          Ha: sd(1) != sd(2)          Ha: sd(1) > sd(2)
  P < F_obs = 0.8771      P < F_L + P > F_U = 0.2437      P > F_obs = 0.1229
```

Table B.24 Testing the Equality of Variances of AGRGDPR for Whole and Shrunk Sample

Variance ratio test

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
agrgdpr	633	.7424493	.0532177	1.338931	.6379444	.8469543
dagrgdpr	499	.7255186	.0622562	1.390698	.6032014	.8478357
combined	1132	.734986	.0404637	1.361411	.6555936	.8143785

```
                    Ho: sd(agrgdpr) = sd(dagrgdpr)

             F(632,498) observed   = F_obs           =    0.927
             F(632,498) lower tail = F_L   = F_obs   =    0.927
             F(632,498) upper tail = F_U   = 1/F_obs =    1.079

   Ha: sd(1) < sd(2)          Ha: sd(1) != sd(2)          Ha: sd(1) > sd(2)
  P < F_obs = 0.1842      P < F_L + P > F_U = 0.3709      P > F_obs = 0.8158
```

APPENDIX C: STATA OUTPUTS OF REGRESSIONS

In Appendix C, complete outputs of all regressions performed via Stata have been given. These outputs show detailed information about each regression other than sign, magnitude and significance level of each variable.

Table C.1 Stata Output for Year 2000 Regression (TLR)

```
Regression with robust standard errors                 Number of obs =      80
                                                       F( 24,    55) =   56.16
                                                       Prob > F      =  0.0000
                                                       R-squared     =  0.9071
                                                       Root MSE      =  .05616

------------------------------------------------------------------------------
             |               Robust
         tlr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpcr |   .0473685   .0589822     0.80   0.425    -.0708346    .1655715
    agrgdpr |  -.0403944   .0917722    -0.44   0.662    -.2243099    .1435212
   depositr |   .0416855    .037523     1.11   0.271    -.0335123    .1168834
     resecr |  -.0600702   .1669656    -0.36   0.720    -.3946766    .2745363
     indecr |  -.1804981   .1050244    -1.72   0.091    -.3909717    .0299754
       depr |   .7503671   .1228311     6.11   0.000     .5042082    .9965261
        pie |   .0000996   .0000468     2.13   0.038     5.85e-06    .0001933
       trrr |   .0012319    .001022     1.21   0.233    -.0008163    .0032801
     trpgdp |  -.0043785   .0065447    -0.67   0.506    -.0174944    .0087374
       pnps |  -11.83214   10.80929    -1.09   0.278    -33.49444    9.830154
        tur |   .3502625   .2031024     1.72   0.090    -.0567639    .7572888
      lwlps |  -.6731025   .6582458    -1.02   0.311    -1.992257    .6460516
      dumjp |    .011129   .0161945     0.69   0.495    -.0213256    .0435835
    pthschr |  -.3939796   .1727591    -2.28   0.026    -.7401965   -.0477627
     asphrr |   .0002634   .0004755     0.55   0.582    -.0006895    .0012163
  ruralpopr |   .1330159   .0861161     1.54   0.128    -.0395646    .3055964
    drinkvr |   .0001587   .0006974     0.23   0.821     -.001239    .0015563
 insuredwpc |  -.0004752   .0002804    -1.69   0.096     -.001037    .0000867
   murderpc |   .4853173   .7503323     0.65   0.520    -1.018382    1.989017
      injpc |  -.1179374   .0668521    -1.76   0.083    -.2519121    .0160373
     kidnpc |   .3371323   .2936067     1.15   0.256    -.2512687    .9255334
     robbpc |   -.795398   .6235631    -1.28   0.207    -2.045046    .4542505
    theftpc |   .0153926   .0180507     0.85   0.398    -.0207819     .051567
    theftpa |   .0168596   .0067629     2.49   0.016     .0033064    .0304128
      _cons |    .112357   .1779195     0.63   0.530    -.2442015    .4689156
------------------------------------------------------------------------------
```

Table C.2 Stata Output for Year 2000 Regression (TLPC)

```
Regression with robust standard errors                 Number of obs =      80
                                                       F( 24,    55) =   32.80
                                                       Prob > F      =  0.0000
                                                       R-squared     =  0.8256
                                                       Root MSE      =  .11511

------------------------------------------------------------------------------
             |               Robust
        tlpc |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       gdpcr |   .0708212    .112971     0.63   0.533    -.1555777    .2972202
     agrgdpr |  -.3791396   .2151533    -1.76   0.084    -.8103165    .0520373
    depositr |   .0366015    .069246     0.53   0.599    -.1021706    .1753736
      resecr |  -1.103856   .3630224    -3.04   0.004    -1.831369    -.376343
      indecr |  -.6367928   .2230062    -2.86   0.006    -1.083707   -.1898783
        depr |   .8500397   .2982548     2.85   0.006     .2523237    1.447756
         pie |   .0001188   .0000837     1.42   0.162     -.000049    .0002865
        trrr |   .0016802   .0018827     0.89   0.376    -.0020928    .0054532
      trpgdp |  -.0151803   .0177804    -0.85   0.397     -.050813    .0204524
        pnps |  -45.25694   23.60536    -1.92   0.060    -92.56314    2.049262
         tur |    1.19604   .4009524     2.98   0.004     .3925132    1.999566
       lwlps |  -1.413927   1.316438    -1.07   0.287    -4.052128    1.224273
       dumjp |   .0229198   .0312571     0.73   0.467    -.0397208    .0855604
     pthschr |  -.2757703    .257357    -1.07   0.289    -.7915253    .2399846
      asphrr |  -.0001351   .0008782    -0.15   0.878    -.0018951    .0016249
   ruralpopr |   .2110755   .1385422     1.52   0.133    -.0665692    .4887202
     drinkvr |   .0018211   .0013286     1.37   0.176    -.0008416    .0044838
  insuredwpc |  -.0006171   .0004951    -1.25   0.218    -.0016093     .000375
    murderpc |   1.273766   1.027004     1.24   0.220    -.7843951    3.331927
       injpc |  -.1397975   .1884269    -0.74   0.461    -.5174134    .2378183
      kidnpc |   .5123796   .3953379     1.30   0.200    -.2798952    1.304654
      robbpc |  -1.950839   1.412746    -1.38   0.173    -4.782045    .8803679
     theftpc |   .0226257   .0391278     0.58   0.565    -.0557882    .1010396
     theftpa |   .0209596   .0148541     1.41   0.164    -.0088087    .0507279
       _cons |   .4355356   .3421664     1.27   0.208    -.2501813    1.121252
------------------------------------------------------------------------------
```

Table C.3 Stata Output for Between Estimator Regression using Whole Sample (TLR)

```
Between regression (regression on group means)  Number of obs      =       605
Group variable (i): province                    Number of groups   =        81

R-sq:  within  = 0.0044                         Obs per group: min =         2
       between = 0.8955                                        avg =       7.5
       overall = 0.7684                                        max =         8

                                                F(13,67)           =     44.15
sd(u_i + avg(e_i.))=  .0537335                  Prob > F           =    0.0000
```

tlr	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpcr	-.0159753	.0574383	-0.28	0.782	-.1306227	.0986721
agrgdpr	-.0518208	.0831992	-0.62	0.535	-.2178871	.1142456
depositr	-.0474182	.0488263	-0.97	0.335	-.1448759	.0500395
resecr	.1880241	.1096894	1.71	0.091	-.0309168	.406965
indecr	-.2386161	.0717051	-3.33	0.001	-.38174	-.0954921
depr	.811104	.0968947	8.37	0.000	.6177013	1.004507
pie	.0000798	.0001016	0.78	0.435	-.0001231	.0002826
trrr	.0001626	.0010358	0.16	0.876	-.0019048	.00223
trpgdp	-.008835	.0095577	-0.92	0.359	-.0279122	.0102422
pnps	-10.34203	8.584842	-1.20	0.233	-27.47745	6.793385
tur	.8528824	.1816754	4.69	0.000	.4902567	1.215508
lwlps	-.5580377	.5390792	-1.04	0.304	-1.634044	.5179688
dumjp	-.0104488	.0186144	-0.56	0.576	-.0476033	.0267057
_cons	.1255852	.1194145	1.05	0.297	-.1127672	.3639375

Table C.4 Stata Output for Fixed Effects Regression using Whole Sample (TLR)

```
Fixed-effects (within) regression               Number of obs      =       605
Group variable (i): province                    Number of groups   =        81

R-sq:  within  = 0.1467                         Obs per group: min =         2
       between = 0.3290                                        avg =       7.5
       overall = 0.2567                                        max =         8

                                                F(19,505)          =      4.57
corr(u_i, Xb)  = -0.6757                        Prob > F           =    0.0000

------------------------------------------------------------------------------
         tlr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       gdpcr |  -.0360771   .0594999    -0.61   0.545    -.1529749    .0808207
     agrgdpr |   .0920669   .0355248     2.59   0.010     .0222723    .1618614
    depositr |   .0363793   .0338533     1.07   0.283    -.0301314    .1028899
      resecr |   .0233597   .0521503     0.45   0.654    -.0790986     .125818
      indecr |  -.0295252    .030871    -0.96   0.339    -.0901766    .0311262
        depr |  -.2113176   .0476919    -4.43   0.000    -.3050166   -.1176186
         pie |  -5.69e-06   .0000224    -0.25   0.799    -.0000497    .0000383
        trrr |  -.0005995   .0003525    -1.70   0.090    -.0012921    .0000931
      trpgdp |  -.0044649   .0110566    -0.40   0.687    -.0261876    .0172577
        pnps |  -16.42496   5.872164    -2.80   0.005    -27.96184   -4.888082
         tur |  -.0292263   .0566974    -0.52   0.606    -.1406181    .0821656
       lwlps |  -.0250422   .1866627    -0.13   0.893    -.3917733     .341689
       dumjp |  (dropped)
       dum94 |   -.008237   .0079304    -1.04   0.299    -.0238176    .0073436
       dum95 |    .007198   .0072602     0.99   0.322    -.0070659    .0214618
       dum96 |    .012355   .0067825     1.82   0.069    -.0009704    .0256804
       dum97 |   .0181704   .0065423     2.78   0.006     .0053169    .0310238
       dum98 |    .011578   .0064616     1.79   0.074     -.001117     .024273
       dum99 |   .0109322   .0067486     1.62   0.106    -.0023266    .0241911
       dum00 |   .0162087   .0056341     2.88   0.004     .0051396    .0272777
       _cons |   .2971033   .0493677     6.02   0.000      .200112    .3940946
-------------+----------------------------------------------------------------
     sigma_u |  .17688316
     sigma_e |  .03471248
         rho |  .96291599   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(80, 505) =    25.04             Prob > F = 0.0000
```

Table C.5 Stata Output for Random Effects Regression using Whole Sample (TLR)

```
Random-effects GLS regression                   Number of obs      =       605
Group variable (i): province                    Number of groups   =        81

R-sq:  within  = 0.0100                         Obs per group: min =         2
       between = 0.6928                                        avg =       7.5
       overall = 0.6213                                        max =         8

Random effects u_i ~ Gaussian                   Wald chi2(20)      =    235.08
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         tlr |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       gdpcr |  -.1464561   .0427667    -3.42   0.001    -.2302772    -.062635
     agrgdpr |   .0859823   .0380644     2.26   0.024     .0113775    .1605872
    depositr |  -.0392983   .0328481    -1.20   0.232    -.1036795    .0250829
      resecr |    .034642   .0567486     0.61   0.542    -.0765832    .1458672
      indecr |  -.1301884   .0332514    -3.92   0.000      -.19536   -.0650169
        depr |   .2229158   .0496878     4.49   0.000     .1255296     .320302
         pie |  -.0000169   .0000267    -0.63   0.527    -.0000693    .0000355
        trrr |  -.0005596   .0004088    -1.37   0.171    -.0013609    .0002416
      trpgdp |   .0172641   .0077086     2.24   0.025     .0021555    .0323727
        pnps |   4.539315   5.325002     0.85   0.394    -5.897497    14.97613
         tur |   .1935404   .0661925     2.92   0.003     .0638055    .3232754
       lwlps |  -.0518177   .2159941    -0.24   0.810    -.4751582    .3715229
       dumjp |  -.0299303   .0196567    -1.52   0.128    -.0684567     .008596
       dum94 |  -.0140587   .0089864    -1.56   0.118    -.0316717    .0035542
       dum95 |   .0071612   .0084146     0.85   0.395    -.0093312    .0236536
       dum96 |   .0181778   .0080525     2.26   0.024     .0023953    .0339604
       dum97 |     .02008   .0078698     2.55   0.011     .0046553    .0355046
       dum98 |   .0179639   .0077445     2.32   0.020      .002785    .0331428
       dum99 |   .0261615   .0077128     3.39   0.001     .0110448    .0412783
       dum00 |   .0146842   .0070067     2.10   0.036     .0009513     .028417
       _cons |   .2696959   .0540967     4.99   0.000     .1636682    .3757236
-------------+----------------------------------------------------------------
     sigma_u |  .05001627
     sigma_e |  .03471248
         rho |  .67491465   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Table C.6 Stata Output for FGLS Regression using Whole Sample (TLR)

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   common AR(1) coefficient for all panels  (0.5622)

Estimated covariances      =        81          Number of obs      =       605
Estimated autocorrelations =         1          Number of groups   =        81
Estimated coefficients     =        21          Obs per group: min =         2
                                                               avg =  7.469136
                                                               max =         8
                                                Wald chi2(20)      =   1065.19
Log likelihood             =  1164.756          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         tlr |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       gdpcr |  -.0541057   .0194254    -2.79   0.005    -.0921788   -.0160326
     agrgdpr |    .036668   .0252116     1.45   0.146    -.0127458    .0860818
    depositr |  -.0479271   .0195201    -2.46   0.014    -.0861857   -.0096684
      resecr |   .1646756   .0343699     4.79   0.000     .0973119    .2320394
      indecr |   -.075892   .0197335    -3.85   0.000    -.1145689   -.0372152
        depr |   .8554788    .042158    20.29   0.000     .7728506    .9381069
         pie |   .0000194    .000013     1.49   0.136    -6.12e-06    .0000449
        trrr |  -.0000981   .0002554    -0.38   0.701    -.0005987    .0004024
     trpgdp |   .0097403   .0064158     1.52   0.129    -.0028345     .022315
        pnps |  -4.476482     3.6558    -1.22   0.221    -11.64172    2.688755
         tur |   .2318746   .0503057     4.61   0.000     .1332773     .330472
       lwlps |    .210408   .1096618     1.92   0.055    -.0045252    .4253412
       dumjp |   .0040707   .0072852     0.56   0.576     -.010208    .0183494
       dum94 |   .0072401    .006564     1.10   0.270    -.0056251    .0201053
       dum95 |   .0202071    .006035     3.35   0.001     .0083788    .0320355
       dum96 |   .0289233   .0058068     4.98   0.000     .0175421    .0403044
       dum97 |   .0243395   .0055824     4.36   0.000     .0133982    .0352809
       dum98 |   .0232877   .0052985     4.40   0.000     .0129029    .0336726
       dum99 |   .0297557   .0051416     5.79   0.000     .0196783    .0398332
       dum00 |   .0120705   .0038018     3.17   0.001     .0046192    .0195218
       _cons |   .1017218   .0327326     3.11   0.002     .0375671    .1658764
------------------------------------------------------------------------------
```

Table C.7 Stata Output for FGLS Regression with Lagged Dependent Variable using Whole Sample (TLR)

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   common AR(1) coefficient for all panels  (-0.0608)

Estimated covariances      =        81          Number of obs      =       525
Estimated autocorrelations =         1          Number of groups   =        81
Estimated coefficients     =        21          Obs per group: min =         2
                                                               avg =  6.481481
                                                               max =         7
                                                Wald chi2(20)      =  11321.12
Log likelihood             =  1153.014          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         tlr |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     tlr(-1) |    .890049   .0195515    45.52   0.000     .8517287    .9283693
       gdpcr |   .0125534   .0082918     1.51   0.130    -.0036983     .028805
     agrgdpr |  -.0039633   .0121021    -0.33   0.743     -.027683    .0197563
    depositr |     .00372    .006771     0.55   0.583    -.0095509    .0169909
      resecr |   .0298552   .0179924     1.66   0.097    -.0054092    .0651196
      indecr |  -.0118236   .0110382    -1.07   0.284     -.033458    .0098109
        depr |   .0841744   .0231024     3.64   0.000     .0388945    .1294543
         pie |   5.66e-06   7.06e-06     0.80   0.423    -8.19e-06    .0000195
        trrr |  -.0001663   .0001575    -1.06   0.291    -.0004749    .0001423
      trpgdp |  -.0035325   .0018323    -1.93   0.054    -.0071237    .0000588
        pnps |   2.705243   1.553134     1.74   0.082    -.3388436     5.74933
         tur |    .080657   .0260676     3.09   0.002     .0295654    .1317486
       lwlps |    .062956   .0741178     0.85   0.396    -.0823122    .2082242
       dumjp |   .0020145   .0031658     0.64   0.525    -.0041904    .0082193
       dum95 |   .0228109   .0036094     6.32   0.000     .0157367    .0298851
       dum96 |   .0177865   .0034169     5.21   0.000     .0110895    .0244836
       dum97 |   .0173828   .0034448     5.05   0.000     .0106311    .0241345
       dum98 |   .0133355   .0033918     3.93   0.000     .0066878    .0199832
       dum99 |   .0175989   .0034417     5.11   0.000     .0108534    .0243444
       dum00 |   .0110181   .0033651     3.27   0.001     .0044228    .0176135
       _cons |  -.0085733   .0184153    -0.47   0.642    -.0446667    .0275201
------------------------------------------------------------------------------
```

Table C.8 Stata Output for Arellano-Bond GMM Regression using Whole Sample (TLR)

```
Arellano-Bond dynamic panel-data estimation     Number of obs      =       433
Group variable (i): province                    Number of groups   =        81

                                                Wald chi2(18)      =     52.88

Time variable (t): year                         Obs per group: min =         1
                                                               avg =  5.345679
                                                               max =         6

One-step output
------------------------------------------------------------------------------
D.tlr        |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
tlr          |
          LD |    .433887   .1237757     3.51   0.000      .191291     .676483
gdpcr        |
          D1 |   -.033203   .0842334    -0.39   0.693    -.1982975    .1318914
agrgdpr      |
          D1 |   .0951211   .0510632     1.86   0.062    -.0049609    .1952032
depositr     |
          D1 |  -.0169291   .0574644    -0.29   0.768    -.1295573    .0956991
resecr       |
          D1 |   .0824756   .0697312     1.18   0.237     -.054195    .2191462
indecr       |
          D1 |   .0990289   .0460052     2.15   0.031     .0088604    .1891974
depr         |
          D1 |  -.1622541   .0588843    -2.76   0.006    -.2776652    -.046843
pie          |
          D1 |   .0000162   .0000366     0.44   0.658    -.0000555    .0000879
trrr         |
          D1 |   .0006636   .0005142     1.29   0.197    -.0003443    .0016715
trpgdp       |
          D1 |  -.0195914   .0134694    -1.45   0.146    -.0459908    .0068081
pnps         |
          D1 |  -5.838979   11.25063    -0.52   0.604    -27.88981    16.21185
tur          |
          D1 |   .1319672   .0805512     1.64   0.101    -.0259102    .2898447
lwlps        |
          D1 |  -.0416787   .2447378    -0.17   0.865     -.521356    .4379985
dumjp        |
          D1 |  (dropped)
dum96        |
          D1 |   .0015861   .0057223     0.28   0.782    -.0096294    .0128016
dum97        |
          D1 |   .0022783   .0057178     0.40   0.690    -.0089282    .0134849
dum98        |
          D1 |  -.0027916   .0060249    -0.46   0.643    -.0146003     .009017
dum99        |
          D1 |    .009987   .0075035     1.33   0.183    -.0047196    .0246937
dum00        |
          D1 |   .0078785   .0049375     1.60   0.111    -.0017988    .0175557
_cons        |  -.0006519   .0015913    -0.41   0.682    -.0037707     .002467
------------------------------------------------------------------------------
Sargan test of over-identifying restrictions:
         chi2(20) =    32.45      Prob > chi2 = 0.0387

Arellano-Bond test that average autocovariance in residuals of order 1 is 0:
         H0: no autocorrelation   z =  -4.89   Pr > z = 0.0000
Arellano-Bond test that average autocovariance in residuals of order 2 is 0:
         H0: no autocorrelation   z =  -0.44   Pr > z = 0.6577
```

Table C.9 Stata Output for Between Estimator Regression using Shrunk Sample (TLR)

```
Between regression (regression on group means)  Number of obs      =       484
Group variable (i): province                    Number of groups   =        64

R-sq:  within  = 0.0014                         Obs per group: min =         2
       between = 0.5608                                        avg =       7.6
       overall = 0.3760                                        max =         8

                                                F(13,50)           =      4.91
sd(u_i + avg(e_i.))=  .0334992                  Prob > F           =    0.0000

------------------------------------------------------------------------------
         tlr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       gdpcr |  -.0402154   .0434599    -0.93   0.359    -.1275072    .0470763
     agrgdpr |  -.1363742   .0672764    -2.03   0.048    -.2715028   -.0012456
    depositr |  -.0003548   .0354234    -0.01   0.992    -.0715049    .0707952
      resecr |   .1989475   .0902508     2.20   0.032     .0176734    .3802215
      indecr |  -.0650319   .0576232    -1.13   0.264    -.1807715    .0507077
        depr |   .4021144   .1926682     2.09   0.042      .015129    .7890998
         pie |   .0000489   .0000805     0.61   0.547    -.0001128    .0002105
        trrr |  -.0003834   .0007128    -0.54   0.593    -.0018152    .0010484
      trpgdp |   .0101663   .0115332     0.88   0.382    -.0129988    .0333313
        pnps |   1.789006   7.507274     0.24   0.813     -13.2898    16.86781
         tur |   .1701667   .1496474     1.14   0.261    -.1304089    .4707423
       lwlps |   .1469642   .4275792     0.34   0.733    -.7118539    1.005782
       dumjp |     .00024   .0127977     0.02   0.985    -.0254649     .025945
       _cons |   .1503157   .0953741     1.58   0.121    -.0412489    .3418803
------------------------------------------------------------------------------
```

Table C.10 Stata Output for Fixed Effects Regression using Shrunk Sample (TLR)

```
Fixed-effects (within) regression               Number of obs      =       484
Group variable (i): province                    Number of groups   =        64

R-sq:  within  = 0.1498                         Obs per group: min =         2
       between = 0.1843                                        avg =       7.6
       overall = 0.1710                                        max =         8

                                                F(19,401)          =      3.72
corr(u_i, Xb)  = -0.1822                        Prob > F           =    0.0000

------------------------------------------------------------------------------
         tlr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       gdpcr |  -.0499346   .0437947    -1.14   0.255    -.1360305    .0361613
     agrgdpr |   .0808617   .0328658     2.46   0.014      .016251    .1454724
    depositr |   .0422404   .0245232     1.72   0.086    -.0059697    .0904505
      resecr |   .1146262   .0432721     2.65   0.008     .0295577    .1996946
      indecr |   .0254586   .0271907     0.94   0.350    -.0279955    .0789126
        depr |   .0121152   .0531319     0.23   0.820    -.0923367    .1165671
         pie |  -2.89e-06   .0000162    -0.18   0.859    -.0000347    .0000289
        trrr |  -.0006159   .0002638    -2.33   0.020    -.0011345   -.0000972
      trpgdp |   .0037899   .0099549     0.38   0.704    -.0157805    .0233603
        pnps |   7.368626   7.696466     0.96   0.339    -7.761837    22.49909
         tur |  -.0923251   .0477042    -1.94   0.054    -.1861066    .0014564
       lwlps |   .2314921   .1442412     1.60   0.109    -.0520713    .5150554
       dum94 |  -.0176181   .0078326    -2.25   0.025    -.0330162     -.00222
       dum95 |  -.0059308   .0066368    -0.89   0.372    -.0189782    .0071165
       dum96 |   .0038985   .0058761     0.66   0.507    -.0076533    .0154503
       dum97 |   .0097104   .0055274     1.76   0.080    -.0011558    .0205767
       dum98 |   .0101939   .0052662     1.94   0.054    -.0001588    .0205467
       dum99 |   .0065298    .005329     1.23   0.221    -.0039465    .0170062
       dum00 |   .0134796   .0045089     2.99   0.003     .0046154    .0223437
       _cons |   .1274613   .0399658     3.19   0.002     .0488926      .20603
-------------+----------------------------------------------------------------
     sigma_u |  .04153266
     sigma_e |  .02408075
         rho |  .74840711   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(63, 401) =    13.66             Prob > F = 0.0000
```

Table C.11 Stata Output for Random Effects Regression using Shrunk Sample (TLR)

```
Random-effects GLS regression                   Number of obs      =       484
Group variable (i): province                    Number of groups   =        64

R-sq:  within  = 0.1354                         Obs per group: min =         2
       between = 0.3772                                        avg =       7.6
       overall = 0.3256                                        max =         8

Random effects u_i ~ Gaussian                   Wald chi2(20)      =    100.03
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         tlr |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       gdpcr |   -.024279   .0259003    -0.94   0.349    -.0750427    .0264847
     agrgdpr |   .0293177   .0281594     1.04   0.298    -.0258738    .0845091
    depositr |   .0398175   .0195341     2.04   0.042     .0015313    .0781037
      resecr |   .1496214   .0381737     3.92   0.000     .0748024    .2244405
      indecr |    .024302   .0230245     1.06   0.291    -.0208253    .0694293
        depr |   .0587302    .050503     1.16   0.245    -.0402539    .1577143
         pie |  -1.59e-06   .0000156    -0.10   0.919    -.0000322     .000029
        trrr |  -.0006488   .0002464    -2.63   0.008    -.0011317   -.0001658
      trpgdp |   .0177039   .0067503     2.62   0.009     .0044736    .0309342
        pnps |   7.334958    4.78567     1.53   0.125    -2.044783     16.7147
         tur |  -.0634083   .0453403    -1.40   0.162    -.1522736     .025457
       lwlps |   .2345223   .1350277     1.74   0.082    -.0301272    .4991718
       dumjp |  -.0044127   .0110243    -0.40   0.689      -.02602    .0171946
       dum94 |  -.0184152   .0062167    -2.96   0.003    -.0305997   -.0062306
       dum95 |  -.0058614   .0055872    -1.05   0.294    -.0168122    .0050893
       dum96 |   .0024119   .0053033     0.45   0.649    -.0079823    .0128062
       dum97 |   .0086081   .0050708     1.70   0.090    -.0013304    .0185466
       dum98 |   .0093652   .0049877     1.88   0.060    -.0004106    .0191409
       dum99 |   .0054081   .0050188     1.08   0.281    -.0044286    .0152448
       dum00 |   .0132796   .0044905     2.96   0.003     .0044784    .0220808
       _cons |   .1144316   .0358174     3.19   0.001     .0442308    .1846325
-------------+----------------------------------------------------------------
     sigma_u |  .03409396
     sigma_e |  .02408075
         rho |  .66717042   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Table C.12 Stata Output for FGLS Regression using Shrunk Sample (TLR)

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   common AR(1) coefficient for all panels  (0.7648)

Estimated covariances      =        64          Number of obs      =       484
Estimated autocorrelations =         1          Number of groups   =        64
Estimated coefficients     =        21          Obs per group: min =         2
                                                               avg =    7.5625
                                                               max =         8
                                                Wald chi2(20)      =    141.75
Log likelihood             =  1126.578          Prob > chi2        =    0.0000
```

tlr	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpcr	-.0367401	.0215028	-1.71	0.088	-.0788847	.0054046
agrgdpr	.0523268	.0242635	2.16	0.031	.0047713	.0998823
depositr	.0319992	.018254	1.75	0.080	-.0037779	.0677764
resecr	.1256433	.0269007	4.67	0.000	.072919	.1783676
indecr	.0030328	.0179105	0.17	0.866	-.0320711	.0381366
depr	.1082943	.0506759	2.14	0.033	.0089713	.2076172
pie	.0000133	.0000121	1.10	0.273	-.0000105	.000037
trrr	-.0002993	.0002729	-1.10	0.273	-.0008341	.0002356
trpgdp	.0168621	.0049777	3.39	0.001	.0071059	.0266183
pnps	3.022367	3.994349	0.76	0.449	-4.806412	10.85115
tur	.0142176	.0369606	0.38	0.700	-.0582238	.0866591
lwlps	.2913812	.1059645	2.75	0.006	.0836946	.4990677
dumjp	.0003327	.0091894	0.04	0.971	-.0176781	.0183435
dum94	-.009429	.0065189	-1.45	0.148	-.0222057	.0033477
dum95	.0024573	.0059652	0.41	0.680	-.0092342	.0141487
dum96	.0084553	.005615	1.51	0.132	-.0025499	.0194605
dum97	.0088307	.0052169	1.69	0.091	-.0013943	.0190557
dum98	.0116938	.004832	2.42	0.016	.0022234	.0211643
dum99	.0098717	.0045245	2.18	0.029	.0010038	.0187397
dum00	.013081	.0030608	4.27	0.000	.0070819	.0190801
_cons	.0892315	.0323381	2.76	0.006	.02585	.152613

Table C.13 Stata Output for FGLS Regression with Lagged Dependent Variable using Shrunk Sample (TLR)

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   common AR(1) coefficient for all panels  (-0.0371)

Estimated covariances      =        64         Number of obs      =       420
Estimated autocorrelations =         1         Number of groups   =        64
Estimated coefficients     =        21         Obs per group: min =         2
                                                              avg =    6.5625
                                                              max =         7
                                               Wald chi2(20)      =   2816.91
Log likelihood             =  1003.952         Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         tlr |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     tlr(-1) |   .8159952   .0287937    28.34   0.000     .7595606    .8724297
       gdpcr |   .0007409   .0087951     0.08   0.933    -.0164973     .017979
     agrgdpr |  -.0197917   .0132728    -1.49   0.136    -.0458059    .0062225
    depositr |   .0031393   .0066665     0.47   0.638    -.0099268    .0162055
      resecr |   .0582811   .0192927     3.02   0.003     .0204682     .096094
      indecr |   .0036293   .0108463     0.33   0.738     -.017629    .0248876
        depr |   .0270393   .0288371     0.94   0.348    -.0294803    .0835589
         pie |   3.85e-06   7.66e-06     0.50   0.615    -.0000112    .0000189
        trrr |  -.0002506   .0001689    -1.48   0.138    -.0005816    .0000804
      trpgdp |   .0035191   .0020509     1.72   0.086    -.0005006    .0075388
        pnps |   2.878332   1.604847     1.79   0.073    -.2671102    6.023775
         tur |   .0487445   .0257326     1.89   0.058    -.0016905    .0991796
       lwlps |   .1867736   .0754261     2.48   0.013     .0389413     .334606
       dumjp |   .0020989   .0030428     0.69   0.490    -.0038648    .0080626
       dum95 |    .018653   .0038218     4.88   0.000     .0111624    .0261435
       dum96 |   .0150327   .0036594     4.11   0.000     .0078604    .0222051
       dum97 |   .0151165   .0036737     4.11   0.000     .0079162    .0223168
       dum98 |   .0159071   .0036107     4.41   0.000     .0088303     .022984
       dum99 |   .0141564   .0036506     3.88   0.000     .0070014    .0213114
       dum00 |   .0141584   .0035395     4.00   0.000     .0072212    .0210957
       _cons |   .0013965   .0195646     0.07   0.943    -.0369495    .0397424
------------------------------------------------------------------------------
```

Table C.14 Stata Output for Arellano-Bond GMM Regression using Shrunk Sample (TLR)

```
Arellano-Bond dynamic panel-data estimation     Number of obs      =       348
Group variable (i): province                    Number of groups   =        64

                                                Wald chi2(18)      =     34.50

Time variable (t): year                         Obs per group: min =         1
                                                               avg =    5.4375
                                                               max =         6

One-step output
------------------------------------------------------------------------------
D.tlr        |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
tlr          |
          LD |   .1861003    .096279     1.93   0.053     -.002603    .3748036
gdpcr        |
          D1 |  -.0798541   .0611973    -1.30   0.192    -.1997986    .0400903
agrgdpr      |
          D1 |   .1008002   .0468048     2.15   0.031     .0090644    .1925359
depositr     |
          D1 |  -.0185785   .0442555    -0.42   0.675    -.1053176    .0681606
resecr       |
          D1 |   .0425717    .056007     0.76   0.447    -.0671999    .1523434
indecr       |
          D1 |   .0917527   .0371958     2.47   0.014     .0188503     .164655
depr         |
          D1 |   .0118617   .0666007     0.18   0.859    -.1186734    .1423967
pie          |
          D1 |  -8.36e-06   .0000261    -0.32   0.748    -.0000594    .0000427
trrr         |
          D1 |  -.0004049   .0003843    -1.05   0.292    -.0011581    .0003482
trpgdp       |
          D1 |  -.0139973    .012704    -1.10   0.271    -.0388966     .010902
pnps         |
          D1 |   .3231491   12.27912     0.03   0.979    -23.74349    24.38979
tur          |
          D1 |   .0060577   .0664276     0.09   0.927    -.1241379    .1362533
lwlps        |
          D1 |  -.0103021   .1854514    -0.06   0.956    -.3737801     .353176
dumjp        |
          D1 |  (dropped)
dum96        |
          D1 |   .0070296   .0043741     1.61   0.108    -.0015435    .0156027
dum97        |
          D1 |   .0104594   .0044222     2.37   0.018      .001792    .0191267
dum98        |
          D1 |   .0090182   .0047503     1.90   0.058    -.0002921    .0183286
dum99        |
          D1 |   .0138341   .0061552     2.25   0.025     .0017702     .025898
dum00        |
          D1 |   .0109714    .003968     2.76   0.006     .0031944    .0187485
_cons        |   .0006874   .0015785     0.44   0.663    -.0024065    .0037812
------------------------------------------------------------------------------
Sargan test of over-identifying restrictions:
         chi2(20) =    32.26      Prob > chi2 = 0.0407

Arellano-Bond test that average autocovariance in residuals of order 1 is 0:
         H0: no autocorrelation   z =  -5.39   Pr > z = 0.0000
Arellano-Bond test that average autocovariance in residuals of order 2 is 0:
         H0: no autocorrelation   z =  -1.49   Pr > z = 0.1353
```

Table C.15 Stata Output for Between Estimator Regression using Whole Sample (TLPC)

```
Between regression (regression on group means)  Number of obs      =       605
Group variable (i): province                    Number of groups   =        81

R-sq:  within  = 0.1683                         Obs per group: min =         2
       between = 0.8371                                        avg =       7.5
       overall = 0.7043                                        max =         8

                                                F(13,67)           =     26.48
sd(u_i + avg(e_i.))=  .0766436                  Prob > F           =    0.0000
```

tlpc	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpcr	.0271015	.081928	0.33	0.742	-.1364275	.1906305
agrgdpr	-.272967	.1186724	-2.30	0.025	-.5098382	-.0360958
depositr	-.017643	.0696441	-0.25	0.801	-.1566533	.1213673
resecr	-.554922	.1564571	-3.55	0.001	-.8672116	-.2426323
indecr	-.4990058	.1022776	-4.88	0.000	-.7031528	-.2948588
depr	.7188133	.1382072	5.20	0.000	.4429505	.994676
pie	.0000862	.000145	0.59	0.554	-.0002031	.0003756
trrr	-.0004467	.0014774	-0.30	0.763	-.0033956	.0025022
trpgdp	-.002365	.0136328	-0.17	0.863	-.0295761	.0248461
pnps	-34.13071	12.24512	-2.79	0.007	-58.57206	-9.689351
tur	1.488748	.2591355	5.75	0.000	.9715114	2.005985
lwlps	-.3180878	.7689236	-0.41	0.680	-1.852866	1.21669
dumjp	-.004084	.026551	-0.15	0.878	-.0570799	.048912
_cons	.4688371	.1703286	2.75	0.008	.1288597	.8088145

Table C.16 Stata Output for Fixed Effects Regression using Whole Sample (TLPC)

```
Fixed-effects (within) regression               Number of obs      =       605
Group variable (i): province                    Number of groups   =        81

R-sq:  within  = 0.3457                         Obs per group: min =         2
       between = 0.4649                                        avg =       7.5
       overall = 0.4025                                        max =         8

                                                F(19,505)          =     14.04
corr(u_i, Xb)  = 0.2443                         Prob > F           =    0.0000

------------------------------------------------------------------------------
        tlpc |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpcr |   .0637958   .1140903     0.56   0.576    -.1603544    .2879459
     agrgdpr |  -.0439652   .0681184    -0.65   0.519    -.1777955    .0898652
    depositr |   .0349656   .0649133     0.54   0.590    -.0925678    .1624991
      resecr |  -.2351275   .0999977    -2.35   0.019    -.4315901   -.0386648
      indecr |  -.0965733   .0591948    -1.63   0.103    -.2128717    .0197251
        depr |   .2048026   .0914487     2.24   0.026     .0251358    .3844694
         pie |   -.000031   .0000429    -0.72   0.470    -.0001154    .0000533
        trrr |  -.0002623    .000676    -0.39   0.698    -.0015903    .0010657
      trpgdp |   .0413643    .021201     1.95   0.052    -.0002886    .0830173
        pnps |  -21.80843   11.25981    -1.94   0.053    -43.93027    .3134072
         tur |   .4600426   .1087167     4.23   0.000       .24645    .6736352
       lwlps |  -.2713023   .3579237    -0.76   0.449    -.9745052    .4319005
       dum94 |  -.0844262   .0152064    -5.55   0.000    -.1143019   -.0545506
       dum95 |    -.06766   .0139213    -4.86   0.000    -.0950107   -.0403092
       dum96 |  -.0468981   .0130054    -3.61   0.000    -.0724493   -.0213468
       dum97 |  -.0313832   .0125448    -2.50   0.013    -.0560296   -.0067367
       dum98 |  -.0207741   .0123901    -1.68   0.094    -.0451166    .0035684
       dum99 |   .0002273   .0129404     0.02   0.986    -.0251964    .0256509
       dum00 |   .0151956   .0108032     1.41   0.160    -.0060292    .0364204
       _cons |   .2911434   .0946619     3.08   0.002     .1051637    .4771231
-------------+----------------------------------------------------------------
     sigma_u |   .1332343
     sigma_e |  .06656079
         rho |  .80027071   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(80, 505) =    10.13             Prob > F = 0.0000
```

Table C.17 Stata Output for Random Effects Regression using Whole Sample (TLPC)

```
Random-effects GLS regression                   Number of obs      =       605
Group variable (i): province                    Number of groups   =        81

R-sq:  within  = 0.3169                         Obs per group: min =         2
       between = 0.7887                                        avg =       7.5
       overall = 0.6908                                        max =         8

Random effects u_i ~ Gaussian                   Wald chi2(20)      =    485.23
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
        tlpc |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpcr |  -.0120511   .0595934    -0.20   0.840     -.128852    .1047499
    agrgdpr |  -.1021191    .057747    -1.77   0.077     -.215301    .0110629
   depositr |  -.0130805   .0474541    -0.28   0.783    -.1060888    .0799278
     resecr |  -.3535806   .0852746    -4.15   0.000    -.5207158   -.1864454
     indecr |  -.2211386   .0502268    -4.40   0.000    -.3195814   -.1226958
       depr |   .5752738   .0739633     7.78   0.000     .4303083    .7202393
        pie |   -.000029   .0000421    -0.69   0.491    -.0001115    .0000535
       trrr |  -.0001762   .0006351    -0.28   0.781    -.0014209    .0010685
     trpgdp |   .0297054   .0105124     2.83   0.005     .0091014    .0503093
       pnps |   -15.9455   7.726675    -2.06   0.039    -31.08951   -.8014971
        tur |   .7189742   .1027008     7.00   0.000     .5176843    .9202641
      lwlps |  -.3329237   .3332969    -1.00   0.318    -.9861737    .3203263
      dumjp |   -.009173   .0250132    -0.37   0.714    -.0581979    .0398519
      dum94 |  -.0727732   .0140192    -5.19   0.000    -.1002504    -.045296
      dum95 |  -.0549761   .0131975    -4.17   0.000    -.0808427   -.0291095
      dum96 |  -.0330437   .0127162    -2.60   0.009     -.057967   -.0081205
      dum97 |  -.0218976   .0124698    -1.76   0.079    -.0463378    .0025427
      dum98 |  -.0110441    .012293    -0.90   0.369    -.0351379    .0130498
      dum99 |   .0169498   .0121938     1.39   0.165    -.0069496    .0408491
      dum00 |   .0150157   .0112244     1.34   0.181    -.0069838    .0370151
      _cons |   .3396484   .0823252     4.13   0.000     .1782939    .5010029
-------------+----------------------------------------------------------------
     sigma_u |  .07338201
     sigma_e |  .06656079
         rho |  .54862741   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Table C.18 Stata Output for FGLS Regression using Whole Sample (TLPC)

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   common AR(1) coefficient for all panels  (0.6547)

Estimated covariances      =        81          Number of obs      =       605
Estimated autocorrelations =         1          Number of groups   =        81
Estimated coefficients     =        21          Obs per group: min =         2
                                                               avg =  7.469136
                                                               max =         8
                                                Wald chi2(20)      =    433.90
Log likelihood             =  1116.343          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
        tlpc |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpcr |   .1266407   .0287089     4.41   0.000     .0703723    .1829091
    agrgdpr |   .0232239   .0284279     0.82   0.414    -.0324937    .0789415
    depositr |    .025442   .0244141     1.04   0.297    -.0224088    .0732929
      resecr |  -.0711927   .0409286    -1.74   0.082    -.1514112    .0090258
      indecr |  -.0566953   .0256701    -2.21   0.027    -.1070078   -.0063829
        depr |   .6228376   .0639868     9.73   0.000     .4974257    .7482494
         pie |   .0000226   .0000138     1.63   0.103    -4.55e-06    .0000497
        trrr |   .0002712    .000358     0.76   0.449    -.0004304    .0009728
      trpgdp |   .0282307   .0091835     3.07   0.002     .0102314    .0462301
        pnps |  -10.31121   4.178458    -2.47   0.014    -18.50083   -2.121581
         tur |   .5107809   .0690807     7.39   0.000     .3753853    .6461765
       lwlps |   .1910241   .1606473     1.19   0.234    -.1238389     .505887
       dumjp |  -.0112975   .0103429    -1.09   0.275    -.0315693    .0089742
       dum94 |  -.0381166   .0082122    -4.64   0.000    -.0542123    -.022021
       dum95 |  -.0245709     .00756    -3.25   0.001    -.0393882   -.0097536
       dum96 |  -.0167738   .0071273    -2.35   0.019    -.0307431   -.0028045
       dum97 |  -.0047881   .0068529    -0.70   0.485    -.0182195    .0086433
       dum98 |   .0036605   .0064275     0.57   0.569    -.0089372    .0162582
       dum99 |    .011403   .0059858     1.90   0.057     -.000329     .023135
       dum00 |   .0144935   .0041939     3.46   0.001     .0062736    .0227133
       _cons |   .0298494   .0426828     0.70   0.484    -.0538073    .1135062
------------------------------------------------------------------------------
```

Table C.19 Stata Output for FGLS Regression with Lagged Dependent Variable using Whole Sample (TLPC)

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   common AR(1) coefficient for all panels  (-0.0330)

Estimated covariances      =        80          Number of obs      =       526
Estimated autocorrelations =         1          Number of groups   =        80
Estimated coefficients     =        21          Obs per group: min =         3
                                                               avg =     6.575
                                                               max =         7
                                                Wald chi2(20)      =   5336.48
Log likelihood             =  1073.946          Prob > chi2        =    0.0000
```

tlpc	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
tlpc(-1)	.9236485	.0217225	42.52	0.000	.8810731	.9662239
gdpcr	.0315414	.0120282	2.62	0.009	.0079665	.0551162
agrgdpr	-.0072518	.0130411	-0.56	0.578	-.032812	.0183083
depositr	-.0051003	.0086318	-0.59	0.555	-.0220183	.0118176
resecr	-.0036418	.0199343	-0.18	0.855	-.0427122	.0354287
indecr	-.0293987	.0133036	-2.21	0.027	-.0554733	-.0033242
depr	.0984841	.0259482	3.80	0.000	.0476266	.1493416
pie	4.45e-06	.0000105	0.42	0.672	-.0000161	.000025
trrr	-.000249	.0002146	-1.16	0.246	-.0006695	.0001715
trpgdp	.0019496	.003341	0.58	0.560	-.0045986	.0084979
pnps	-.5075931	1.692222	-0.30	0.764	-3.824288	2.809102
tur	.1807635	.0377951	4.78	0.000	.1066864	.2548406
lwlps	.020186	.0934558	0.22	0.829	-.162984	.203356
dumjp	-.0028619	.0035085	-0.82	0.415	-.0097383	.0040146
dum95	.0295084	.00428	6.89	0.000	.0211199	.037897
dum96	.0299929	.0040921	7.33	0.000	.0219725	.0380133
dum97	.0343652	.0041011	8.38	0.000	.0263273	.0424031
dum98	.0285297	.004032	7.08	0.000	.0206271	.0364322
dum99	.0326568	.0040294	8.10	0.000	.0247593	.0405542
dum00	.0198069	.003839	5.16	0.000	.0122827	.0273311
_cons	-.0061899	.0229404	-0.27	0.787	-.0511523	.0387726

Table C.20 Stata Output for Arellano-Bond GMM Regression using Whole Sample (TLPC)

```
Arellano-Bond dynamic panel-data estimation     Number of obs      =       436
Group variable (i): province                    Number of groups   =        80

                                                Wald chi2(18)      =    201.02

Time variable (t): year                         Obs per group: min =         2
                                                               avg =      5.45
                                                               max =         6

One-step output
------------------------------------------------------------------------------
D.tlpc       |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
tlpc         |
          LD |   .8735832   .0758336    11.52   0.000      .7249521    1.022214
gdpcr        |
          D1 |   .3022593   .1420789     2.13   0.033      .0237898    .5807289
agrgdpr      |
          D1 |  -.0037424   .0814149    -0.05   0.963     -.1633126    .1558279
depositr     |
          D1 |  -.0113351   .0973225    -0.12   0.907     -.2020837    .1794135
resecr       |
          D1 |   .1677216   .1193111     1.41   0.160     -.0661238     .401567
indecr       |
          D1 |   .1318141   .0783161     1.68   0.092     -.0216826    .2853107
depr         |
          D1 |  -.1367822   .1071633    -1.28   0.202     -.3468184    .0732541
pie          |
          D1 |   .0000253   .0000617     0.41   0.681     -.0000955    .0001462
trrr         |
          D1 |   .0018861    .000899     2.10   0.036      .0001242     .003648
trpgdp       |
          D1 |  -.0433499   .0228562    -1.90   0.058     -.0881473    .0014474
pnps         |
          D1 |   15.28875   18.73889     0.82   0.415      -21.4388     52.0163
tur          |
          D1 |   .5262737   .1339964     3.93   0.000      .2636455    .7889019
lwlps        |
          D1 |   .4819502   .4163793     1.16   0.247     -.3341381    1.298039
dumjp        |
          D1 |  (dropped)
dum96        |
          D1 |  -.0000509   .0094342    -0.01   0.996     -.0185416    .0184397
dum97        |
          D1 |   .0060377   .0092856     0.65   0.516     -.0121618    .0242372
dum98        |
          D1 |  -.0020405   .0099331    -0.21   0.837      -.021509     .017428
dum99        |
          D1 |   .0106447   .0125876     0.85   0.398     -.0140265    .0353159
dum00        |
          D1 |   .0162371   .0082372     1.97   0.049      .0000924    .0323818
_cons        |  -.0007476   .0028575    -0.26   0.794     -.0063483    .0048531
------------------------------------------------------------------------------
Sargan test of over-identifying restrictions:
         chi2(20) =    93.59      Prob > chi2 = 0.0000

Arellano-Bond test that average autocovariance in residuals of order 1 is 0:
         H0: no autocorrelation   z =  -6.86   Pr > z = 0.0000
Arellano-Bond test that average autocovariance in residuals of order 2 is 0:
         H0: no autocorrelation   z =  -2.40   Pr > z = 0.0165
```

Table C.21 Stata Output for Between Estimator Regression using Shrunk Sample (TLPC)

```
Between regression (regression on group means)  Number of obs      =       484
Group variable (i): province                    Number of groups   =        64

R-sq:  within  = 0.0469                         Obs per group: min =         2
       between = 0.6969                                        avg =       7.6
       overall = 0.4878                                        max =         8

                                                F(13,50)           =      8.84
sd(u_i + avg(e_i.))=  .0396971                  Prob > F           =    0.0000

------------------------------------------------------------------------------
        tlpc |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       gdpcr |   .1177797   .0515008     2.29   0.026     .0143374    .2212221
     agrgdpr |  -.0871704   .0797238    -1.09   0.279    -.2473003    .0729596
    depositr |   .0694866   .0419774     1.66   0.104    -.0148276    .1538007
      resecr |  -.1022352   .1069489    -0.96   0.344    -.3170483     .112578
      indecr |  -.1227936   .0682846    -1.80   0.078    -.2599472      .01436
        depr |   .1320988   .2283154     0.58   0.565    -.3264863    .5906838
         pie |   .0001282   .0000954     1.34   0.185    -.0000634    .0003198
        trrr |  -.0005366   .0008447    -0.64   0.528    -.0022333    .0011601
      trpgdp |   .0096265    .013667     0.70   0.484    -.0178245    .0370775
        pnps |  -9.899016   8.896261    -1.11   0.271    -27.76768    7.969651
         tur |   .7035815    .177335     3.97   0.000     .3473937    1.059769
       lwlps |  -.0157607   .5066894    -0.03   0.975    -1.033476    1.001955
       dumjp |   .0045663   .0151655     0.30   0.765    -.0258945    .0350271
       _cons |   .1374662   .1130202     1.22   0.230    -.0895415    .3644738
------------------------------------------------------------------------------
```

Table C.22 Stata Output for Fixed Effects Regression using Shrunk Sample (TLPC)

```
Fixed-effects (within) regression               Number of obs      =       484
Group variable (i): province                    Number of groups   =        64

R-sq:  within  = 0.4224                         Obs per group: min =         2
       between = 0.4806                                        avg =       7.6
       overall = 0.4754                                        max =         8

                                                F(19,401)          =     15.43
corr(u_i, Xb)  = 0.0315                         Prob > F           =    0.0000
```

tlpc	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpcr	.1422072	.0616401	2.31	0.022	.0210291	.2633852
agrgdpr	.0324571	.0462578	0.70	0.483	-.058481	.1233952
depositr	.1006241	.0345158	2.92	0.004	.0327696	.1684787
resecr	.0151417	.0609044	0.25	0.804	-.1045902	.1348735
indecr	.0211775	.0382702	0.55	0.580	-.0540578	.0964128
depr	.0493453	.0747819	0.66	0.510	-.0976683	.1963589
pie	.0000205	.0000228	0.90	0.368	-.0000242	.0000653
trrr	-.0007627	.0003713	-2.05	0.041	-.0014927	-.0000327
trpgdp	.0345701	.0140114	2.47	0.014	.0070252	.0621149
pnps	-3.405236	10.8326	-0.31	0.753	-24.70101	17.89054
tur	.0037853	.0671425	0.06	0.955	-.12821	.1357806
lwlps	.2617174	.2030161	1.29	0.198	-.1373914	.6608262
dum94	-.0552083	.0110242	-5.01	0.000	-.0768808	-.0335358
dum95	-.0401399	.0093412	-4.30	0.000	-.0585037	-.0217761
dum96	-.0212657	.0082705	-2.57	0.010	-.0375246	-.0050067
dum97	-.0048199	.0077797	-0.62	0.536	-.0201139	.0104741
dum98	.0036008	.007412	0.49	0.627	-.0109705	.0181721
dum99	-.0056497	.0075005	-0.75	0.452	-.0203949	.0090955
dum00	.0239725	.0063462	3.78	0.000	.0114964	.0364485
_cons	.1005231	.056251	1.79	0.075	-.0100606	.2111067
sigma_u	.04631023					
sigma_e	.03389309					
rho	.65119657	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(63, 401) =     9.76             Prob > F = 0.0000
```

Table C.23 Stata Output for Random Effects Regression using Shrunk Sample (TLPC)

```
Random-effects GLS regression                   Number of obs      =       484
Group variable (i): province                    Number of groups   =        64

R-sq:  within  = 0.4154                         Obs per group: min =         2
       between = 0.5746                                        avg =       7.6
       overall = 0.5423                                        max =         8

Random effects u_i ~ Gaussian                   Wald chi2(20)      =    374.82
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
        tlpc |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       gdpcr |   .1422418    .032076     4.43   0.000     .0793739    .2051096
     agrgdpr |  -.0152922   .0374261    -0.41   0.683    -.0886459    .0580615
    depositr |   .0920727    .025098     3.67   0.000     .0428816    .1412639
      resecr |  -.0060736   .0507295    -0.12   0.905    -.1055016    .0933545
      indecr |   .0262768   .0304833     0.86   0.389    -.0334693    .0860229
        depr |   .0688348   .0697575     0.99   0.324    -.0678873    .2055569
         pie |   .0000265   .0000218     1.22   0.224    -.0000162    .0000691
        trrr |  -.0006238   .0003375    -1.85   0.065    -.0012853    .0000377
      trpgdp |   .0280569   .0083948     3.34   0.001     .0116034    .0445104
        pnps |  -4.851743   5.918103    -0.82   0.412    -16.45101    6.747526
         tur |    .105884   .0622929     1.70   0.089    -.0162078    .2279759
       lwlps |    .236265   .1843113     1.28   0.200    -.1249784    .5975085
       dumjp |   .0089758   .0124462     0.72   0.471    -.0154184      .03337
       dum94 |   -.054703    .008361    -6.54   0.000    -.0710903   -.0383157
       dum95 |  -.0398484   .0076123    -5.23   0.000    -.0547682   -.0249286
       dum96 |  -.0226652    .007307    -3.10   0.002    -.0369867   -.0083437
       dum97 |  -.0070371    .007021    -1.00   0.316    -.0207979    .0067238
       dum98 |   .0020317   .0069509     0.29   0.770    -.0115918    .0156551
       dum99 |  -.0053145    .007002    -0.76   0.448    -.0190381    .0084091
       dum00 |   .0223229   .0063313     3.53   0.000     .0099137     .034732
       _cons |   .0951432   .0483351     1.97   0.049      .000408    .1898783
-------------+----------------------------------------------------------------
     sigma_u |  .03686009
     sigma_e |  .03389309
         rho |  .54186077   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Table C.24 Stata Output for FGLS Regression using Shrunk Sample (TLPC)

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   common AR(1) coefficient for all panels  (0.5815)

Estimated covariances      =        64          Number of obs      =       484
Estimated autocorrelations =         1          Number of groups   =        64
Estimated coefficients     =        21          Obs per group: min =         2
                                                               avg =    7.5625
                                                               max =         8
                                                Wald chi2(20)      =    578.53
Log likelihood             =  1058.015          Prob > chi2        =    0.0000
```

tlpc	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpcr	.2029196	.0217925	9.31	0.000	.1602071	.2456321
agrgdpr	.012632	.0227197	0.56	0.578	-.0318978	.0571618
depositr	.07303	.0159707	4.57	0.000	.041728	.104332
resecr	.0111455	.026884	0.41	0.678	-.0415462	.0638372
indecr	.014498	.017973	0.81	0.420	-.0207284	.0497245
depr	.1019846	.0562948	1.81	0.070	-.0083512	.2123204
pie	.0000285	.0000138	2.07	0.038	1.52e-06	.0000554
trrr	.0000539	.0002879	0.19	0.852	-.0005105	.0006183
trpgdp	.0211592	.0059565	3.55	0.000	.0094847	.0328337
pnps	-4.189259	2.921544	-1.43	0.152	-9.915381	1.536862
tur	.2033059	.0461524	4.41	0.000	.1128488	.293763
lwlps	.3607687	.1171653	3.08	0.002	.131129	.5904085
dumjp	-.0033362	.0082452	-0.40	0.686	-.0194966	.0128242
dum94	-.039253	.0057827	-6.79	0.000	-.0505869	-.0279191
dum95	-.0268232	.0053548	-5.01	0.000	-.0373183	-.016328
dum96	-.0194966	.0051571	-3.78	0.000	-.0296042	-.0093889
dum97	-.0053828	.0050094	-1.07	0.283	-.015201	.0044354
dum98	.0029109	.0048641	0.60	0.550	-.0066225	.0124443
dum99	-5.90e-06	.0045652	-0.00	0.999	-.0089535	.0089417
dum00	.0189444	.0033208	5.70	0.000	.0124357	.0254531
_cons	-.0095274	.0329146	-0.29	0.772	-.0740388	.0549841

Table C.25 Stata Output for FGLS Regression with Lagged Dependent Variable using Shrunk Sample (TLPC)

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   common AR(1) coefficient for all panels  (-0.0238)

Estimated covariances      =        63          Number of obs      =       419
Estimated autocorrelations =         1          Number of groups   =        63
Estimated coefficients     =        21          Obs per group: min =         3
                                                               avg =  6.650794
                                                               max =         7
                                                Wald chi2(20)      =   2764.18
Log likelihood             =  949.7804          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
        tlpc |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    tlpc(-1) |   .7686603   .0313098    24.55   0.000     .7072943    .8300263
       gdpcr |   .0583314   .0133044     4.38   0.000     .0322553    .0844074
     agrgdpr |  -.0086572   .0140335    -0.62   0.537    -.0361624     .018848
    depositr |   .0155727   .0086413     1.80   0.072    -.0013639    .0325093
      resecr |   .0081965     .02041     0.40   0.688    -.0318064    .0481993
      indecr |  -.0079368   .0124721    -0.64   0.525    -.0323818    .0165081
        depr |   .0198814   .0346071     0.57   0.566    -.0479473      .08771
         pie |   .0000106   .0000103     1.03   0.305    -9.66e-06    .0000309
        trrr |  -.0002521   .0002144    -1.18   0.240    -.0006723     .000168
      trpgdp |   .0084765   .0032935     2.57   0.010     .0020214    .0149317
        pnps |   .2320457   1.615867     0.14   0.886    -2.934995    3.399086
         tur |   .1622557   .0347839     4.66   0.000     .0940806    .2304308
       lwlps |   .1846872   .0907641     2.03   0.042     .0067927    .3625816
       dumjp |   -.003284   .0035708    -0.92   0.358    -.0102826    .0037147
       dum95 |    .017929   .0044516     4.03   0.000     .0092041     .026654
       dum96 |   .0192766   .0042974     4.49   0.000     .0108538    .0276995
       dum97 |    .023643   .0042132     5.61   0.000     .0153852    .0319008
       dum98 |   .0253937   .0041418     6.13   0.000     .0172759    .0335115
       dum99 |   .0209226   .0041121     5.09   0.000      .012863    .0289823
       dum00 |   .0207628     .00389     5.34   0.000     .0131385     .028387
       _cons |  -.0129047   .0235416    -0.55   0.584    -.0590453    .0332359
------------------------------------------------------------------------------
```

Table C.26 Stata Output for Arellano-Bond GMM Regression using Shrunk Sample (TLPC)

```
Arellano-Bond dynamic panel-data estimation     Number of obs      =       349
Group variable (i): province                    Number of groups   =        63

                                                Wald chi2(18)      =     68.09

Time variable (t): year                         Obs per group: min =         2
                                                               avg =  5.539683
                                                               max =         6

One-step output
------------------------------------------------------------------------------
D.tlpc        |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
tlpc          |
          LD |   .0394391   .0933916     0.42   0.673     -.143605    .2224832
gdpcr         |
          D1 |   .1572206   .0894811     1.76   0.079    -.0181592    .3326003
agrgdpr       |
          D1 |   .1661411   .0674543     2.46   0.014     .0339331    .2983492
depositr      |
          D1 |   .0929191   .0527764     1.76   0.078    -.0105207    .1963589
resecr        |
          D1 |  -.0425819   .0794643    -0.54   0.592     -.198329    .1131652
indecr        |
          D1 |   .0621281   .0528476     1.18   0.240    -.0414512    .1657074
depr          |
          D1 |   .0470015   .0953725     0.49   0.622    -.1399253    .2339282
pie           |
          D1 |   1.74e-06   .0000373     0.05   0.963    -.0000713    .0000748
trrr          |
          D1 |   .0001345   .0005853     0.23   0.818    -.0010127    .0012818
trpgdp        |
          D1 |   .0228261   .0184492     1.24   0.216    -.0133336    .0589858
pnps          |
          D1 |  -14.37335   17.43101    -0.82   0.410    -48.53751     19.7908
tur           |
          D1 |   .2244426   .0942198     2.38   0.017     .0397752    .4091101
lwlps         |
          D1 |   .1720709   .2671249     0.64   0.519    -.3514842     .695626
dumjp         |
          D1 |  (dropped)
dum96         |
          D1 |   .0067784   .0062328     1.09   0.277    -.0054376    .0189944
dum97         |
          D1 |   .0150739   .0063438     2.38   0.017     .0026403    .0275075
dum98         |
          D1 |   .0133368   .0070331     1.90   0.058    -.0004477    .0271214
dum99         |
          D1 |   .0042807   .0084487     0.51   0.612    -.0122785    .0208399
dum00         |
          D1 |   .0245845   .0056779     4.33   0.000     .0134562    .0357129
_cons         |   .0061451   .0024949     2.46   0.014     .0012552     .011035
------------------------------------------------------------------------------
Sargan test of over-identifying restrictions:
         chi2(20) =    48.37      Prob > chi2 = 0.0004

Arellano-Bond test that average autocovariance in residuals of order 1 is 0:
         H0: no autocorrelation   z =  -5.48   Pr > z = 0.0000
Arellano-Bond test that average autocovariance in residuals of order 2 is 0:
         H0: no autocorrelation   z =  -2.87   Pr > z = 0.0041
```

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