Can corruption be held responsible for deforestation?

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Abstract

Long gone are those days when the concern of forest resource was limited to a region or a nation – it is global now. This study aims to reflect this concern by revolving around the topic of the causes of deforestation. To some extent, deforestation might be necessary for the growth of an economy. But not all deforestation is good. This paper focuses on the bad reasons of deforestation. The research question of the study is to find out the impact of corruption on deforestation. Since, deforestation is a global problem, this study targets all the countries around the world. To conduct this study, I have taken data for 22 years, which is a significant time to observe change in deforestation patterns. Using this panel data, I will be performing regression analysis. The models used in this study are entity fixed effects and time fixed effects to remove unobserved omitted variable biasedness. To define corruption, the study uses two corruption datasets, namely Corruption Perception Index (CPI), and Control of Corruption. The importance of this study is to provide a quantitative basis for strategy builders and policy makers who come across the question of corruption being another cause for deforestation. The results found in the study show highly statistically significant decrease in deforestation activities with 1 unit decrease in corrupt practices in a country.

Keywords: Deforestation, Corruption, Fixed Effects

JEL Code: C330, Q560

1. Background and Literature Review

Deforestation refers to the conversion of forests and grassland to lands suitable for non-forest use like agriculture, urban development, economic growth, and much more. Loss of forests has resulted in climate change, which is known to be one of biggest global concerns of today.

It is vital to understand that agriculture cannot substitute forests to fight climate change. Forests store large amounts of carbon in them. This carbon is prone to be released in the atmosphere, in the form of CO_2 – one of the most harmful gases if forests are cleared away. Forests are home to millions of distinct species that can only survive in specific habitats. Clearly, removing forests would not just lead to climate change, but in the long run it will also destroy the global economy of this planet. Therefore, it is crucial to do deforestation in a sustainable manner.

To some extent, one might agree that agriculture is necessary for current survival and cannot be put to hold. However, corruption is something which is necessary to be suspended indefinitely to continue living. The report by Harwel. 2009. Human Rights Watch, "Wild Money": *The Human Rights Consequences of Illegal Logging and Corruption in Indonesia's Forestry Sector*.) summarizes the loss of around $2 billion by Indonesia, country with world's highest deforestation rates, in 2006 was due to illegal logging, corruption, and mismanagement. Exports from its flourishing timber sector were worth $US6.6 billion in 2007, second only to Brazil. Koyuncu. 2009. The *Impact of Corruption on Deforestation: A Cross-Country Evidence.* The Journal of Developing Areas , Vol. 42, pp. 213-222. find a positive correlation between corruption and deforestation which is statistically significant According to Scarrow, R. 2017. Corruption *drives deforestation*. Nature Plants 3, 910., corruption might not have a large impact on deforestation, but it is certainly more significant than when taking a debt from IMF to engage in heavy logging activities.

There is further evidence of involvement of government ineffectiveness and political instability that ignites corrupt practices in forests leading to deforestation. Cassandro Mendes & Sabino Junior & Fabricio Tourruc?o. 2016. *Corruption and Deforestation: A Differential Game Model*. Business and Economic Research, Macrothink Institute, vol. 6(1), pages 481-491.) uses Stackelberg differential game to depict the correlation between corruption and deforestation. The results show that better government strategies in terms of salary paid to the workers need to be implemented to avoid going on the trail of corruption. Wilson, John K. & Damania, Richard, 2005. *Corruption, political competition and environmental policy*. Journal of Environmental Economics and Management, Elsevier, vol. 49(3), pages 516-535.) indicates higher political competition would have stringent policies reducing the level of corruption, needed to achieve reduction in environmental damage. Milledge, S.A.H., Gelvas, I. K. and Ahrends, A. 2007. *Forestry, Governance and National Development: Lessons Learned from a Logging Boom in Southern Tanzania. An Overview.* TRAFFIC East/Southern Africa / Tanzania Development Partners Group / Ministry of Natural Resources of Tourism, Dar es Salaam, Tanzania. 16pp.) describes in a report how policies related to management of resources were manipulated for private gains that led to depletion of many forests in Tanzania.

With all this in mind, this research deals with the impact of corruption on deforestation in countries with different government policies and political stability.

2. Data

This study uses a rich panel dataset with 216 countries over a span of 22 years starting from 2000 to 2021. Table 2 below lists down all variables used in the study along with their definition and unit of measurement.

I have introduced two corruption datasets for reasons: 1. to get better understanding of the correlation between deforestation and corruption, and 2. to compare both corruption variables from the results obtained and use the best obtained results in this study. Therefore, this study addresses two research questions:

Hypothesis 1: Increase in Corruption Perception Index decreases deforestation

Hypothesis 2: Increase in control of corruption decreases deforestation

Table 2 Types of variables and data used

Datasets	Variable	Definition	Measurement Unit	Source
Corruption Perception Index	CPIscore	Corruption Perceptions Index (CPI) is an index which ranks countries by their perceived levels of public sector corruption	100 (very clean) - 0 (highly corrupt)	Transparency International. 2021. Corruption Perception Index. Available online: https://www.transparency.org/en/cpi/2021
Control of Corruption	CorrControl	Control of Corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption.	0 (highly corrupt) - 100 (very clean)	World Bank (2021A). Worldwide Governance Indicators. Available online: https://databank.worldbank.org/source/worldwide-governance-indicators/Type/TABLE/preview/on
Deforestation	Deforestation	Deforestation is the conversion of forest to other land use independently whether human-induced or not. It includes permanent reduction of the tree	1000ha/year	FAO (2020). Global Forest Resources Assessment.

		canopy cover below the minimum 10 percent threshold.		Available online: https://fra-data.fao.org/ITTO/fra2020/forestAreaChange/
Gross Domestic Product (constant $2015)	GDP_2015	GDP per capita; GDP represents the sum of value added by all its producers.	Constant 2015 prices, in US dollar ($)	World Bank (2021B). World Development Indicators. Available Online: https://databank.worldbank.org/source/world-development-indicators/Type/TABLE/preview/on
Rural Population	RuralPop	Rural population refers to people living in rural areas as defined by national statistical offices. Difference between total population and urban population.	In percentage (%)	World Bank (2021B). World Development Indicators. Available Online: https://databank.worldbank.org/source/world-development-indicators/Type/TABLE/preview/on
Urban Population	UrbanPop	Urban population refers to people living in urban areas as defined by national statistical offices. Difference between total population and urban population	In percentage (%)	World Bank (2021B). World Development Indicators. Available Online: https://databank.worldbank.org/source/world-development-indicators/Type/

				TABLE/preview/on
Political Stability and Absence of Violence/Terrorism: Percentile Rank	PoliticStable	Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism.	0 (highly violent) - 100 (very clean)	World Bank (2021A). Worldwide Governance Indicators. Available online: https://databank.worldbank.org/source/worldwide-governance-indicators/Type/TABLE/preview/on
Government Effectiveness: Percentile Rank	GovtEffect	Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	0 (autocratic) - 100 (democratic)	World Bank (2021A). Worldwide Governance Indicators. Available online: https://databank.worldbank.org/source/worldwide-governance-indicators/Type/TABLE/preview/on

The two main explanatory variables are Corruption Perception Index (CPI) and control of corruption. The data for CPI score before 2012 ranges between 0 to 10. But after 2012, it ranges between 0 to 100. To conduct regression analysis, we need to make the data compatible throughout all 22 years. Due to non-availability of calculation details, I calculated CPI score before 2012 in the following way:

$$\frac{CPI\ score\ before\ 2012}{Max\ score\ before\ 2012 - Min\ score\ before\ 2012 - Min\ score\ after\ 2012} \times Max\ score\ after\ 2012$$

The main dependent variable is deforestation. The data for deforestation is obtained from the Global Forest Resources Assessment (FRA) led by Food and Agriculture Organization (FAO). The available data has only four data points, for 1990-2000, 2000-2010, 2010-2015, and 2015-2020 for every country.

Since, the data is for 10 and 5 year long periods, I have used same value of deforestation between all years from 2000 to 2010, 2011 to 2015, and 2016 to 2020. It includes regions of forest converted to agriculture, pasture, water reservoirs, mining and urban areas, but excludes the regions where the trees have been cut off for harvesting or logging purposes, and where the forest is expected to revive inherently or with the assistance of silvicultural methods.

The covariates included are GDP, rural population, urban population, political stability (absence of violence/terrorism), and government effectiveness. To control for the factor of wealth of the country, GDP is considered in the model. The dollar figures for GDP are converted from domestic currencies of every country using 2015 official exchange rates. For the countries, the exchange rate was not available, an alternative conversion factor was used. According to various studies Bilsborrow, R.E. 1992. *Population growth, internal migration, and environmental degradation in rural areas of developing countries*. Eur J Population **8**, 125–148.) and Julia C. Allen & Douglas F. Barnes. 1985. *The Causes of Deforestation in Developing Countries*. Annals of the Association of American Geographers, 75:2, 163-184.) indicate a positive correlation between population growth and deforestation. Rural population expands by clearing out forests in villages and rural areas. Growing urban population would lead to escalation in production of goods made from wood and other forest products. Hence, these two are important to be included in the model to avoid any possible omitted variable biasedness. To account for the government effectiveness and political stability of different countries, we consider two variables PoliticStable and GovtEffect. PoliticStable indicates a low rank for countries with high likelihood of political instability and presence of political violence and vice versa. GovtEffect indicates a low rank for countries with less degree of independence from political pressures (definition explained in Table 2).

2.1 Summary Statistics

To investigate the data further, I conducted summary statistics represented in Table 2.1.1 below and used data visualization to easily identify correlations and patterns before moving on to conducting regression analysis.

Table 2.1.1 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
CPIscore	3368	42.423	20.84	4	100
CorrControl	4069	48.867	29.091	0	100
Deforestation	2446	89.648	380.314	0	5129.3
GDP 2015	770	12432.538	15258.128	334.016	101489.38
RuralPop	866	44.082	25.083	0	87.022
UrbanPop	866	55.918	25.083	12.978	100
GovtEffect	4057	49.102	29	0	100
PoliticStable	4125	49.263	28.834	0	100

Table 2.1.1 shows the mean value of CPI score to be 42.4 which is much closer to 0 than 100. This implies that, on an average, a country is more corrupt than being non-corrupt. The mean value of CorrControl, 48.8, indicates a parallel sense. The mean value of deforestation, 89.6, is extremely low as compared to the maximum value of 5129.3. According to my assumption, mean deforestation should have been closer to its maximum value looking at the low mean CPI score and CorrControl. However, the standard deviation, 380.3, indicates largely dispersed data, enough to be skeptical about my assumption. It would be interesting to know the regression results.

The mean and std. dev. values of CPI score and CorrControl are similar which is a good indication to treat them as two separate main explanatory variables for the two similar hypotheses of this study. The standard deviation of most variables is at most half their respective mean values or in some cases even larger than that showing a wide dispersion of data or maybe large outliers.

Further, graphs are created for all the main variables (dependent and independent) for both the hypothesis studies. The histograms had been created for all the covariates as well. However, there are not displayed in this paper. They are available in the do file for the viewer's reference. Note: The variables measured in ranks had a uniform distribution. I took natural log of all those variables as well as for the deforestation and population variables to bring their distribution closer to normal distribution and minimize their skewness.

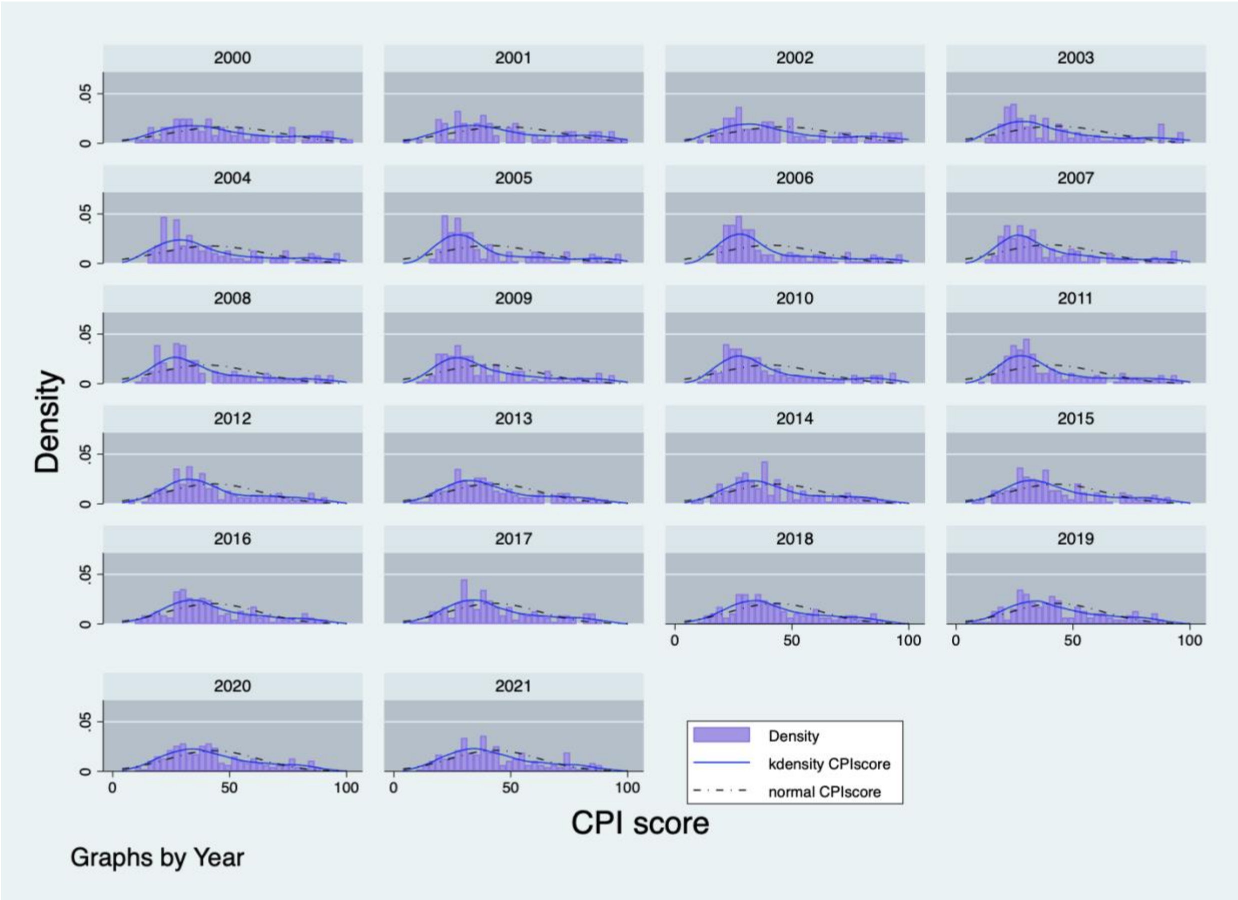

Fig. 2.1.1 CPI score distribution

Figure 2.1.1 displays histograms of CPI scores year-wise for all countries over a span of more than two decades. The data is highly dispersed as these are scores ranging from 0 to 100 indicating possibility of outliers in data. Starting from 2000, the bump (or the peak in that graph), observed from the blue line, starts rising slowly over time as we move towards 2021. Around 2005, it reaches the apex point in those 22 years. It remains relatively stable for the next couple of years experiencing slight rise and fall over the years. After 2011, it starts to dissolve again. Throughout this time, the bump stays towards the left of the center and the data is slightly skewed towards the right suggesting the median to be smaller than the mean. This also suggests that large number of countries are corrupt as compared to being clean.

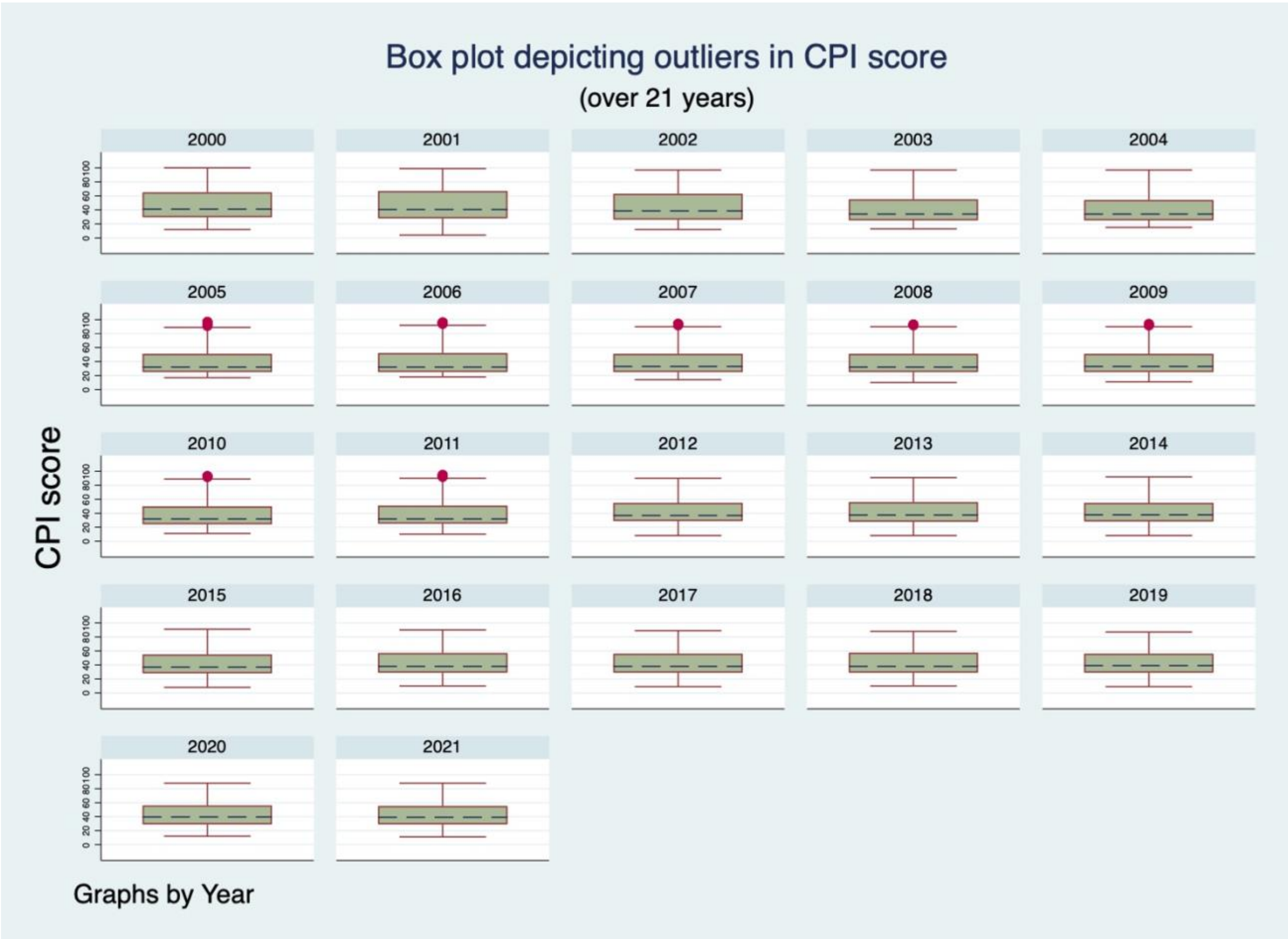

Fig. 2.1.2 Outliers in CPI score

With the help of boxplot, fig. 2.1.2 showcases the number of outliers in the form of red markers (dots) located at the top of boxplot. In alignment with afore-mentioned paragraph, the outliers appear in 2005 and last till 2011. 2005 experiences the maximum outliers pushing the peak upwards in fig 2.1.1. However, these outliers are minuscule and nothing to be concerned about.

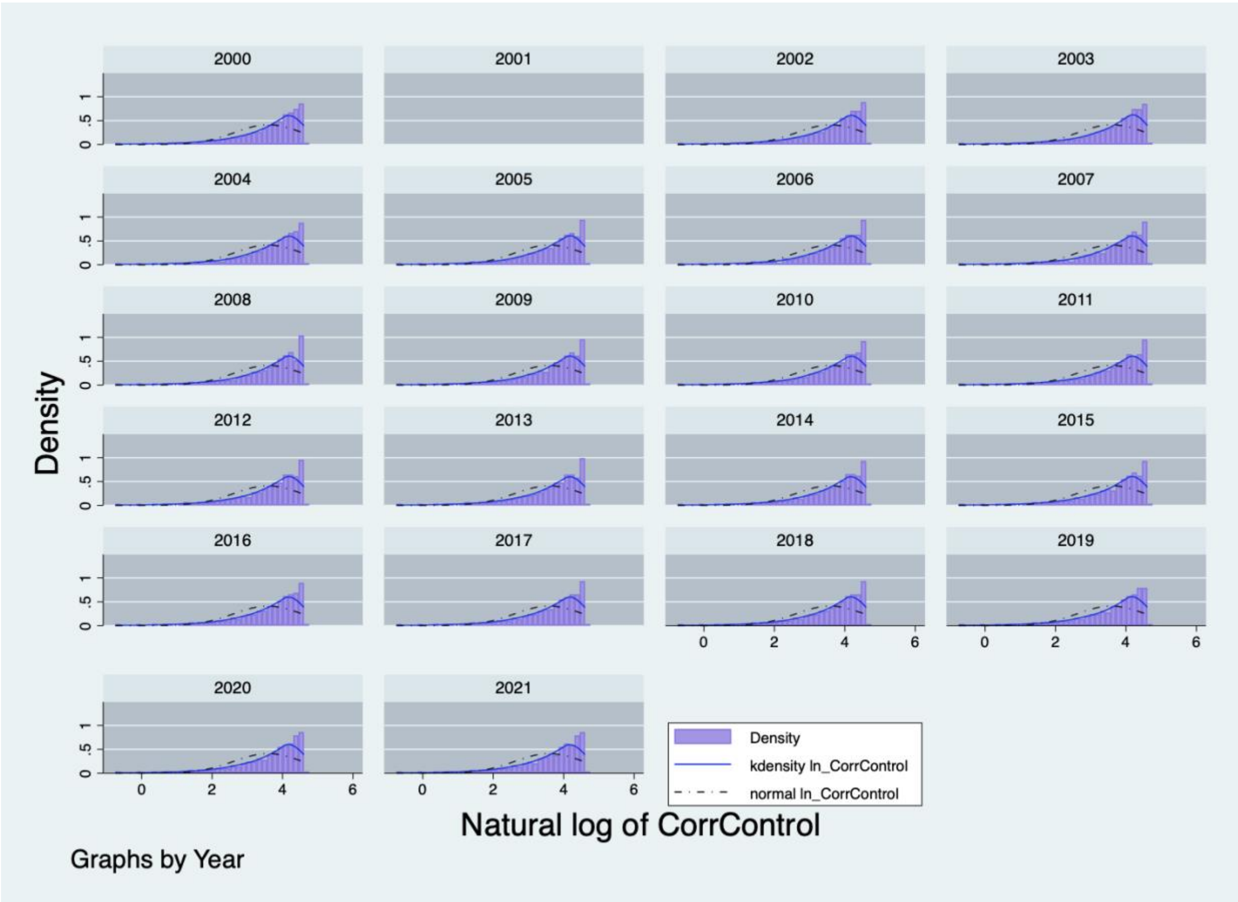

Fig 2.1.3 Natural log of control of corruption

Figure 2.1.3 displays histograms of natural log of control of corruption year-wise for all countries over the span of almost two decades. The data is skewed towards the left. The data does not reveal much change in the peak over the years. The data is not available for 2001.

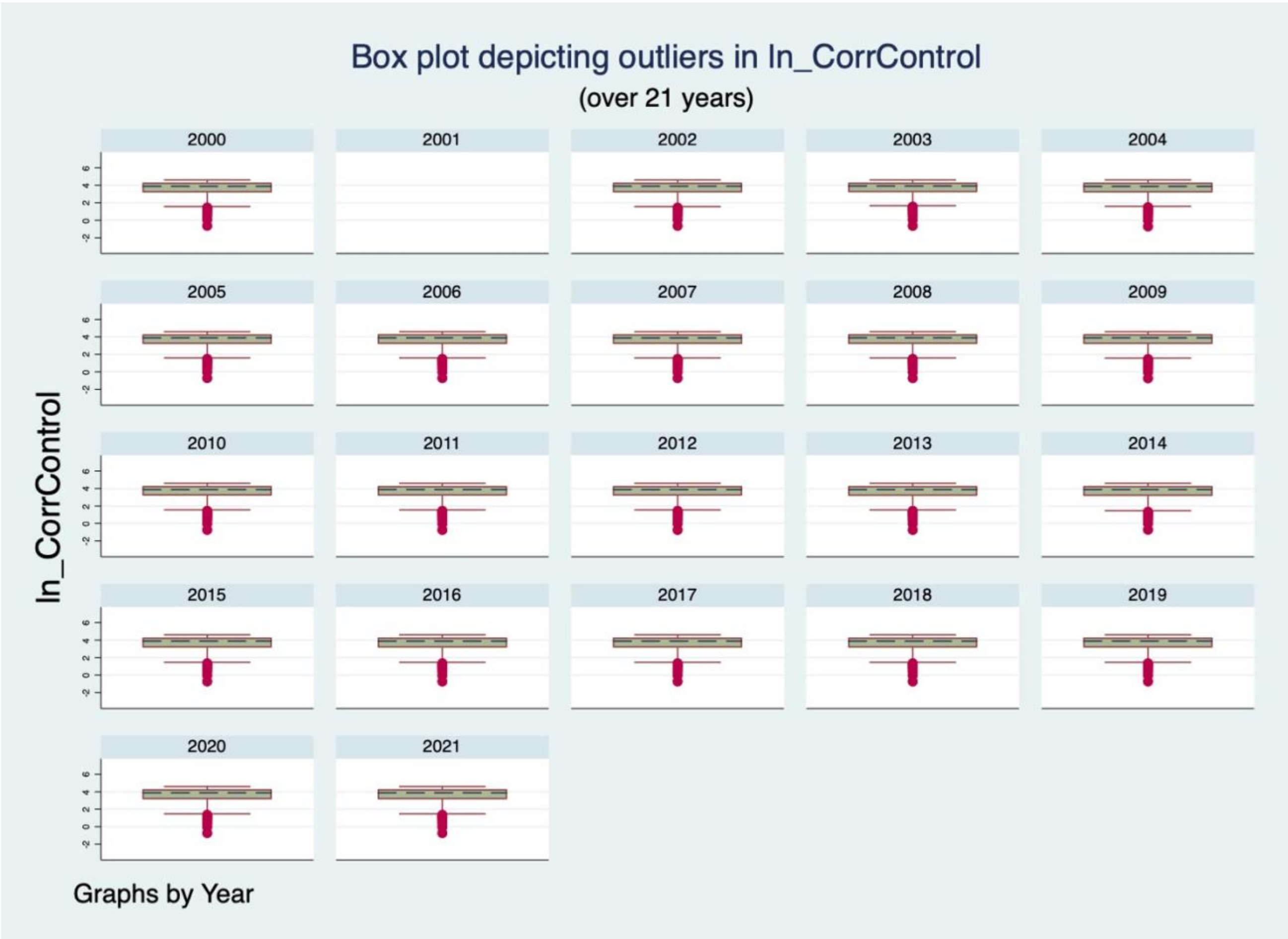

Fig 2.1.4 Outliers in natural log of control of corruption

Fig 2.1.4 displays outliers throughout the period of 2 decades. The outliers skew the distribution of this variable towards the left as seen in the fig 2.1.4. However, since the variable has an independent and identical distribution (explanation for i.i.d is given in fig 2.1.5), the outliers are ignored and the skewed distribution is accepted for the regression analysis.

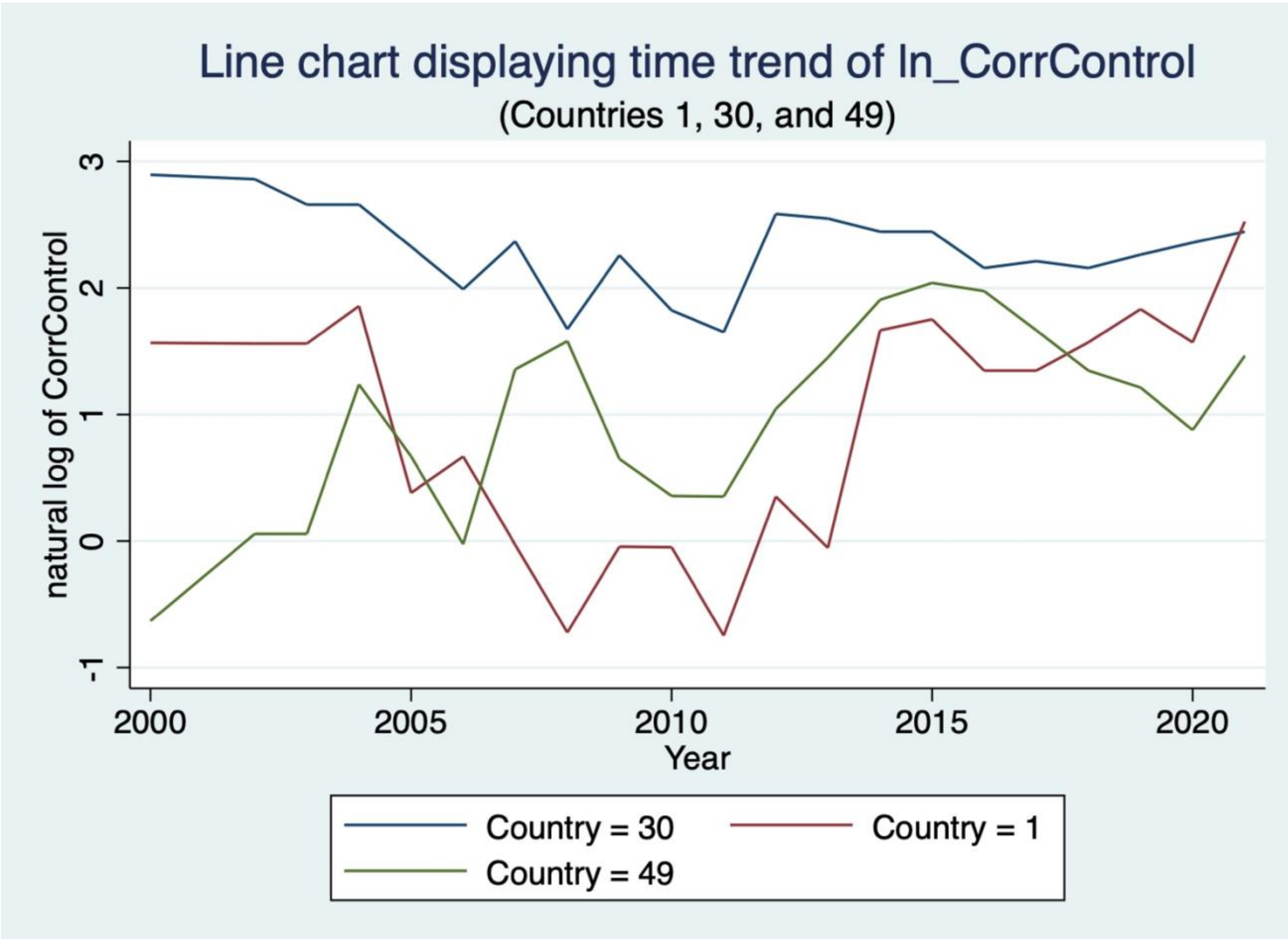

Fig 2.1.5 Time trend of natural log of deforestation

Fig 2.1.5 displays the time trend of natural log of control of corruption for 3 countries randomly selected through their id (Country) over a period of 21 years. From the trend, the variable displays a random walk suggesting no correlation between past and future behavior which indicates independent distribution. Since, the distribution is same in fig 2.1.4, the variable represents identical distribution. This implies that the variable is i.i.d.

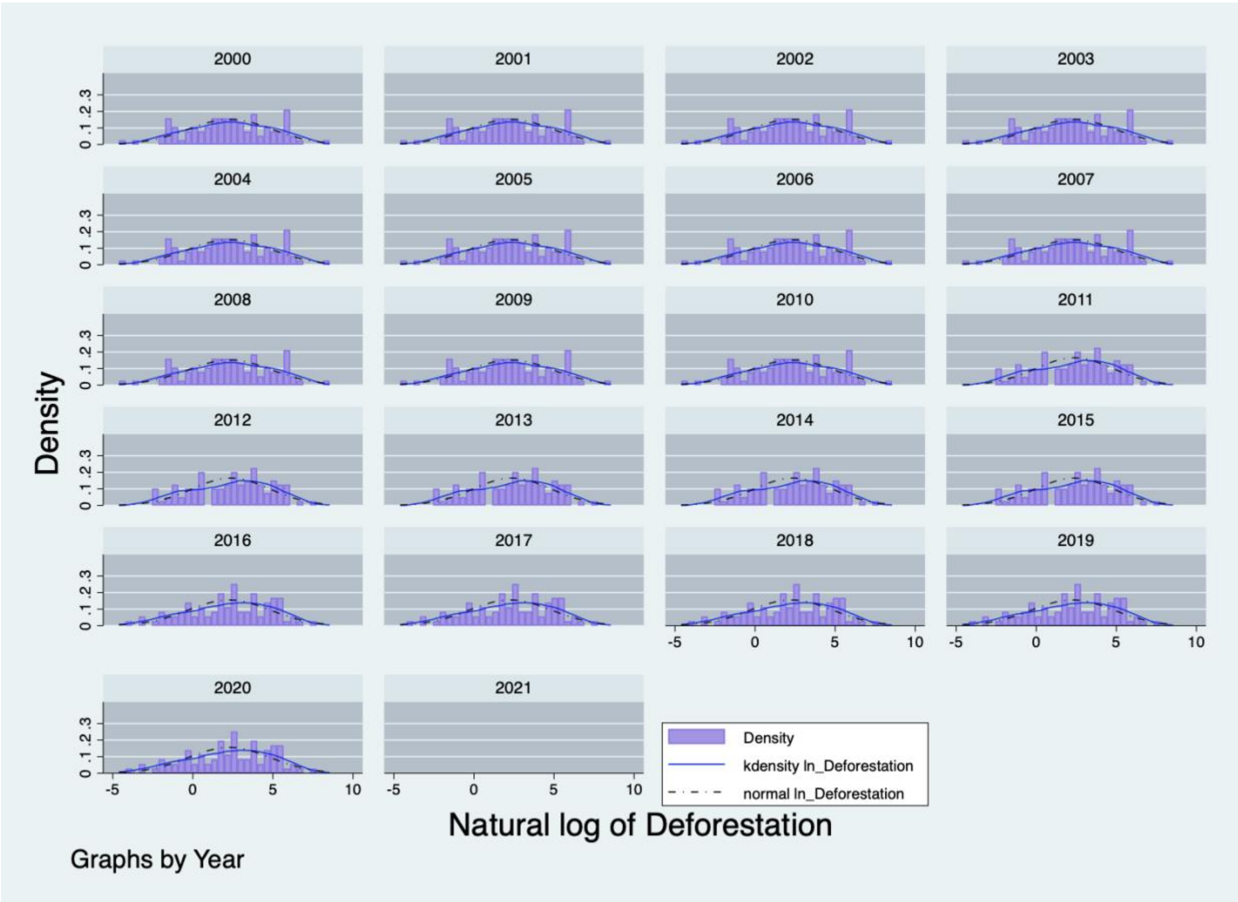

Fig 2.1.6 Natural log of deforestation

Figure 2.1.6 displays histograms of natural log of deforestation year-wise for all countries over the span of almost two decades. The kdensity curve almost overlaps the normal distribution curve completely before 2011. There appear to be two peaks from 2011 to 2015. The data is separated into two parts by a missing rectangle. After 2015, the small peak on the left disappears to again form a bell curve. However, the data does not reveal much change in the peak over the years. The data is not available for 2021.

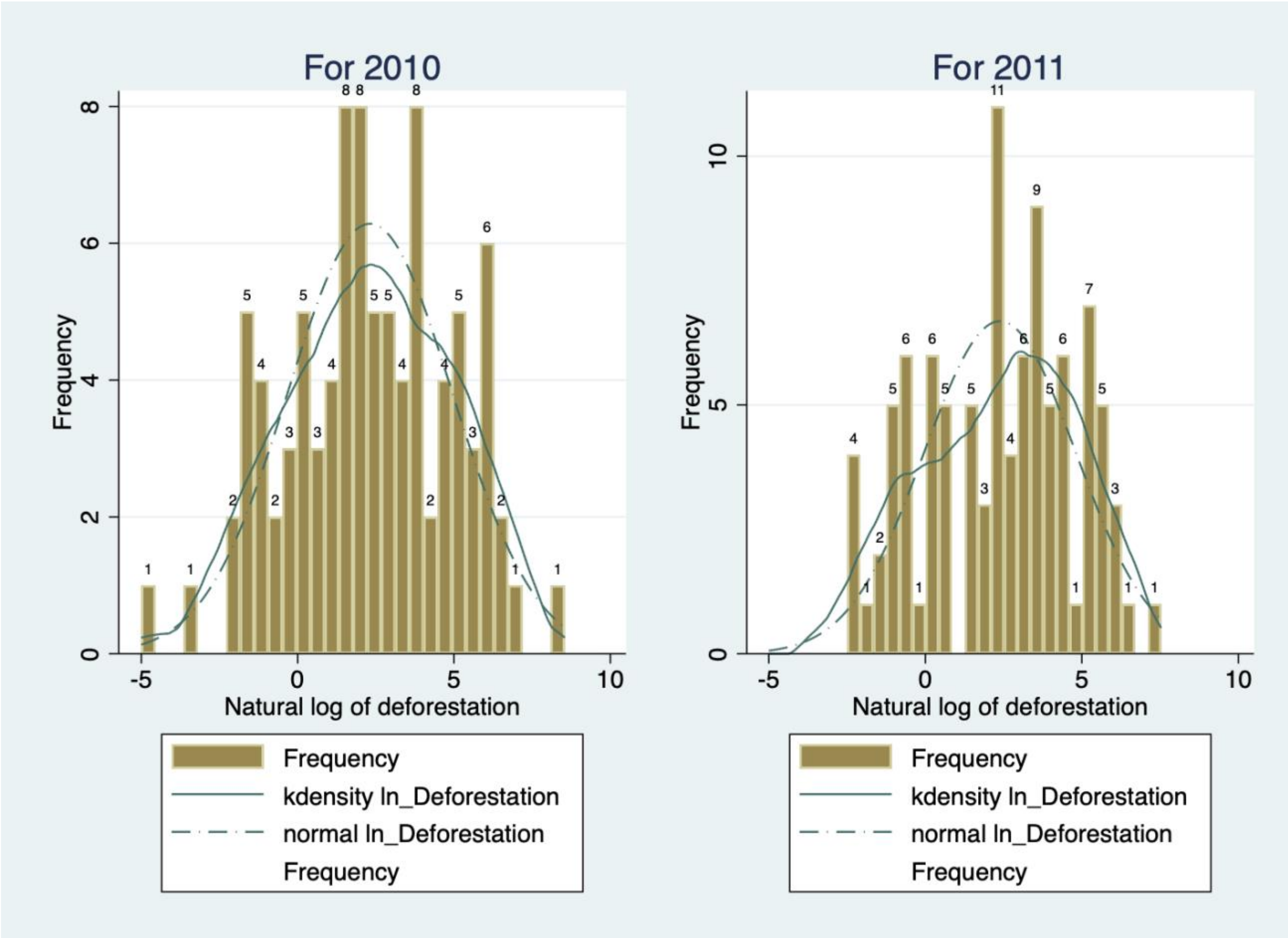

Fig 2.1.7 Natural log of deforestation

Figure 2.1.7 displays a closer look at the distribution of natural log of deforestation for the years 2010 and 2011. I tried to replicate the number of bins, and the upper and lower limit of x-axis as in the previous graph to better understand the missing rectangle from 2011 to 2015. Apart from 5 missing observations, it appears that the highest peaks in 2010 have shrunk down in 2011 resulting in a missing rectangle.

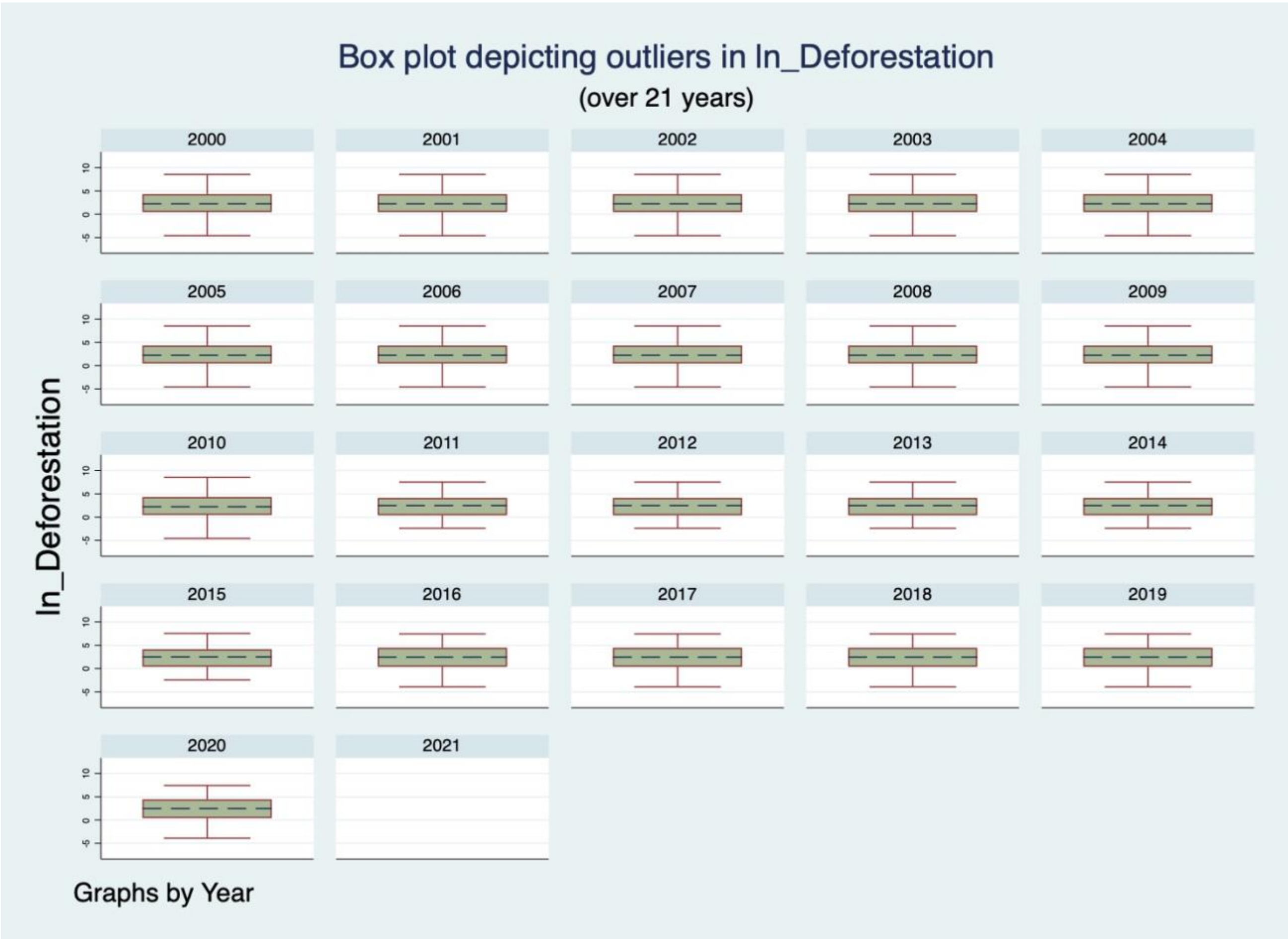

Fig 2.1.7 Outliers in natural log of deforestation

Fig 2.1.7 does not showcase any outliers. Similar to the explanation of fig 2.1.6, the variable does not display much skewness. Moreover, its distribution overlaps the line for normal distribution. Therefore, having no outliers in the boxplot is coherent.

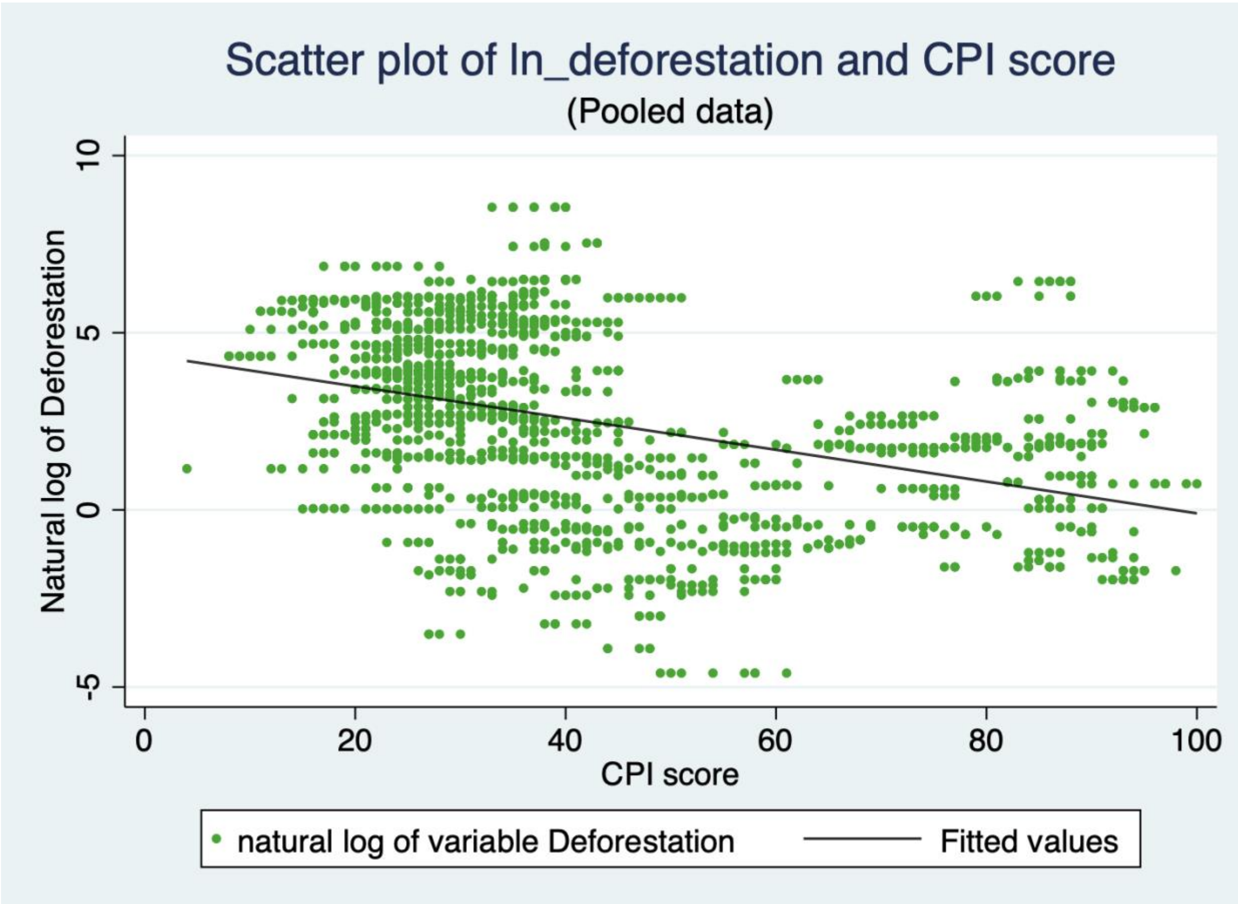

Fig 2.1.4 Scatter plot of hypothesis 1

The first hypothesis of this study is showcased by Figure 2.1.4 in the form of a scatter plot of natural log of deforestation and CPI score along with the black fitted linear trend line. The unit of observation is country represented by the green dot. The downward sloping trend line shows the negative correlation between deforestation and CPI score. However, this does not imply that the falling corruption causes decrease in deforestation. To find that out, empirical analysis would need to be conducted.

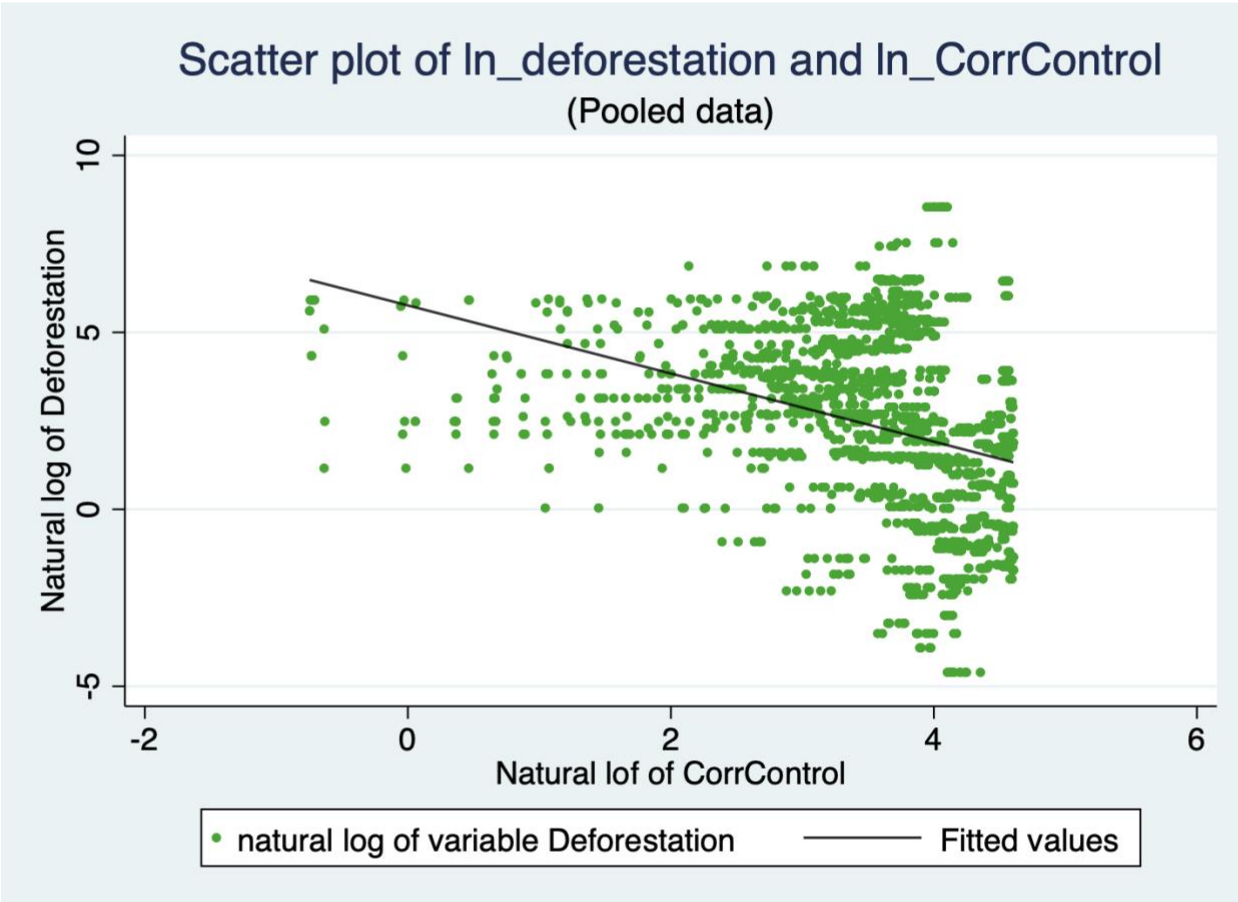

Fig 2.1.5 Scatter plot of hypothesis 2

The second hypothesis of this study is showcased by Figure 2.1.5 in the form of a scatter plot of natural log of deforestation and natural log of control of corruption along with the black fitted linear trend line. The unit of observation is country represented by the green dot. The downward sloping trend line shows the negative correlation between natural log of deforestation and natural log of control of corruption. This is in alignment with the above hypothesis.

Table 2.1.2 Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) CPIscore	1.000							
(2) ln_CorrControl	0.796	1.000						
(3) ln_Deforestation	0.353	-0.011	1.000					
(4) ln_GDP_2015	0.861	0.825	0.379	1.000				
(5) ln_RuralPop	-0.873	-0.812	-0.161	-0.848	1.000			
(6) ln_UrbanPop	0.599	0.614	-0.051	0.560	-0.884	1.000		
(7) ln_GovtEffect	0.714	0.868	0.168	0.899	-0.712	0.449	1.000	
(8) ln_PoliticStable	0.704	0.768	0.179	0.647	-0.595	0.318	0.701	1.000

The two conditions of omitted variable bias are:

1. Correlation of omitted variable with X (main explanatory variable)
2. Determinant of Y (main dependent variable)

The first condition has been fulfilled, as observed in column (1) for hypothesis 1, and column (2) for hypothesis 2, of table 2.1.2. In both columns, all variables are highly correlated with their respective main explanatory variables. To observe if these variables also fulfil condition 2, regression analysis have been conducted including and excluding each variable.

3. Methodology

Before starting with regression analysis, I would like to discuss the assumptions of OLS.
Assumption 1: The conditional mean is zero
Assumption 2: Xi and Yi are independently and identically distributed (i.i.d)
Assumption 3: Large outliers are unlikely
Assumption 4: There is no multicollinearity (or perfect collinearity)
Assumption 5: There is homoskedasticity and no autocorrelation
Assumption 6: The linear model is linear in parameters
Assumption 7: Each observation of the error term is independent of others

The initial methodologies used are linear and multiple regression models using OLS estimator in the form of pooled data. Further, entity fixed effects and time fixed effects methods are used separately and combined.

All results are obtained using the robust command taking into consideration any possibility of heterogeneity.

The general form of regression model is,

$$\boldsymbol{ln\_deforestation_{it} = \beta_0 + \beta_1 CPIscore_{it}}^{1} + \boldsymbol{\beta_2 COND_{it} + u_{it}}$$

; COND is all covariates

$\boldsymbol{u}$ **is the error term**

$\boldsymbol{i}$ **are the entity fixed effects**

$\boldsymbol{t}$ **are the time fixed effects**

3.1 Hypothesis 1: Increase in Corruption Perception Index decreases deforestation

Table 3.1.1 shows the pooled data using OLS estimation. Model 1 displays linear regression model of CPI score as the main independent variable and Deforestation as the main dependent variable. As we proceed towards Model 6, covariates are added gradually to the previous models to account for omitted variable bias by observing the change in $\widehat{\beta_1}$. All multiple linear regression models, except for Model 2, have a statistically significant $\widehat{\beta_1}$ at 95% and 99% (not Model 3) confidence interval. However, only Model 1 displays the negative effect of CPI on deforestation that was expected according to the found literature review.

[1] This is for the first hypothesis. For the second hypothesis, CPIscore would be substituted with ln_CorrControl in the suffix of $\boldsymbol{\beta_1}$.

Declining observation lower down the precision of a model. According to me, the two best models in table 3.1.1 are Model 1 and Model 6. Comparing Model 1 with Model 6, we observe the declining number of observations but the improving R-squared values. However, R-squared does not penalize for an insignificant variable or reward for a significant variable, which adjusted R-squared does. Furthermore, the positive value of $\widehat{\beta_1}$ in Model 6 is unexpected. Possibly even after controlling for endogenous variables correlated with the error term, there could remain some unobserved omitted variables which can be accounted for by using fixed effects method.

Table 3.1.1 Pooled data

VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6
CPIscore	-0.0448***	0.0100	0.0246**	0.0666***	0.0543***	0.0493***
	(0.00229)	(0.0103)	(0.0105)	(0.0196)	(0.0169)	(0.0163)
ln_GDP_2015		0.393*	0.506**	1.205***	2.966***	3.435***
		(0.212)	(0.209)	(0.359)	(0.383)	(0.435)
ln_UrbanPop			-1.480***	1.767	2.019*	3.030**
			(0.231)	(1.253)	(1.134)	(1.167)
ln_RuralPop				5.960***	6.758***	8.399***
				(2.265)	(1.945)	(1.969)
ln_GovtEffect					-2.346***	-2.836***
					(0.448)	(0.539)
ln_PoliticStable						0.487*
						(0.276)
Constant	4.387***	-1.579	2.651*	-38.83**	-48.90***	-62.27***
	(0.112)	(1.511)	(1.368)	(16.00)	(13.37)	(13.90)
Observations	1,700	126	126	126	122	120
R-squared	0.154	0.151	0.264	0.307	0.502	0.520

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Interpretation of Model 1 (Table 3.1.1): On an average, increase in the CPI score of a country by 1 score, i.e, moving towards a corrupt free environment, would lead to a decrease in deforestation by 4.381%.[2]

Interpretation of Model 6 (Table 3.1.1): On an average, increase in the CPI score of a country by 1 score, i.e, moving towards a corrupt free environment, would lead to an increase in deforestation by 5.05%.

[2] Computation of (β_1)ˆvalue for all models of type ln(Y)=B0 + B1*X + u ~ A change in X by one unit (ΔX=1) is associated with a (exp(B1) - 1)*100 % change in Y

Table 3.1.2 shows the pooled data using OLS estimation adjusted for time fixed effects only. Just like in the previous table, Model 1 displays linear regression model and as we proceed towards Model 6, covariates are added gradually to the previous models. These models fix for any change over years, in the effect common to all countries. Therefore, they adjust for any unobserved omitted variables that are country invariant but changing over time.

On comparing the results of table 3.1.2 with the results of table 3.1.1, we observe the sign of $\widehat{\beta_1}$ to be the same for all models. However, the values of $\widehat{\beta_1}$ in table 3.1.2, all models except Model 2 and Model 3, appear to be slightly smaller than the values of $\widehat{\beta_1}$ in table 3.1.1. Furthermore, the R-squared value is greater in table 3.1.2. Although only Model 1 gives us the believed correlation direction, after taking in time fixed effects, the $\widehat{\beta_1}$ values have reduced from before which is what I hope for.

Table 3.1.2 Time fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CPIscore	-0.0452***	0.0126	0.0280**	0.0658***	0.0492**	0.0462**
	(0.00257)	(0.0141)	(0.0136)	(0.0215)	(0.0191)	(0.0192)
ln_GDP_2015		0.329	0.436*	1.103***	2.809***	3.271***
		(0.259)	(0.242)	(0.380)	(0.424)	(0.508)
ln_UrbanPop			-1.530***	1.436	1.397	2.482*
			(0.364)	(1.369)	(1.197)	(1.367)
ln_RuralPop				5.445**	5.671***	7.458***
				(2.425)	(2.126)	(2.389)
ln_GovtEffect					-2.418***	-2.839***
					(0.387)	(0.465)
ln_PoliticStable						0.452
						(0.276)
Constant	4.759***	-1.100	3.532	-34.70**	-40.60***	-55.07***
	(0.343)	(2.145)	(2.276)	(17.17)	(15.04)	(17.43)
Observations	1,700	126	126	126	122	120
R-squared	0.156	0.191	0.310	0.343	0.529	0.542
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Interpretation of Model 1 (Table 3.1.2): On an average, increase in the CPI score of a country by 1 score, i.e., moving towards a corrupt free environment, would lead to a decrease in deforestation by 4.419%.

Interpretation of Model 6 (Table 3.1.2): On an average, increase in the CPI score of a country by 1 score, i.e., moving towards a corrupt free environment, would lead to an increase in deforestation by 4.728%.

3.2 Hypothesis 2: Increase in control of corruption decreases deforestation

Table 3.2.1 shows the pooled data using OLS estimation. Just like in the previous tables, Model 1 displays linear regression model and as we proceed towards Model 6, covariates are added gradually to the previous models. Unlike the hypothesis 1, the $\widehat{\beta_1}$ values, for all models, are negative as well as highly statistically significant at 99% confidence interval, which makes ln_CorrControl, a better variable for my study as compared to the CPI score.

Declining observation lower down the precision of a model. Comparing Model 1 with Model 6 (after adding all covariates), we observe the declining number of observations but the improving R-squared values. However, R-squared does not penalize for an insignificant variable or reward for a significant variable, which adjusted R-squared does. Model 6 gives a value of $\widehat{\beta_1}$ closer to the true value of β_1; the value of $\widehat{\beta_1}$ in Model 1 is underestimated, i.e., Model 6 shows higher % of deforestation decrease (1.586>.963) with every 1% increase in ln_CorrControl. Possibly even after controlling for endogenous variables correlated with the error term, there could remain some unobserved omitted variables which can be accounted for by using fixed effects method.

Table 3.2.1 Pooled data

VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6
ln_CorrControl	-0.963***	-1.733***	-1.620***	-1.628***	-0.890***	-1.586***
	(0.0572)	(0.185)	(0.181)	(0.182)	(0.286)	(0.347)
ln_GDP_2015		1.542***	1.663***	1.464***	2.301***	2.727***
		(0.142)	(0.141)	(0.273)	(0.368)	(0.393)
ln_UrbanPop			-0.923***	-1.513**	-0.890	0.489
			(0.267)	(0.744)	(0.745)	(0.842)
ln_RuralPop				-0.994	0.797	2.637*
				(1.169)	(1.258)	(1.396)
ln_GovtEffect					-1.314***	-1.439***
					(0.401)	(0.421)
ln_PoliticStable						0.728***
						(0.216)
Constant	5.764***	-5.188***	-2.920***	4.599	-9.199	-24.26**
	(0.211)	(0.806)	(1.017)	(8.898)	(9.596)	(10.76)
Observations	1,808	154	154	154	154	151
R-squared	0.136	0.442	0.483	0.486	0.520	0.562

Interpretation of Model 1 (Table 3.2.1): On an average, increase in the ln_CorrControl of a country by 1%, i.e., moving towards a corrupt free environment, would lead to a decrease in deforestation by 0.963%.
Interpretation of Model 6(Table 3.2.1): On an average, increase in the ln_CorrControl of a country by 1%, i.e., moving towards a corrupt free environment, would lead to a decrease in deforestation by 1.586%.

Table 3.2.2 (on the next page) shows the pooled data using OLS estimation adjusted for time fixed effects only. Just like in the previous table, Model 1 displays linear regression model and as we proceed towards Model 6, covariates are added gradually to the previous models. These models fix for any change over years, in the effect common to all countries. Therefore, they adjust for any unobserved omitted variables that are country invariant but changing over time. Unlike the hypothesis 1, the $\widehat{\beta_1}$ values, for all models, are negative as well as highly statistically significant at 99% confidence interval, which makes ln_CorrControl, a better variable for my study as compared to the CPI score; similar to the finding in previous table 3.2.1

On comparing the results of table 3.2.2 with the results of table 3.2.1, we observe the sign of $\widehat{\beta_1}$ to be the same for all models. However, the values of $\widehat{\beta_1}$ in table 3.2.2, all models except Model 5 and Model 6, appear to be slightly smaller than the values of $\widehat{\beta_1}$ in table 3.2.1. Furthermore, the R-squared value is greater in table 3.2.2. Unlike table 3.2.1, one of the covariates, ln_RuralPop, lose their statistical significance in Model 6.

Table 3.2.2 Time fixed effects

VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6
ln_CorrControl	-0.964***	-1.743***	-1.624***	-1.634***	-0.833***	-1.574***
	(0.0575)	(0.199)	(0.195)	(0.195)	(0.310)	(0.377)
ln_GDP_2015		1.554***	1.670***	1.413***	2.289***	2.676***
		(0.152)	(0.151)	(0.291)	(0.389)	(0.420)
ln_UrbanPop			-0.927***	-1.692**	-1.055	0.311
			(0.282)	(0.793)	(0.789)	(0.913)
ln_RuralPop				-1.287	0.583	2.357
				(1.245)	(1.332)	(1.509)
ln_GovtEffect					-1.403***	-1.465***
					(0.431)	(0.450)
ln_PoliticStable						0.726***
						(0.243)
Constant	5.730***	-4.821***	-2.560**	7.196	-6.954	-21.36*
	(0.322)	(1.093)	(1.260)	(9.519)	(10.16)	(11.71)
Observations	1,808	154	154	154	154	151
R-squared	0.136	0.455	0.496	0.500	0.538	0.578
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Interpretation of Model 1 (Table 3.2.2): On an average, increase in the ln_CorrControl of a country by 1%, i.e., moving towards a corrupt free environment, would lead to a decrease in deforestation by 0.964%.
Interpretation of Model 6 (Table 3.2.2): On an average, increase in the ln_CorrControl of a country by 1%, i.e., moving towards a corrupt free environment, would lead to a decrease in deforestation by 1.574%.

After doing the regression analysis, it was observed that for both the hypothesis, the entity fixed effects, and the entity and time fixed effects combined did not give results that were highly statistically significant. However, the time fixed effects had good statistically significant results. Therefore, this study only compares the hypothesis 1 and 2 based on regression models with no fixed effects, and only time fixed effects. However, the results using other methodologies are displayed in the do file for the viewer's reference.

4. Conclusion and Discussion

The methods used in this study were linear regression and multiple regression, with and without time fixed effects. Although, the research was conducted using entity fixed effects only, and time and entity fixed effects together, the results obtained from these models were not statistically significant enough to be considered in the study. The results obtained from using time fixed effects only in hypothesis 2 (displayed in table 3.2.2) are the ones that are closest to the true value of β_1, according to me. It showed that with 1% decrease in the corruption factor of a country, deforestation activities declined statistically significantly at 99% confidence interval. They are in alignment with the literature review found, and coincide with my economic intuition, i.e., declining corruption activities tend to decline deforestation in a country.

After performing regression analysis using CPI score and ln_CorrControl as two separate corruption variables to observe their impact on deforestation, it was found that ln_CorrControl gave more expected results, as compared to CPI score, as they conform with my literature review found. CPI score is one of most profoundly used corruption indices. Therefore, it is possible that the results obtained from CPI score were not as expected due to some other problem which could not be accounted for in this study. It is possible that my CPI score calculation before 2012 might not be accurate as I used simple conversion formula to convert scores ranging from 1-10 to 1-100. Furthermore, there could exist a problem of large outliers that was observed in the graphs above. The corruption factor does not limit to corrupt practices being practiced in the forest. I believe, had I considered corruption variable that only relates to things like illegal logging, or bribery offered to forest officers, I might have got larger corruption coefficient values, signifying higher decline in deforestation. This is something that I would like to explore further in my future work.

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Technical Appendix

```
.
.                               ***************************************************
.                               *****************Summary & Graphs*****************
.                               ***************************************************
.
. *summary statistics
. ssc install asdoc
checking asdoc consistency and verifying not already installed...
all files already exist and are up to date.

. asdoc summarize CPIscore CorrControl Deforestation GDP_2015 RuralPop UrbanPop GovtEffect
      PoliticStab
> le, separator(10)

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
    CPIscore |      3,365    42.41783    20.82815          4        100
 CorrControl |      4,069    48.86651    29.09121          0        100
Deforestat~n |      2,446    89.64793    380.3136          0     5129.3
    GDP_2015 |        755     12045.5       15190   334.0157   101489.4
    RuralPop |        851    44.53006     24.9668          0     87.022
-------------+---------------------------------------------------------
    UrbanPop |        851    55.46994     24.9668     12.978        100
  GovtEffect |      4,057    49.10154    28.99973          0        100
PoliticSta~e |      4,125    49.26337    28.83449          0        100
Click to Open File:  Myfile.doc

.
. *new log variables generated
. gen ln_CorrControl = ln(CorrControl)
(693 missing values generated)

. label var ln_CorrControl "natural log of CorrControl"

.
. gen ln_Deforestation = ln(Deforestation)
(2,809 missing values generated)

. label var ln_Deforestation "natural log of variable Deforestation"

.
. gen ln_GDP_2015 = ln(GDP_2015)
(3,986 missing values generated)

. label var ln_GDP_2015 "natural log of variable GDP_2015"

.
. gen ln_RuralPop = ln(RuralPop)
(3,942 missing values generated)

. label var ln_RuralPop "natural log of RuralPop"

.
. gen ln_UrbanPop = ln(UrbanPop)
(3,890 missing values generated)

. label var ln_UrbanPop "natural log of UrbanPop"

.
. gen ln_GovtEffect = ln(GovtEffect)
(705 missing values generated)

. label var ln_UrbanPop "natural log of ln_GovtEffect"

.
. gen ln_PoliticStable = ln(PoliticStable)
(637 missing values generated)

. label var ln_UrbanPop "natural log of PoliticStable"
```

```
.
. *forming histograms
. // histogram CPIscore, fcolor("169 145 234") lcolor("136 114 228") normal
      normopts(lcolor(black%100)
>  lpattern(shortdash_dot)) kdensity kdenopts(lcolor("17 0 240")) xtitle(CPI score) by(,
      legend(on at(
> 23))) name(G1, replace) by(Year, style(econ) imargin(small) cols(4))
. //
. // histogram ln_CorrControl, fcolor("169 145 234") lcolor("136 114 228") normal
      normopts(lcolor(blac
> k%100) lpattern(shortdash_dot)) kdensity kdenopts(lcolor("17 0 240")) xtitle(Natural log of
      CorrCont
> rol) by(, legend(on at(23))) name(G2, replace) by(Year, style(econ) imargin(small) cols(4))
. //
. // histogram ln_Deforestation, fcolor("169 145 234") lcolor("136 114 228") normal
      normopts(lcolor(bl
> ack%100) lpattern(shortdash_dot)) kdensity kdenopts(lcolor("17 0 240")) xtitle(Natural log of
      Defore
> station) by(, legend(on at(23))) name(G3, replace) by(Year, style(econ) imargin(small) cols(4))
. //
. // histogram ln_GDP_2015, fcolor("169 145 234") lcolor("136 114 228") normal
      normopts(lcolor(black%1
> 00) lpattern(shortdash_dot)) kdensity kdenopts(lcolor("17 0 240")) xtitle(Natural log of
      GDP_2015) b
> y(, legend(on at(23))) name(G4, replace) by(Year, style(econ) imargin(small) cols(4))
. //
. // histogram ln_RuralPop, fcolor("169 145 234") lcolor("136 114 228") normal
      normopts(lcolor(black%1
> 00) lpattern(shortdash_dot)) kdensity kdenopts(lcolor("17 0 240")) xtitle(Natural log of
      RuralPop) b
> y(, legend(on at(23))) name(G5, replace) by(Year, style(econ) imargin(small) cols(4))
. //
. // histogram ln_UrbanPop, fcolor("169 145 234") lcolor("136 114 228") normal
      normopts(lcolor(black%1
> 00) lpattern(shortdash_dot)) kdensity kdenopts(lcolor("17 0 240")) xtitle(Natural log of
      UrbanPop) b
> y(, legend(on at(23))) name(G6, replace) by(Year, style(econ) imargin(small) cols(4))
. //
. // histogram ln_GovtEffect, fcolor("169 145 234") lcolor("136 114 228") normal
      normopts(lcolor(black
> %100) lpattern(shortdash_dot)) kdensity kdenopts(lcolor("17 0 240")) xtitle(Natural log of
      GovtEffec
> t) by(, legend(on at(23))) name(G7, replace) by(Year, style(econ) imargin(small) cols(4))
. //
. // histogram ln_PoliticStable, fcolor("169 145 234") lcolor("136 114 228") normal
      normopts(lcolor(bl
> ack%100) lpattern(shortdash_dot)) kdensity kdenopts(lcolor("17 0 240")) xtitle(Natural log of
      Politi
> cStable) by(, legend(on at(23))) name(G8, replace) by(Year, style(econ) imargin(small) cols(4))
. //
. // twoway (scatter ln_Deforestation CPIscore, sort mcolor("0 169 24") msize(vsmall)
      msymbol(circle))
>  (lfit ln_Deforestation CPIscore, lcolor("0 0 0 %80")), ytitle(Natural log of Deforestation)
      xtitle(
> CPI score) title(Scatter plot of ln_deforestation and CPI score)  subtitle((Pooled data))
      name(S1, r
> eplace)
. //
. // twoway (scatter ln_Deforestation ln_CorrControl, sort mcolor("0 169 24") msize(vsmall)
      msymbol(ci
> rcle)) (lfit ln_Deforestation ln_CorrControl, lcolor("0 0 0 %80")), ytitle(Natural log of
      Deforestat
> ion) xtitle(Natural lof of CorrControl) title(Scatter plot of ln_deforestation and
      ln_CorrControl) s
> ubtitle((Pooled data)) name(S2, replace)
.
.                              **************************************************
.                              *****************Regression Analysis**************
.                              **************************************************
. *correlation matrix
. asdoc corr CPIscore ln_CorrControl ln_Deforestation ln_GDP_2015 ln_RuralPop ln_UrbanPop
      ln_GovtEffec
> t ln_PoliticStable
```

```
(File Myfile.doc already exists, option append was assumed)
(obs=120)

             | CPIscore ln_Cor~l ln_Def~n ln_~2015 ln_Rur~p ln_Urb~p ln_Gov~t ln_Pol~e
-------------+------------------------------------------------------------------------
    CPIscore |   1.0000
ln_CorrCon~l |   0.7962   1.0000
ln_Defores~n |   0.3534  -0.0107   1.0000
 ln_GDP_2015 |   0.8612   0.8246   0.3793   1.0000
 ln_RuralPop |  -0.8727  -0.8121  -0.1610  -0.8482   1.0000
 ln_UrbanPop |   0.5987   0.6144  -0.0507   0.5601  -0.8843   1.0000
ln_GovtEff~t |   0.7140   0.8677   0.1677   0.8992  -0.7125   0.4491   1.0000
ln_Politic~e |   0.7038   0.7684   0.1787   0.6469  -0.5951   0.3184   0.7007   1.0000

Click to Open File:  Myfile.doc

.
. ******CPI score
. *pooled method using OLS
. reg ln_Deforestation CPIscore, r

Linear regression                               Number of obs     =      1,700
                                                F(1, 1698)        =     383.39
                                                Prob > F          =     0.0000
                                                R-squared         =     0.1537
                                                Root MSE          =     2.3694

------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |  -.0448301   .0022896   -19.58   0.000    -.0493207   -.0403394
       _cons |   4.387195   .1122196    39.09   0.000     4.167092    4.607298
------------------------------------------------------------------------------

. outreg2 using Myreg.doc, replace ctitle(Model 1)
Myreg.doc
dir : seeout

.
. reg ln_Deforestation CPIscore ln_GDP_2015, r

Linear regression                               Number of obs     =        126
                                                F(2, 123)         =      11.23
                                                Prob > F          =     0.0000
                                                R-squared         =     0.1506
                                                Root MSE          =     2.0401

------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0100387   .0102766     0.98   0.331    -.0103033    .0303807
 ln_GDP_2015 |   .3925295   .2117983     1.85   0.066    -.0267122    .8117712
       _cons |  -1.578604   1.510669    -1.04   0.298     -4.56888    1.411672
------------------------------------------------------------------------------

. outreg2 using Myreg.doc, append ctitle(Model 2)
Myreg.doc
dir : seeout

.
. reg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop, r

Linear regression                               Number of obs     =        126
                                                F(3, 122)         =      14.43
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2640
                                                Root MSE          =     1.9068

------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
```

```
-------------+----------------------------------------------------------------
    CPIscore |   .0245856   .0104837     2.35   0.021      .003832    .0453392
 ln_GDP_2015 |   .5055253   .2089829     2.42   0.017     .0918228    .9192278
 ln_UrbanPop |  -1.480165   .2305171    -6.42   0.000    -1.936497   -1.023834
       _cons |   2.651002   1.367716     1.94   0.055    -.0565283    5.358533
------------------------------------------------------------------------------

. outreg2 using Myreg.doc, append ctitle(Model 3)
Myreg.doc
dir : seeout

.
. reg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop, r

Linear regression                               Number of obs     =        126
                                                F(4, 121)         =      13.71
                                                Prob > F          =     0.0000
                                                R-squared         =     0.3071
                                                Root MSE          =     1.8578

------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0666268   .0195692     3.40   0.001     .0278843    .1053693
 ln_GDP_2015 |   1.205066   .3594347     3.35   0.001     .4934703    1.916662
 ln_UrbanPop |    1.76655   1.252606     1.41   0.161    -.7133142    4.246413
 ln_RuralPop |   5.959755   2.264977     2.63   0.010     1.475635    10.44387
       _cons |  -38.82714   16.00265    -2.43   0.017    -70.50861   -7.145678
------------------------------------------------------------------------------

. outreg2 using Myreg.doc, append ctitle(Model 4)
Myreg.doc
dir : seeout

.
. reg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect, r

Linear regression                               Number of obs     =        122
                                                F(5, 116)         =      19.99
                                                Prob > F          =     0.0000
                                                R-squared         =     0.5015
                                                Root MSE          =     1.5809

-------------------------------------------------------------------------------
              |               Robust
ln_Deforest~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
--------------+----------------------------------------------------------------
     CPIscore |   .0543042   .0169228     3.21   0.002     .0207865    .0878219
  ln_GDP_2015 |   2.965905   .3831555     7.74   0.000     2.207017    3.724793
  ln_UrbanPop |   2.019093   1.133867     1.78   0.078    -.2266728     4.26486
  ln_RuralPop |   6.757723    1.94469     3.47   0.001      2.90602    10.60943
ln_GovtEffect |   -2.34634   .4477751    -5.24   0.000    -3.233215   -1.459465
        _cons |  -48.89705   13.37498    -3.66   0.000    -75.38788   -22.40623
-------------------------------------------------------------------------------

. outreg2 using Myreg.doc, append ctitle(Model 5)
Myreg.doc
dir : seeout

.
. reg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect
>       ln_PoliticStable, r

Linear regression                               Number of obs     =        120
                                                F(6, 113)         =      16.68
                                                Prob > F          =     0.0000
                                                R-squared         =     0.5200
                                                Root MSE          =     1.5717

----------------------------------------------------------------------------------
                 |               Robust
ln_Deforestation | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
```

```
-----------------+----------------------------------------------------------------
        CPIscore |   .0493187   .0163448     3.02   0.003     .0169366    .0817007
     ln_GDP_2015 |   3.434834   .4351805     7.89   0.000     2.572663    4.297005
     ln_UrbanPop |   3.030359   1.166548     2.60   0.011     .7192176    5.341501
     ln_RuralPop |    8.39861   1.969302     4.26   0.000     4.497066    12.30015
   ln_GovtEffect |  -2.835938   .5385964    -5.27   0.000    -3.902994   -1.768881
ln_PoliticStable |   .4870606   .2756304     1.77   0.080     -.059013    1.033134
           _cons |  -62.27051   13.89544    -4.48   0.000    -89.79989   -34.74113
----------------------------------------------------------------------------------

. outreg2 using Myreg.doc, append ctitle(Model 6)
Myreg.doc
dir : seeout

.
. *entity fixed effects
. encode country, gen(Country)

. xtset Country Year

Panel variable: Country (unbalanced)
 Time variable: Year, 2000 to 2021, but with gaps
         Delta: 1 unit

. xtreg ln_Deforestation CPIscore, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =      1700
Group variable: Country                         Number of groups  =       100

R-sq:  Within  = 0.0003                         Obs per group: min =         4
       Between = 0.1432                                        avg =      17.0
       Overall = 0.1537                                        max =        21

                                                F(1,99)           =      0.05
corr(u_i, Xb)  = -0.4132                        Prob > F          =    0.8164

                              (Std. err. adjusted for 100 clusters in country)
------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |    .001941   .0083375     0.23   0.816    -.0146024    .0184843
       _cons |   2.340248   .3648926     6.41   0.000     1.616222    3.064274
-------------+----------------------------------------------------------------
     sigma_u |  2.5427888
     sigma_e |  .48637325
         rho |  .96470499   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. outreg2 using StateOnly.doc, replace ctitle(Model 1) addtext(Country Fixed Effects, Yes)
StateOnly.doc
dir : seeout

.
. xtreg ln_Deforestation CPIscore ln_GDP_2015, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =       126
Group variable: Country                         Number of groups  =         9

R-sq:  Within  = 0.4248                         Obs per group: min =         5
       Between = 0.0822                                        avg =      14.0
       Overall = 0.1277                                        max =        21

                                                F(2,8)            =      2.42
corr(u_i, Xb)  = -0.5934                        Prob > F          =    0.1505

                                (Std. err. adjusted for 9 clusters in country)
------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0871928   .0396925     2.20   0.059    -.0043382    .1787239
 ln_GDP_2015 |  -.1046906   .6916319    -0.15   0.883    -1.699597    1.490215
```

```
       _cons |  -.9892446   6.150677    -0.16   0.876    -15.17273    13.19424
-------------+----------------------------------------------------------------
     sigma_u |  2.5965971
     sigma_e |  .46024507
         rho |  .96953966   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. outreg2 using StateOnly.doc, append ctitle(Model 2) addtext(Country Fixed Effects, Yes)
StateOnly.doc
dir : seeout

.
. xtreg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        126
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.4450                         Obs per group: min =         5
       Between = 0.0030                                        avg =      14.0
       Overall = 0.0087                                        max =        21

                                                F(3,8)            =       3.11
corr(u_i, Xb)  = -0.8320                        Prob > F          =     0.0883

                                  (Std. err. adjusted for 9 clusters in country)
------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0802412   .0287682     2.79   0.024     .0139015    .1465809
 ln_GDP_2015 |  -.6500812   1.385361    -0.47   0.651    -3.844729    2.544567
 ln_UrbanPop |   3.900921      5.346     0.73   0.486    -8.426977    16.22882
       _cons |   -11.4971   13.46887    -0.85   0.418    -42.55637    19.56217
-------------+----------------------------------------------------------------
     sigma_u |  3.7441999
     sigma_e |  .45407443
         rho |  .98550577   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. outreg2 using StateOnly.doc, append ctitle(Model 3) addtext(Country Fixed Effects, Yes)
StateOnly.doc
dir : seeout

.
. xtreg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        126
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.4602                         Obs per group: min =         5
       Between = 0.0005                                        avg =      14.0
       Overall = 0.0001                                        max =        21

                                                F(4,8)            =       6.20
corr(u_i, Xb)  = -0.9229                        Prob > F          =     0.0142

                                  (Std. err. adjusted for 9 clusters in country)
------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0814015   .0301407     2.70   0.027     .0118969     .150906
 ln_GDP_2015 |  -.4745187   1.375466    -0.34   0.739    -3.646348     2.69731
 ln_UrbanPop |   9.443437    6.95447     1.36   0.212    -6.593599    25.48047
 ln_RuralPop |   3.147619   2.919373     1.08   0.312    -3.584467    9.879704
       _cons |  -46.02238   33.53225    -1.37   0.207    -123.3479    31.30312
-------------+----------------------------------------------------------------
     sigma_u |   5.305052
     sigma_e |  .44980537
         rho |  .99286229   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. outreg2 using StateOnly.doc, append ctitle(Model 4) addtext(Country Fixed Effects, Yes)
```

```
StateOnly.doc
dir : seeout

.
. xtreg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect, fe
      vce(cluster co
> untry)

Fixed-effects (within) regression               Number of obs     =        122
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.4674                         Obs per group: min =         5
       Between = 0.0001                                        avg =      13.6
       Overall = 0.0001                                        max =        20

                                                F(5,8)            =       5.97
corr(u_i, Xb)  = -0.9311                        Prob > F          =     0.0136

                                 (Std. err. adjusted for 9 clusters in country)
-------------------------------------------------------------------------------
              |               Robust
ln_Deforest~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
--------------+----------------------------------------------------------------
     CPIscore |   .0805791   .0294422     2.74   0.026      .0126853     .148473
  ln_GDP_2015 |  -.2900379   1.448472    -0.20   0.846     -3.630221    3.050145
  ln_UrbanPop |   9.885823   6.742006     1.47   0.181      -5.66127    25.43292
  ln_RuralPop |   3.358563   3.294022     1.02   0.338     -4.237465    10.95459
ln_GovtEffect |  -.0720056   .3163285    -0.23   0.826     -.8014604    .6574493
        _cons |  -49.75857   35.84311    -1.39   0.202     -132.4129    32.89578
--------------+----------------------------------------------------------------
      sigma_u |   5.514593
      sigma_e |  .45584384
          rho |  .99321347   (fraction of variance due to u_i)
-------------------------------------------------------------------------------

. outreg2 using StateOnly.doc, append ctitle(Model 5) addtext(Country Fixed Effects, Yes)
StateOnly.doc
dir : seeout

.
. xtreg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect
      ln_PoliticStable,
> fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        120
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.5261                         Obs per group: min =         5
       Between = 0.0018                                        avg =      13.3
       Overall = 0.0012                                        max =        20

                                                F(6,8)            =      44.95
corr(u_i, Xb)  = -0.9334                        Prob > F          =     0.0000

                                    (Std. err. adjusted for 9 clusters in country)
----------------------------------------------------------------------------------
                 |               Robust
ln_Deforestation | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-----------------+----------------------------------------------------------------
        CPIscore |   .0682732   .0314823     2.17   0.062      -.004325    .1408715
     ln_GDP_2015 |  -.5958014   1.718405    -0.35   0.738     -4.558451    3.366849
     ln_UrbanPop |   9.483213   6.707517     1.41   0.195      -5.98435    24.95078
     ln_RuralPop |   1.962457   3.527832     0.56   0.593     -6.172739    10.09765
   ln_GovtEffect |  -.3617024   .3216744    -1.12   0.293     -1.103485      .38008
ln_PoliticStable |   .3181478   .0889637     3.58   0.007      .1129972    .5232984
           _cons |  -40.14101   39.16271    -1.02   0.335     -130.4504    50.16836
-----------------+----------------------------------------------------------------
         sigma_u |  5.6432319
         sigma_e |  .42752505
             rho |  .99429334   (fraction of variance due to u_i)
----------------------------------------------------------------------------------

. outreg2 using StateOnly.doc, append ctitle(Model 6) addtext(Country Fixed Effects, Yes)
```

```
StateOnly.doc
dir : seeout

.
. *time fixed effects
. reg ln_Deforestation CPIscore i.Year

      Source |       SS           df       MS      Number of obs   =     1,700
-------------+----------------------------------   F(21, 1678)     =     14.74
       Model |  1753.77727        21  83.5132031   Prob > F        =    0.0000
    Residual |  9510.10404     1,678  5.66752326   R-squared       =    0.1557
-------------+----------------------------------   Adj R-squared   =    0.1451
       Total |  11263.8813     1,699  6.62971236   Root MSE        =    2.3807

------------------------------------------------------------------------------
ln_Defores~n | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |  -.0451939   .0025726   -17.57   0.000    -.0502397    -.040148
             |
        Year |
       2001  |  -.1220372   .4460342    -0.27   0.784    -.9968791    .7528047
       2002  |  -.1722354     .43729    -0.39   0.694    -1.029927    .6854559
       2003  |  -.2617068   .4231376    -0.62   0.536     -1.09164    .5682262
       2004  |  -.3175551   .4172508    -0.76   0.447    -1.135942    .5008318
       2005  |  -.4198419   .4151576    -1.01   0.312    -1.234123    .3944394
       2006  |  -.3978318   .4110506    -0.97   0.333    -1.204058    .4083941
       2007  |  -.4776153   .4083257    -1.17   0.242    -1.278497     .323266
       2008  |  -.4920065   .4074253    -1.21   0.227    -1.291122    .3071088
       2009  |  -.4611416   .4092227    -1.13   0.260    -1.263782    .3414991
       2010  |  -.4479354   .4111374    -1.09   0.276    -1.254332    .3584607
       2011  |  -.3766645   .4057003    -0.93   0.353    -1.172397    .4190675
       2012  |  -.2949889   .4045714    -0.73   0.466    -1.088507    .4985289
       2013  |  -.3098879   .4046013    -0.77   0.444    -1.103464    .4836885
       2014  |  -.2709927   .4053881    -0.67   0.504    -1.066112    .5241269
       2015  |   -.265469   .4053784    -0.65   0.513     -1.06057    .5296315
       2016  |  -.3764521   .4160969    -0.90   0.366    -1.192576    .4396715
       2017  |  -.4388778   .4120047    -1.07   0.287    -1.246975    .3692194
       2018  |  -.4481343   .4120256    -1.09   0.277    -1.256273    .3600038
       2019  |  -.4421448    .412012    -1.07   0.283    -1.250256    .3659667
       2020  |  -.4405113   .4120083    -1.07   0.285    -1.248616     .367593
             |
       _cons |   4.758875   .3427889    13.88   0.000     4.086536    5.431214
------------------------------------------------------------------------------

. outreg2 using TimeOnly.doc, replace ctitle(Model 1) addtext(Time Fixed Effects, Yes)
      keep(ln_Defores
> tation CPIscore)
TimeOnly.doc
dir : seeout

.
. reg ln_Deforestation CPIscore ln_GDP_2015 i.Year

      Source |       SS           df       MS      Number of obs   =       126
-------------+----------------------------------   F(22, 103)      =      1.11
       Model |  115.316657        22  5.24166625   Prob > F        =    0.3514
    Residual |  487.422918       103  4.73226134   R-squared       =    0.1913
-------------+----------------------------------   Adj R-squared   =    0.0186
       Total |  602.739575       125   4.8219166   Root MSE        =    2.1754

------------------------------------------------------------------------------
ln_Defores~n | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0126422   .0141233     0.90   0.373     -.015368    .0406524
 ln_GDP_2015 |   .3290219   .2589122     1.27   0.207    -.1844695    .8425132
             |
        Year |
       2001  |  -.0063546   1.538239    -0.00   0.997     -3.05709     3.04438
       2002  |  -.0236506   1.538234    -0.02   0.988    -3.074375    3.027074
       2003  |   .4428511   1.408187     0.31   0.754    -2.349956    3.235658
       2004  |     .41128   1.407963     0.29   0.771    -2.381082    3.203642
       2005  |    .388534   1.407681     0.28   0.783    -2.403269    3.180337
       2006  |   .3812874   1.407294     0.27   0.787    -2.409749    3.172324
```

```
        2007  |  -.3956017   1.369364    -0.29   0.773    -3.111412    2.320209
        2008  |  -.1039085   1.380324    -0.08   0.940    -2.841455    2.633638
        2009  |  -.4190907   1.369543    -0.31   0.760    -3.135256    2.297074
        2010  |  -.3805675    1.41262    -0.27   0.788    -3.182167    2.421032
        2011  |   .5705455   1.372869     0.42   0.679    -2.152216    3.293307
        2012  |   .2047874   1.346133     0.15   0.879     -2.46495    2.874525
        2013  |   .2231443   1.345713     0.17   0.869    -2.445761    2.892049
        2014  |   .2213543   1.344953     0.16   0.870    -2.446042    2.888751
        2015  |   .2216157   1.344443     0.16   0.869     -2.44477    2.888002
        2016  |  -1.175622   1.546516    -0.76   0.449    -4.242771    1.891528
        2017  |  -.6612332   1.477273    -0.45   0.655    -3.591057     2.26859
        2018  |  -.6563748    1.47653    -0.44   0.658    -3.584724    2.271974
        2019  |  -.6488825    1.47574    -0.44   0.661    -3.575665      2.2779
        2020  |  -.6483217   1.476515    -0.44   0.662     -3.57664    2.279997
              |
        _cons |  -1.100122   2.145198    -0.51   0.609    -5.354617    3.154373
------------------------------------------------------------------------------

. outreg2 using TimeOnly.doc, append ctitle(Model 2) addtext(Time Fixed Effects, Yes)
      keep(ln_Deforest
> ation CPIscore ln_GDP_2015)
TimeOnly.doc
dir : seeout

.
. reg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop i.Year

      Source |       SS           df       MS      Number of obs   =       126
-------------+----------------------------------   F(23, 102)      =      2.00
       Model |  187.140872        23  8.13655964   Prob > F        =    0.0100
    Residual |  415.598703       102  4.07449709   R-squared       =    0.3105
-------------+----------------------------------   Adj R-squared   =    0.1550
       Total |  602.739575       125   4.8219166   Root MSE        =    2.0185

------------------------------------------------------------------------------
ln_Defores~n | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0280337   .0136081     2.06   0.042      .001042    .0550253
 ln_GDP_2015 |   .4355665    .241582     1.80   0.074    -.0436102    .9147433
 ln_UrbanPop |  -1.529759    .364355    -4.20   0.000    -2.252456    -.807063
             |
        Year |
        2001  |  -.0092722   1.427337    -0.01   0.995    -2.840389    2.821844
        2002  |  -.0287616   1.427333    -0.02   0.984     -2.85987    2.802346
        2003  |   .1661457   1.308322     0.13   0.899    -2.428905    2.761197
        2004  |   .1128162   1.308386     0.09   0.931     -2.48236    2.707993
        2005  |   .0786116   1.308276     0.06   0.952    -2.516347     2.67357
        2006  |   .0756556    1.30786     0.06   0.954    -2.518479     2.66979
        2007  |  -.5672537   1.271295    -0.45   0.656    -3.088861    1.954353
        2008  |  -.2975592   1.281637    -0.23   0.817     -2.83968    2.244561
        2009  |  -.6028068   1.271556    -0.47   0.636    -3.124932    1.919319
        2010  |   -.621767   1.312033    -0.47   0.637    -3.224179    1.980644
        2011  |   .3764343   1.274728     0.30   0.768    -2.151982    2.904851
        2012  |   .0713131   1.249486     0.06   0.955    -2.407036    2.549662
        2013  |   .1134771   1.248965     0.09   0.928    -2.363839    2.590793
        2014  |   .1204567   1.248217     0.10   0.923    -2.355376    2.596289
        2015  |   .1364324   1.247678     0.11   0.913    -2.338331    2.611196
        2016  |  -1.569713   1.438083    -1.09   0.278    -4.422145    1.282718
        2017  |  -.9347434   1.372314    -0.68   0.497    -3.656721    1.787234
        2018  |  -.9101326   1.371409    -0.66   0.508    -3.630316    1.810051
        2019  |  -.8797222   1.370447    -0.64   0.522    -3.597998    1.838554
        2020  |  -.8719795   1.371098    -0.64   0.526    -3.591546    1.847586
              |
        _cons |   3.532296   2.275872     1.55   0.124    -.9818855    8.046478
------------------------------------------------------------------------------

. outreg2 using TimeOnly.doc, append ctitle(Model 3) addtext(Time Fixed Effects, Yes)
      keep(ln_Deforest
> ation CPIscore ln_GDP_2015 ln_UrbanPop)
TimeOnly.doc
dir : seeout

.
```

```
. reg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop i.Year

      Source |       SS           df       MS      Number of obs   =       126
-------------+----------------------------------   F(24, 101)      =      2.20
       Model |  206.896279        24  8.62067828   Prob > F        =    0.0035
    Residual |  395.843296       101  3.91924056   R-squared       =    0.3433
-------------+----------------------------------   Adj R-squared   =    0.1872
       Total |  602.739575       125   4.8219166   Root MSE        =    1.9797

------------------------------------------------------------------------------
ln_Defores~n | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0657544    .021457     3.06   0.003     .0231895    .1083193
 ln_GDP_2015 |   1.102531   .3799861     2.90   0.005      .348741    1.856321
 ln_UrbanPop |   1.436138   1.368513     1.05   0.296    -1.278623      4.1509
 ln_RuralPop |   5.444561   2.425051     2.25   0.027     .6339126    10.25521
             |
        Year |
       2001  |   .0034199   1.399891     0.00   0.998    -2.773587    2.780426
       2002  |  -.0000569   1.399933    -0.00   1.000    -2.777148    2.777034
       2003  |   .1927572   1.283209     0.15   0.881    -2.352783    2.738298
       2004  |    .098333   1.283232     0.08   0.939    -2.447254     2.64392
       2005  |   .0492499   1.283175     0.04   0.969    -2.496223    2.594723
       2006  |   .0686116   1.282705     0.05   0.957    -2.475929    2.613152
       2007  |  -.4734515   1.247538    -0.38   0.705    -2.948232    2.001329
       2008  |  -.2305433   1.257336    -0.18   0.855     -2.72476    2.263673
       2009  |  -.5012859   1.247914    -0.40   0.689    -2.976812     1.97424
       2010  |  -.5843274   1.286901    -0.45   0.651    -3.137193    1.968538
       2011  |   .4407261   1.250533     0.35   0.725    -2.039996    2.921448
       2012  |   .1543781   1.226007     0.13   0.900     -2.27769    2.586447
       2013  |   .2782833   1.227136     0.23   0.821    -2.156024     2.71259
       2014  |   .3179433   1.227361     0.26   0.796    -2.116811    2.752697
       2015  |   .3829081   1.228591     0.31   0.756    -2.054286    2.820102
       2016  |  -1.346677   1.413913    -0.95   0.343    -4.151499    1.458146
       2017  |   -.684228   1.350531    -0.51   0.614    -3.363319    1.994863
       2018  |  -.5920833   1.352467    -0.44   0.662    -3.275013    2.090847
       2019  |  -.4863537   1.355455    -0.36   0.720    -3.175213    2.202505
       2020  |  -.4317337   1.358943    -0.32   0.751    -3.127512    2.264044
             |
       _cons |  -34.69844   17.17394    -2.02   0.046    -68.76692   -.6299553
------------------------------------------------------------------------------

. outreg2 using TimeOnly.doc, append ctitle(Model 4) addtext(Time Fixed Effects, Yes)
      keep(ln_Deforest
> ation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop)
TimeOnly.doc
dir : seeout

.
. reg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect i.Year

      Source |       SS           df       MS      Number of obs   =       122
-------------+----------------------------------   F(24, 97)       =      4.54
       Model |  307.576205        24  12.8156752   Prob > F        =    0.0000
    Residual |  273.991666        97  2.82465635   R-squared       =    0.5289
-------------+----------------------------------   Adj R-squared   =    0.4123
       Total |  581.567871       121  4.80634604   Root MSE        =    1.6807

-------------------------------------------------------------------------------
ln_Deforest~n | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
--------------+----------------------------------------------------------------
     CPIscore |   .0492213   .0191021     2.58   0.011     .0113088    .0871337
  ln_GDP_2015 |   2.809387   .4243851     6.62   0.000       1.9671    3.651674
  ln_UrbanPop |   1.396628   1.196522     1.17   0.246     -.978136    3.771392
  ln_RuralPop |   5.671222   2.125578     2.67   0.009     1.452537    9.889907
ln_GovtEffect |  -2.417921   .3870202    -6.25   0.000    -3.186049   -1.649793
              |
         Year |
        2002  |   .0268323   1.188483     0.02   0.982    -2.331977    2.385641
        2003  |   .2634571   1.089459     0.24   0.809    -1.898817    2.425731
        2004  |   .1046348   1.089425     0.10   0.924    -2.057572    2.266842
        2005  |  -.1414874   1.089773    -0.13   0.897    -2.304385     2.02141
        2006  |   .2291447     1.0893     0.21   0.834    -1.932814    2.391103
```

```
        2007  |  -.1020025   1.060869    -0.10   0.924    -2.207533    2.003528
        2008  |  -.2780628    1.06747    -0.26   0.795    -2.396695    1.840569
        2009  |  -.0314232   1.062184    -0.03   0.976    -2.139565    2.076718
        2010  |   -.070161   1.095774    -0.06   0.949    -2.244969    2.104647
        2011  |    .032201   1.063557     0.03   0.976    -2.078665    2.143067
        2012  |  -.4019058    1.04446    -0.38   0.701     -2.47487    1.671059
        2013  |  -.0676043   1.043243    -0.06   0.948    -2.138153    2.002945
        2014  |   -.142427   1.044605    -0.14   0.892    -2.215679    1.930825
        2015  |  -.1000267   1.046025    -0.10   0.924    -2.176097    1.976044
        2016  |  -1.264072   1.200549    -1.05   0.295     -3.64683    1.118686
        2017  |  -.8639591   1.147039    -0.75   0.453    -3.140515    1.412596
        2018  |  -.7509797   1.148723    -0.65   0.515    -3.030877    1.528918
        2019  |  -.7597619   1.152001    -0.66   0.511    -3.046166    1.526642
        2020  |  -.9822351   1.157655    -0.85   0.398     -3.27986     1.31539
              |
        _cons |  -40.59747   15.03605    -2.70   0.008    -70.43986   -10.75508
------------------------------------------------------------------------------

. outreg2 using TimeOnly.doc, append ctitle(Model 5) addtext(Time Fixed Effects, Yes)
      keep(ln_Deforest
> ation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect)
TimeOnly.doc
dir : seeout

.
. reg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect
      ln_PoliticStable i.Y
> ear

      Source |       SS           df       MS      Number of obs   =       120
-------------+----------------------------------   F(25, 94)       =      4.46
       Model |   315.43433        25  12.6173732   Prob > F        =    0.0000
    Residual |  266.101279        94  2.83086467   R-squared       =    0.5424
-------------+----------------------------------   Adj R-squared   =    0.4207
       Total |  581.535609       119  4.88685386   Root MSE        =    1.6825

----------------------------------------------------------------------------------
ln_Deforestation | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-----------------+----------------------------------------------------------------
        CPIscore |   .0462179    .019208     2.41   0.018       .00808    .0843559
     ln_GDP_2015 |   3.271314   .5077738     6.44   0.000     2.263117    4.279511
     ln_UrbanPop |   2.481574   1.366594     1.82   0.073    -.2318302    5.194978
     ln_RuralPop |    7.45826   2.388692     3.12   0.002     2.715456    12.20106
   ln_GovtEffect |  -2.839384   .4652561    -6.10   0.000     -3.76316   -1.915607
ln_PoliticStable |   .4522626   .2759085     1.64   0.105    -.0955602    1.000085
                 |
            Year |
           2002  |   .0720455   1.190103     0.06   0.952    -2.290931    2.435022
           2003  |   .2383123   1.090767     0.22   0.828     -1.92743    2.404055
           2004  |   .0910475   1.090669     0.08   0.934    -2.074502    2.256597
           2005  |  -.1652219   1.091122    -0.15   0.880     -2.33167    2.001227
           2006  |   .2653666   1.090718     0.24   0.808     -1.90028    2.431014
           2007  |  -.0816708   1.062104    -0.08   0.939    -2.190503    2.027162
           2008  |    -.20748   1.069875    -0.19   0.847    -2.331742    1.916782
           2009  |   .0864268   1.065719     0.08   0.936    -2.029582    2.202436
           2010  |   .0464494   1.099224     0.04   0.966    -2.136086    2.228985
           2011  |   .3196163   1.080197     0.30   0.768     -1.82514    2.464372
           2012  |  -.1127498    1.06208    -0.11   0.916    -2.221536    1.996036
           2013  |   .2619387   1.064893     0.25   0.806     -1.85243    2.376308
           2014  |   .0070785   1.070539     0.01   0.995    -2.118502    2.132658
           2015  |   .1725773   1.074432     0.16   0.873    -1.960732    2.305887
           2016  |  -.9999699   1.212728    -0.82   0.412     -3.40787     1.40793
           2017  |  -.5596127   1.164051    -0.48   0.632    -2.870863    1.751638
           2018  |  -.5023858   1.160623    -0.43   0.666     -2.80683    1.802058
           2019  |  -.5596552   1.160436    -0.48   0.631    -2.863728    1.744417
           2020  |  -.8172204   1.164338    -0.70   0.484    -3.129042    1.494601
                 |
           _cons |  -55.07355   17.42781    -3.16   0.002    -89.67688   -20.47023
----------------------------------------------------------------------------------

. outreg2 using TimeOnly.doc, append ctitle(Model 6) addtext(Time Fixed Effects, Yes)
      keep(ln_Deforest
> ation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect ln_PoliticStable)
```

```
TimeOnly.doc
dir : seeout

.
. *Entity & time fixed effects
. xtreg ln_Deforestation CPIscore i.Year, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =      1700
Group variable: Country                         Number of groups  =       100

R-sq:  Within  = 0.0207                         Obs per group: min =        4
       Between = 0.1191                                        avg =     17.0
       Overall = 0.1092                                        max =       21

                                                F(21,99)          =      0.70
corr(u_i, Xb)  = -0.3862                        Prob > F          =    0.8202

                              (Std. err. adjusted for 100 clusters in country)
------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0056569   .0078339     0.72   0.472    -.0098873     .021201
             |
        Year |
       2001  |   .0099712   .0227969     0.44   0.663    -.0352629    .0552053
       2002  |  -.0026666    .016017    -0.17   0.868    -.0344478    .0291146
       2003  |  -.0156052   .0348874    -0.45   0.656    -.0848293    .0536189
       2004  |  -.0193116   .0364593    -0.53   0.598    -.0916548    .0530317
       2005  |  -.0275733   .0391519    -0.70   0.483    -.1052592    .0501127
       2006  |  -.0397143   .0362078    -1.10   0.275    -.1115585    .0321298
       2007  |  -.0634871   .0419091    -1.51   0.133    -.1466438    .0196696
       2008  |  -.0555478   .0432387    -1.28   0.202    -.1413427    .0302471
       2009  |  -.0647613   .0424246    -1.53   0.130    -.1489408    .0194182
       2010  |  -.0576342   .0423934    -1.36   0.177    -.1417518    .0264834
       2011  |  -.0438298   .0941912    -0.47   0.643    -.2307257    .1430661
       2012  |  -.0487948   .0939595    -0.52   0.605    -.2352308    .1376412
       2013  |  -.0469299    .093681    -0.50   0.618    -.2328134    .1389536
       2014  |  -.0491545   .0944375    -0.52   0.604    -.2365391      .13823
       2015  |  -.0498459   .0944191    -0.53   0.599    -.2371939    .1375021
       2016  |  -.2032868   .0981284    -2.07   0.041    -.3979947   -.0085788
       2017  |  -.2019498   .0971239    -2.08   0.040    -.3946647    -.009235
       2018  |  -.2007912   .0972489    -2.06   0.042    -.3937541   -.0078283
       2019  |  -.2015409   .0972128    -2.07   0.041    -.3944323   -.0086496
       2020  |  -.2017454    .097346    -2.07   0.041    -.3949009   -.0085898
             |
       _cons |   2.255929   .3459717     6.52   0.000     1.569446    2.942411
-------------+----------------------------------------------------------------
     sigma_u |  2.5748358
     sigma_e |  .48443476
         rho |  .96581273   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. outreg2 using StateTime.doc, replace ctitle(Model 1) addtext(Country Fixed Effects, Yes, Time
      Fixed
> Effects, Yes) keep(ln_Deforestation CPIscore)
StateTime.doc
dir : seeout

.
. xtreg ln_Deforestation CPIscore ln_GDP_2015  i.Year, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =       126
Group variable: Country                         Number of groups  =         9

R-sq:  Within  = 0.5003                         Obs per group: min =        5
       Between = 0.1039                                        avg =     14.0
       Overall = 0.1396                                        max =       21

                                                F(8,8)            =         .
corr(u_i, Xb)  = -0.7145                        Prob > F          =         .

                                (Std. err. adjusted for 9 clusters in country)
```

```
------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0857224   .0422147     2.03   0.077    -.0116248    .1830697
 ln_GDP_2015 |   .3418586   .9644754     0.35   0.732    -1.882226    2.565943
             |
        Year |
       2001  |  -.0428961   .0982013    -0.44   0.674    -.2693486    .1835565
       2002  |  -.0790136   .2411548    -0.33   0.752    -.6351175    .4770903
       2003  |  -.3091018   .3023986    -1.02   0.337    -1.006434    .3882306
       2004  |  -.4507852   .3713081    -1.21   0.259    -1.307023    .4054528
       2005  |  -.5349078   .3550116    -1.51   0.170    -1.353566    .2837504
       2006  |  -.5303393   .3276503    -1.62   0.144    -1.285902    .2252237
       2007  |  -.5738073   .2462055    -2.33   0.048    -1.141558   -.0060564
       2008  |  -.5288472   .1962893    -2.69   0.027    -.9814911   -.0762033
       2009  |  -.7226476   .2921313    -2.47   0.038    -1.396304   -.0489916
       2010  |  -.6710726   .2723625    -2.46   0.039    -1.299141   -.0430036
       2011  |  -.7194718   .3267231    -2.20   0.059    -1.472897     .033953
       2012  |  -.6790576   .2852704    -2.38   0.045    -1.336892   -.0212229
       2013  |  -.5692507   .2454153    -2.32   0.049    -1.135179   -.0033221
       2014  |  -.5348171   .2913892    -1.84   0.104    -1.206762    .1371276
       2015  |  -.4982519   .3124689    -1.59   0.149    -1.218807    .2223028
       2016  |  -.5298523   .3308687    -1.60   0.148    -1.292837    .2331323
       2017  |  -.5239194   .3496746    -1.50   0.172     -1.33027    .2824317
       2018  |  -.4753192   .3418936    -1.39   0.202    -1.263727    .3130889
       2019  |   -.409465   .3748626    -1.09   0.306      -1.2739    .4549697
       2020  |  -.4379171   .3327132    -1.32   0.225    -1.205155     .329321
             |
       _cons |  -4.352402   7.482272    -0.58   0.577    -21.60655    12.90175
-------------+----------------------------------------------------------------
     sigma_u |  2.9325647
     sigma_e |  .47195332
         rho |   .9747537   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. outreg2 using StateTime.doc, append ctitle(Model 2) addtext(Country Fixed Effects, Yes, Time
      Fixed E
> ffects, Yes) keep(ln_Deforestation CPIscore ln_GDP_2015)
StateTime.doc
dir : seeout

.
. xtreg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop  i.Year, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        126
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.5097                         Obs per group: min =         5
       Between = 0.0331                                        avg =      14.0
       Overall = 0.0421                                        max =        21

                                                F(8,8)            =          .
corr(u_i, Xb)  = -0.8459                        Prob > F          =          .

                                  (Std. err. adjusted for 9 clusters in country)
------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0786059   .0327513     2.40   0.043     .0030813    .1541306
 ln_GDP_2015 |   .0913003   1.275313     0.07   0.945    -2.849578    3.032178
 ln_UrbanPop |   3.069454   6.581423     0.47   0.653    -12.10733    18.24624
             |
        Year |
       2001  |  -.0489213   .0855709    -0.57   0.583    -.2462481    .1484054
       2002  |  -.0849994   .2151799    -0.40   0.703    -.5812053    .4112064
       2003  |   -.325473   .2895297    -1.12   0.294    -.9931296    .3421836
       2004  |  -.4577386   .3641516    -1.26   0.244    -1.297474    .3819965
       2005  |    -.53731   .3507923    -1.53   0.164    -1.346239    .2716185
       2006  |   -.536344   .3309361    -1.62   0.144    -1.299484     .226796
       2007  |  -.5665005   .2562466    -2.21   0.058    -1.157406    .0244051
       2008  |  -.5168159   .2333356    -2.21   0.058    -1.054889    .0212569
```

```
        2009  |  -.7316736   .2920117    -2.51   0.037    -1.405054   -.0582935
        2010  |  -.6976347   .2929007    -2.38   0.044    -1.373065   -.0222045
        2011  |  -.7307061   .3221645    -2.27   0.053    -1.473619    .0122065
        2012  |  -.6854032   .2922106    -2.35   0.047    -1.359242   -.0115643
        2013  |  -.5939425     .24331    -2.44   0.040    -1.155016   -.0328686
        2014  |  -.5643153   .2758182    -2.05   0.075    -1.200353    .0717226
        2015  |  -.5467201   .2914963    -1.88   0.098    -1.218912    .1254716
        2016  |  -.5830817   .3065996    -1.90   0.094    -1.290102    .1239383
        2017  |  -.6034337   .3380175    -1.79   0.112    -1.382903    .1760361
        2018  |  -.5799021    .351136    -1.65   0.137    -1.389623    .2298189
        2019  |  -.5407266   .3946885    -1.37   0.208     -1.45088    .3694268
        2020  |  -.5937235   .4257224    -1.39   0.201    -1.575441    .3879942
              |
       _cons  |   -14.0826   20.55734    -0.69   0.513     -61.4879     33.3227
-------------+----------------------------------------------------------------
     sigma_u |  3.8547017
     sigma_e |  .46999719
         rho |  .98535127   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. outreg2 using StateTime.doc, append ctitle(Model 3) addtext(Country Fixed Effects, Yes, Time
      Fixed E
> ffects, Yes) keep(ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop)
StateTime.doc
dir : seeout

.
. xtreg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop  i.Year, fe vce(cluster
      country)

Fixed-effects (within) regression               Number of obs     =        126
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.5132                         Obs per group: min =          5
       Between = 0.0111                                        avg =       14.0
       Overall = 0.0138                                        max =         21

                                                F(8,8)            =          .
corr(u_i, Xb)  = -0.8913                        Prob > F          =          .

                                  (Std. err. adjusted for 9 clusters in country)
------------------------------------------------------------------------------
             |               Robust
ln_Defores~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
    CPIscore |   .0802953   .0336025     2.39   0.044     .0028079    .1577827
 ln_GDP_2015 |   .0794494   1.255461     0.06   0.951     -2.81565    2.974549
 ln_UrbanPop |   6.038211   7.427112     0.81   0.440    -11.08874    23.16516
 ln_RuralPop |   1.696915   2.708423     0.63   0.548    -4.548721     7.94255
             |
        Year |
        2001  |  -.0463096   .0887794    -0.52   0.616    -.2510352    .1584159
        2002  |  -.0737687   .2181107    -0.34   0.744    -.5767329    .4291955
        2003  |  -.2920736   .2794775    -1.05   0.327    -.9365498    .3524025
        2004  |  -.4208589    .350572    -1.20   0.264    -1.229279    .3875615
        2005  |  -.4956358   .3338211    -1.48   0.176    -1.265429     .274157
        2006  |   -.489499   .3066066    -1.60   0.149    -1.196535     .217537
        2007  |  -.5144436   .2215749    -2.32   0.049    -1.025396   -.0034909
        2008  |  -.4394573    .162198    -2.71   0.027    -.8134864   -.0654281
        2009  |  -.6786651     .26347    -2.58   0.033    -1.286228   -.0711022
        2010  |  -.6448559   .2606123    -2.47   0.038    -1.245829    -.043883
        2011  |  -.6524575   .3243113    -2.01   0.079    -1.400321    .0954058
        2012  |  -.6109865   .2833508    -2.16   0.063    -1.264395    .0424216
        2013  |  -.5133379   .2485694    -2.07   0.073     -1.08654    .0598642
        2014  |  -.4780874    .283062    -1.69   0.130     -1.13083    .1746548
        2015  |  -.4595488   .3046005    -1.51   0.170    -1.161959    .2428614
        2016  |  -.4992287   .3096747    -1.61   0.146     -1.21334    .2148825
        2017  |  -.5256468   .3391911    -1.55   0.160    -1.307823    .2565293
        2018  |  -.5005217   .3465138    -1.44   0.187    -1.299584    .2985406
        2019  |  -.4594812   .3829493    -1.20   0.265    -1.342564    .4236014
        2020  |  -.5129869   .4138216    -1.24   0.250    -1.467261    .4412874
              |
       _cons  |  -31.79331   33.25075    -0.96   0.367    -108.4697    44.88305
```

```
-------------+----------------------------------------------------------------
     sigma_u |  4.5211484
     sigma_e |  .47080476
         rho |  .98927246   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. outreg2 using StateTime.doc, append ctitle(Model 4) addtext(Country Fixed Effects, Yes, Time
      Fixed E
> ffects, Yes) keep(ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop)
StateTime.doc
dir : seeout

.
. xtreg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect  i.Year, fe
      vce(cl
> uster country)

Fixed-effects (within) regression               Number of obs     =        122
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.5152                         Obs per group: min =          5
       Between = 0.0095                                        avg =       13.6
       Overall = 0.0084                                        max =         20

                                                F(8,8)            =          .
corr(u_i, Xb)  = -0.9139                        Prob > F          =          .

                                  (Std. err. adjusted for 9 clusters in country)
-------------------------------------------------------------------------------
              |               Robust
ln_Deforest~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
--------------+----------------------------------------------------------------
     CPIscore |   .0784738   .0313266     2.51   0.037     .0062345    .1507131
  ln_GDP_2015 |   .2343443   1.399769     0.17   0.871    -2.993529    3.462218
  ln_UrbanPop |   7.087077   6.111025     1.16   0.280    -7.004972    21.17913
  ln_RuralPop |   2.005593   2.750171     0.73   0.487    -4.336312    8.347497
ln_GovtEffect |  -.0656981   .2690718    -0.24   0.813    -.6861788    .5547827
              |
         Year |
        2002  |  -.0782961   .2200416    -0.36   0.731     -.585713    .4291207
        2003  |  -.3026574    .282249    -1.07   0.315    -.9535247    .3482099
        2004  |   -.436143    .356008    -1.23   0.255    -1.257099    .3848129
        2005  |  -.5199415   .3514834    -1.48   0.177    -1.330464    .2905807
        2006  |  -.5083805   .3123984    -1.63   0.142    -1.228773    .2120114
        2007  |  -.5344593   .2270309    -2.35   0.046    -1.057993   -.0109252
        2008  |  -.4601906   .1623307    -2.83   0.022    -.8345257   -.0858554
        2009  |  -.6986539   .2710722    -2.58   0.033    -1.323747   -.0735603
        2010  |  -.6759939     .27122    -2.49   0.037    -1.301428   -.0505595
        2011  |  -.6877432    .302704    -2.27   0.053     -1.38578    .0102935
        2012  |   -.652653   .2566489    -2.54   0.035    -1.244487   -.0608195
        2013  |  -.5506907   .2344161    -2.35   0.047    -1.091255   -.0101262
        2014  |  -.5223719   .2664624    -1.96   0.086    -1.136835    .0920917
        2015  |  -.5105495   .2957843    -1.73   0.123    -1.192629    .1715303
        2016  |  -.5668701   .3405245    -1.66   0.135    -1.352121    .2183808
        2017  |   -.596612   .3573236    -1.67   0.134    -1.420602    .2273777
        2018  |  -.5764382   .3471938    -1.66   0.135    -1.377068    .2241921
        2019  |  -.5442953   .3863685    -1.41   0.197    -1.435263    .3466722
        2020  |  -.6067832   .4130563    -1.47   0.180    -1.559293    .3457265
              |
        _cons |  -37.95297   29.34224    -1.29   0.232    -105.6163    29.71035
--------------+----------------------------------------------------------------
      sigma_u |  4.9884956
      sigma_e |  .47910727
          rho |  .99086016   (fraction of variance due to u_i)
-------------------------------------------------------------------------------

. outreg2 using StateTime.doc, append ctitle(Model 5) addtext(Country Fixed Effects, Yes, Time
      Fixed E
> ffects, Yes) keep(ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect)
StateTime.doc
dir : seeout

.
```

```
. xtreg ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect
      ln_PoliticStable
> i.Year, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        120
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.5724                         Obs per group: min =          5
       Between = 0.0065                                        avg =       13.3
       Overall = 0.0030                                        max =         20

                                                F(8,8)            =          .
corr(u_i, Xb)  = -0.9158                        Prob > F          =          .

                                    (Std. err. adjusted for 9 clusters in country)
----------------------------------------------------------------------------------
                 |               Robust
ln_Deforestation | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-----------------+----------------------------------------------------------------
        CPIscore |    .072404   .0310436     2.33   0.048     .0008174    .1439907
     ln_GDP_2015 |  -.9870212   1.810525    -0.55   0.601    -5.162099    3.188057
     ln_UrbanPop |   8.094193   6.709692     1.21   0.262    -7.378386    23.56677
     ln_RuralPop |   1.393108   3.207153     0.43   0.675      -6.0026    8.788816
   ln_GovtEffect |  -.3123482   .3093322    -1.01   0.342    -1.025669    .4009731
ln_PoliticStable |   .3709231   .1468897     2.53   0.036     .0321948    .7096514
                 |
            Year |
           2002  |  -.0147252   .1604245    -0.09   0.929    -.3846647    .3552143
           2003  |    -.30007   .2495279    -1.20   0.264    -.8754825    .2753425
           2004  |  -.3763656   .3309712    -1.14   0.288    -1.139587    .3868554
           2005  |  -.4200734   .2990953    -1.40   0.198    -1.109788    .2696416
           2006  |  -.3480908   .2749159    -1.27   0.241     -.982048    .2858663
           2007  |  -.3002358   .2091062    -1.44   0.189    -.7824356     .181964
           2008  |  -.2166293   .1881354    -1.15   0.283    -.6504703    .2172118
           2009  |  -.4137031   .2052331    -2.02   0.079    -.8869714    .0595652
           2010  |  -.3680295   .1914737    -1.92   0.091    -.8095688    .0735097
           2011  |  -.2287179   .4304527    -0.53   0.610    -1.221344    .7639077
           2012  |  -.1702125   .4552297    -0.37   0.718    -1.219974    .8795491
           2013  |  -.0751916   .4439497    -0.17   0.870    -1.098942    .9485583
           2014  |  -.0577401   .4947478    -0.12   0.910    -1.198631     1.08315
           2015  |  -.0073084   .5371415    -0.01   0.989    -1.245959    1.231342
           2016  |  -.0048343   .7036735    -0.01   0.995    -1.627508     1.61784
           2017  |  -.0175034   .6621989    -0.03   0.980    -1.544537     1.50953
           2018  |  -.0622183   .5870771    -0.11   0.918    -1.416021    1.291584
           2019  |  -.0848642   .5994883    -0.14   0.891    -1.467287    1.297558
           2020  |  -.2177774   .5866586    -0.37   0.720    -1.570615     1.13506
                 |
           _cons |  -29.56941   38.06178    -0.78   0.460      -117.34    58.20122
-----------------+----------------------------------------------------------------
         sigma_u |   5.081342
         sigma_e |  .44875726
             rho |  .99226087   (fraction of variance due to u_i)
----------------------------------------------------------------------------------

. outreg2 using StateTime.doc, append ctitle(Model 6) addtext(Country Fixed Effects, Yes, Time
      Fixed E
> ffects, Yes) keep(ln_Deforestation CPIscore ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect
      ln_Pol
> iticStable)
StateTime.doc
dir : seeout

.
. ******ln_CorrControl
. *pooled method using OLS
. reg ln_Deforestation ln_CorrControl, r

Linear regression                               Number of obs     =      1,808
                                                F(1, 1806)        =     357.26
                                                Prob > F          =     0.0000
                                                R-squared         =     0.1357
                                                Root MSE          =     2.3765
```

```
------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |  -.9627333   .0509348   -18.90   0.000    -1.062631   -.8628359
         _cons |   5.763946    .181322    31.79   0.000     5.408323    6.119569
------------------------------------------------------------------------------

. outreg2 using Myreg1.doc, replace ctitle(Model 1)
Myreg1.doc
dir : seeout

.
. reg ln_Deforestation ln_CorrControl ln_GDP_2015, r

Linear regression                               Number of obs     =        154
                                                F(2, 151)         =      43.75
                                                Prob > F          =     0.0000
                                                R-squared         =     0.4419
                                                Root MSE          =     1.6767

------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |  -1.732572   .1998062    -8.67   0.000    -2.127349   -1.337795
   ln_GDP_2015 |   1.542406   .1660927     9.29   0.000      1.21424    1.870571
         _cons |  -5.188016   .9148325    -5.67   0.000    -6.995541   -3.380491
------------------------------------------------------------------------------

. outreg2 using Myreg1.doc, append ctitle(Model 2)
Myreg1.doc
dir : seeout

.
. reg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop, r

Linear regression                               Number of obs     =        154
                                                F(3, 150)         =      36.17
                                                Prob > F          =     0.0000
                                                R-squared         =     0.4832
                                                Root MSE          =     1.6189

------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |  -1.620013   .1800735    -9.00   0.000    -1.975821   -1.264205
   ln_GDP_2015 |   1.662502   .1674927     9.93   0.000     1.331552    1.993452
   ln_UrbanPop |  -.9228031   .1575633    -5.86   0.000    -1.234133    -.611473
         _cons |  -2.920286   .8607212    -3.39   0.001     -4.62099   -1.219583
------------------------------------------------------------------------------

. outreg2 using Myreg1.doc, append ctitle(Model 3)
Myreg1.doc
dir : seeout

.
. reg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop, r

Linear regression                               Number of obs     =        154
                                                F(4, 149)         =      29.71
                                                Prob > F          =     0.0000
                                                R-squared         =     0.4857
                                                Root MSE          =     1.6204

------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |  -1.628136   .1839638    -8.85   0.000    -1.991651   -1.264621
   ln_GDP_2015 |   1.463886   .2117458     6.91   0.000     1.045474    1.882298
   ln_UrbanPop |  -1.513373   .6620969    -2.29   0.024    -2.821685   -.2050605
```

```
   ln_RuralPop |  -.9941259   1.004104    -0.99   0.324    -2.978249    .9899971
         _cons |   4.599465   7.450214     0.62   0.538    -10.12226    19.32119
-------------------------------------------------------------------------------

. outreg2 using Myreg1.doc, append ctitle(Model 4)
Myreg1.doc
dir : seeout

.
. reg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect, r

Linear regression                               Number of obs     =        154
                                                F(5, 148)         =      30.66
                                                Prob > F          =     0.0000
                                                R-squared         =     0.5204
                                                Root MSE          =       1.57

-------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+---------------------------------------------------------------
ln_CorrControl |  -.8903459   .3418898    -2.60   0.010    -1.565962   -.2147298
   ln_GDP_2015 |   2.300752    .380177     6.05   0.000     1.549475    3.052028
   ln_UrbanPop |  -.8904644    .670366    -1.33   0.186     -2.21519    .4342609
   ln_RuralPop |   .7972436    1.12513     0.71   0.480    -1.426151    3.020638
 ln_GovtEffect |  -1.314276   .5249271    -2.50   0.013    -2.351596   -.2769557
         _cons |  -9.198593   8.554243    -1.08   0.284    -26.10282    7.705639
-------------------------------------------------------------------------------

. outreg2 using Myreg1.doc, append ctitle(Model 5)
Myreg1.doc
dir : seeout

.
. reg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect
      ln_PoliticStab
> le, r

Linear regression                               Number of obs     =        151
                                                F(6, 144)         =      25.32
                                                Prob > F          =     0.0000
                                                R-squared         =     0.5617
                                                Root MSE          =     1.5212

---------------------------------------------------------------------------------
                 |               Robust
ln_Deforestation | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-----------------+---------------------------------------------------------------
  ln_CorrControl |  -1.586084   .4157683    -3.81   0.000    -2.407881   -.7642868
     ln_GDP_2015 |   2.727293   .4218979     6.46   0.000      1.89338    3.561206
     ln_UrbanPop |   .4887982   .8697131     0.56   0.575    -1.230255    2.207851
     ln_RuralPop |   2.637463   1.400465     1.88   0.062    -.1306621    5.405587
   ln_GovtEffect |  -1.439234   .5467845    -2.63   0.009    -2.519995   -.3584738
ln_PoliticStable |   .7277233   .3076147     2.37   0.019     .1196997    1.335747
           _cons |  -24.26331   10.89345    -2.23   0.027    -45.79503   -2.731576
---------------------------------------------------------------------------------

. outreg2 using Myreg1.doc, append ctitle(Model 6)
Myreg1.doc
dir : seeout

.
. *entity fixed effects
. xtset Country Year

Panel variable: Country (unbalanced)
 Time variable: Year, 2000 to 2021, but with gaps
         Delta: 1 unit

. xtreg ln_Deforestation ln_CorrControl, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =       1808
Group variable: Country                         Number of groups  =        101
```

```
R-sq:  Within  = 0.0038                         Obs per group: min =          5
       Between = 0.1577                                        avg =       17.9
       Overall = 0.1357                                        max =         20

                                                F(1,100)           =       1.75
corr(u_i, Xb)  = -0.4009                        Prob > F           =     0.1893

                                (Std. err. adjusted for 101 clusters in country)
--------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |   .0791877     .05991     1.32   0.189     -.039672    .1980475
         _cons |   2.053074   .2133735     9.62   0.000     1.629747    2.476401
---------------+----------------------------------------------------------------
       sigma_u |  2.5815772
       sigma_e |  .49074276
           rho |  .96512446   (fraction of variance due to u_i)
--------------------------------------------------------------------------------

. outreg2 using StateOnly1.doc, replace ctitle(Model 1) addtext(Country Fixed Effects, Yes)
StateOnly1.doc
dir : seeout

.
. xtreg ln_Deforestation ln_CorrControl ln_GDP_2015, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        154
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.1512                         Obs per group: min =          5
       Between = 0.1227                                        avg =       17.1
       Overall = 0.0928                                        max =         20

                                                F(2,8)             =       2.25
corr(u_i, Xb)  = -0.6386                        Prob > F           =     0.1673

                                  (Std. err. adjusted for 9 clusters in country)
--------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |   .2085508   .1861406     1.12   0.295    -.2206902    .6377918
   ln_GDP_2015 |   1.308562   1.165993     1.12   0.294    -1.380224    3.997347
         _cons |  -9.802209   9.767023    -1.00   0.345    -32.32501    12.72059
---------------+----------------------------------------------------------------
       sigma_u |  2.6768382
       sigma_e |  .60428261
           rho |  .95151031   (fraction of variance due to u_i)
--------------------------------------------------------------------------------

. outreg2 using StateOnly1.doc, append ctitle(Model 2) addtext(Country Fixed Effects, Yes)
StateOnly1.doc
dir : seeout

.
. xtreg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        154
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.2697                         Obs per group: min =          5
       Between = 0.0000                                        avg =       17.1
       Overall = 0.0026                                        max =         20

                                                F(3,8)             =       0.86
corr(u_i, Xb)  = -0.8885                        Prob > F           =     0.5009

                                  (Std. err. adjusted for 9 clusters in country)
--------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
```

```
---------------+----------------------------------------------------------------
ln_CorrControl |   .1331161   .2670027     0.50   0.632    -.4825932    .7488255
   ln_GDP_2015 |    .043588   1.267021     0.03   0.973    -2.878169    2.965345
   ln_UrbanPop |   6.515204   6.397458     1.02   0.338    -8.237361    21.26777
         _cons |  -24.67997   20.03494    -1.23   0.253    -70.88063     21.5207
---------------+----------------------------------------------------------------
       sigma_u |  4.6339102
       sigma_e |  .56250146
           rho |   .9854789   (fraction of variance due to u_i)
--------------------------------------------------------------------------------

. outreg2 using StateOnly1.doc, append ctitle(Model 3) addtext(Country Fixed Effects, Yes)
StateOnly1.doc
dir : seeout

.
. xtreg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop, fe vce(cluster
      country)

Fixed-effects (within) regression               Number of obs     =        154
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.3295                         Obs per group: min =         5
       Between = 0.0153                                        avg =      17.1
       Overall = 0.0097                                        max =        20

                                                F(4,8)            =       1.64
corr(u_i, Xb)  = -0.7199                        Prob > F          =     0.2557

                                  (Std. err. adjusted for 9 clusters in country)
--------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |   .3199468   .1764131     1.81   0.107    -.0868625    .7267561
   ln_GDP_2015 |  -.4964465   1.503899    -0.33   0.750    -3.964444    2.971551
   ln_UrbanPop |  -.8830979   4.860641    -0.18   0.860    -12.09176    10.32556
   ln_RuralPop |  -5.285386   4.282854    -1.23   0.252    -15.16166    4.590892
         _cons |   27.08182   32.27658     0.84   0.426    -47.34812    101.5118
---------------+----------------------------------------------------------------
       sigma_u |  3.1305245
       sigma_e |  .54089141
           rho |   .9710125   (fraction of variance due to u_i)
--------------------------------------------------------------------------------

. outreg2 using StateOnly1.doc, append ctitle(Model 4) addtext(Country Fixed Effects, Yes)
StateOnly1.doc
dir : seeout

.
. xtreg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect, fe
      vce(clus
> ter country)

Fixed-effects (within) regression               Number of obs     =        154
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.3431                         Obs per group: min =         5
       Between = 0.0092                                        avg =      17.1
       Overall = 0.0043                                        max =        20

                                                F(5,8)            =       7.93
corr(u_i, Xb)  = -0.7560                        Prob > F          =     0.0058

                                  (Std. err. adjusted for 9 clusters in country)
--------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |   .3910983   .1630226     2.40   0.043     .0151675    .7670292
   ln_GDP_2015 |  -.3138476   1.499891    -0.21   0.839    -3.772603    3.144908
   ln_UrbanPop |   .3830955   5.406794     0.07   0.945    -12.08499    12.85118
   ln_RuralPop |  -4.357071   4.626577    -0.94   0.374    -15.02598    6.311834
```

```
 ln_GovtEffect |  -.2933524     .35047    -0.84   0.427    -1.101538     .514833
         _cons |   18.03546   37.25589     0.48   0.641    -67.87678    103.9477
---------------+----------------------------------------------------------------
       sigma_u |  3.3086774
       sigma_e |  .53725791
           rho |  .97431059   (fraction of variance due to u_i)
--------------------------------------------------------------------------------

. outreg2 using StateOnly1.doc, append ctitle(Model 5) addtext(Country Fixed Effects, Yes)
StateOnly1.doc
dir : seeout

.
. xtreg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect
      ln_PoliticSt
> able, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        151
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.4252                         Obs per group: min =         5
       Between = 0.0009                                        avg =      16.8
       Overall = 0.0000                                        max =        20

                                                F(6,8)            =      28.55
corr(u_i, Xb)  = -0.8379                        Prob > F          =     0.0001

                                    (Std. err. adjusted for 9 clusters in country)
----------------------------------------------------------------------------------
                 |               Robust
ln_Deforestation | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-----------------+----------------------------------------------------------------
  ln_CorrControl |   .1636526   .1666748     0.98   0.355    -.2207001    .5480053
     ln_GDP_2015 |   -.405812   1.491769    -0.27   0.792    -3.845838    3.034214
     ln_UrbanPop |   2.656527   6.022848     0.44   0.671    -11.23219    16.54524
     ln_RuralPop |  -3.739221   4.462416    -0.84   0.426    -14.02957    6.551127
   ln_GovtEffect |  -.5432901   .3712767    -1.46   0.182    -1.399456    .3128754
ln_PoliticStable |   .3615128   .0762038     4.74   0.001     .1857864    .5372392
           _cons |   8.032215   40.15508     0.20   0.846    -84.56556      100.63
-----------------+----------------------------------------------------------------
         sigma_u |  3.9668428
         sigma_e |  .50207596
             rho |  .98423308   (fraction of variance due to u_i)
----------------------------------------------------------------------------------

. outreg2 using StateOnly1.doc, append ctitle(Model 6) addtext(Country Fixed Effects, Yes)
StateOnly1.doc
dir : seeout

.
. *time fixed effects
. reg ln_Deforestation ln_CorrControl i.Year

      Source |       SS           df       MS      Number of obs   =     1,808
-------------+----------------------------------   F(20, 1787)     =     14.07
       Model |  1605.06722        20  80.2533609   Prob > F        =    0.0000
    Residual |  10195.5015     1,787  5.70537297   R-squared       =    0.1360
-------------+----------------------------------   Adj R-squared   =    0.1263
       Total |  11800.5687     1,807  6.53047521   Root MSE        =    2.3886

--------------------------------------------------------------------------------
ln_Deforesta~n | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |  -.9636749   .0574963   -16.76   0.000    -1.076442   -.8509078
               |
          Year |
         2002  |   .0038804   .3541086     0.01   0.991      -.69063    .6983908
         2003  |  -.0053796   .3541086    -0.02   0.988    -.6998901     .689131
         2004  |   -.036976   .3550918    -0.10   0.917    -.7334149    .6594629
         2005  |  -.0006857   .3550931    -0.00   0.998     -.697127    .6957557
         2006  |    .009521   .3550958     0.03   0.979    -.6869257    .7059678
         2007  |   .0307173   .3551048     0.09   0.931    -.6657471    .7271818
         2008  |   .0471219   .3551149     0.13   0.894    -.6493623     .743606
```

```
        2009  |   .0420814   .3551115     0.12   0.906    -.6543962    .7385589
        2010  |   .0400214   .3551102     0.11   0.910    -.6564536    .7364964
        2011  |   .1160591   .3503795     0.33   0.741    -.5711376    .8032558
        2012  |    .113903   .3503782     0.33   0.745    -.5732912    .8010972
        2013  |    .119501   .3503817     0.34   0.733    -.5676999    .8067019
        2014  |   .1045974   .3503732     0.30   0.765    -.5825869    .7917817
        2015  |   .0994521     .34947     0.28   0.776    -.5859607     .784865
        2016  |   .0241369   .3592275     0.07   0.946    -.6804132    .7286871
        2017  |  -.0047511   .3592195    -0.01   0.989    -.7092855    .6997832
        2018  |   .0221055   .3603237     0.06   0.951    -.6845947    .7288056
        2019  |  -.0121933   .3592187    -0.03   0.973    -.7167263    .6923396
        2020  |   .0068078   .3592217     0.02   0.985    -.6977309    .7113466
              |
       _cons  |    5.72997   .3221562    17.79   0.000     5.098128    6.361813
------------------------------------------------------------------------------

. outreg2 using TimeOnly1.doc, replace ctitle(Model 1) addtext(Time Fixed Effects, Yes)
      keep(ln_Defore
> station ln_CorrControl)
TimeOnly1.doc
dir : seeout

.
. reg ln_Deforestation ln_CorrControl ln_GDP_2015 i.Year

      Source |       SS           df       MS      Number of obs   =       154
-------------+----------------------------------   F(21, 132)      =      5.24
       Model |  345.977597        21  16.4751237   Prob > F        =    0.0000
    Residual |  414.679544       132   3.1415117   R-squared       =    0.4548
-------------+----------------------------------   Adj R-squared   =    0.3681
       Total |  760.657141       153   4.9716153   Root MSE        =    1.7724

------------------------------------------------------------------------------
ln_Deforesta~n | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
---------------+--------------------------------------------------------------
ln_CorrControl |  -1.743444   .1986338    -8.78   0.000    -2.136361   -1.350527
   ln_GDP_2015 |   1.553983   .1518692    10.23   0.000     1.253571    1.854396
               |
          Year |
         2002  |  -.0358954   .9207341    -0.04   0.969    -1.857199    1.785408
         2003  |  -.1199614   .9200489    -0.13   0.896    -1.939909    1.699986
         2004  |  -.1181647   .9201639    -0.13   0.898     -1.93834     1.70201
         2005  |  -.3311196   .9186676    -0.36   0.719    -2.148335    1.486096
         2006  |  -.5630877   .9176572    -0.61   0.541    -2.378304    1.252129
         2007  |  -.2646023   .9192776    -0.29   0.774    -2.083024     1.55382
         2008  |  -.3248026   .9188807    -0.35   0.724    -2.142439    1.492834
         2009  |   -.556251   .9177217    -0.61   0.545    -2.371595    1.259093
         2010  |  -.5503691   .9178096    -0.60   0.550    -2.365887    1.265149
         2011  |  -.4338472   .8933051    -0.49   0.628    -2.200893    1.333199
         2012  |  -.3061649   .8935427    -0.34   0.732    -2.073681    1.461351
         2013  |   -.268878    .893651    -0.30   0.764    -2.036608    1.498852
         2014  |  -.5552166   .8932877    -0.62   0.535    -2.322228    1.211795
         2015  |  -.5945744   .8933324    -0.67   0.507    -2.361674    1.172525
         2016  |  -.6520009    .988557    -0.66   0.511    -2.607464    1.303462
         2017  |  -.7449712   .9879436    -0.75   0.452    -2.699221    1.209279
         2018  |  -.8385324   .9873826    -0.85   0.397    -2.791673    1.114608
         2019  |  -.9077135   .9870389    -0.92   0.359    -2.860174    1.044747
         2020  |  -.8286439   .9874216    -0.84   0.403    -2.781861    1.124574
               |
        _cons  |  -4.820812   1.093018    -4.41   0.000    -6.982911   -2.658714
------------------------------------------------------------------------------

. outreg2 using TimeOnly1.doc, append ctitle(Model 2) addtext(Time Fixed Effects, Yes)
      keep(ln_Defores
> tation ln_CorrControl ln_GDP_2015)
TimeOnly1.doc
dir : seeout

.
. reg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop i.Year

      Source |       SS           df       MS      Number of obs   =       154
-------------+----------------------------------   F(22, 131)      =      5.87
```

```
       Model |  377.466089        22  17.1575495   Prob > F        =    0.0000
    Residual |  383.191052       131  2.92512254   R-squared       =    0.4962
-------------+----------------------------------   Adj R-squared   =    0.4116
       Total |  760.657141       153   4.9716153   Root MSE        =    1.7103

--------------------------------------------------------------------------------
ln_Deforesta~n | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |  -1.624338   .1950782    -8.33   0.000    -2.010249   -1.238427
   ln_GDP_2015 |   1.670178    .150764    11.08   0.000     1.371931    1.968425
   ln_UrbanPop |  -.9266889   .2824425    -3.28   0.001    -1.485428   -.3679502
               |
          Year |
         2002  |   -.028562   .8884609    -0.03   0.974     -1.78615    1.729026
         2003  |  -.1067638    .887806    -0.12   0.904    -1.863056    1.649528
         2004  |  -.1064675    .887915    -0.12   0.905    -1.862975     1.65004
         2005  |  -.3067972   .8864949    -0.35   0.730    -2.060496    1.446901
         2006  |  -.5239399   .8855694    -0.59   0.555    -2.275807    1.227928
         2007  |  -.2468016   .8870692    -0.28   0.781    -2.001636    1.508033
         2008  |   -.299289   .8867037    -0.34   0.736      -2.0534    1.454823
         2009  |  -.5092867   .8856669    -0.58   0.566    -2.261347    1.242774
         2010  |  -.5076227   .8857319    -0.57   0.568    -2.259812    1.244566
         2011  |  -.3610099   .8622764    -0.42   0.676    -2.066798    1.344778
         2012  |  -.2380937   .8624694    -0.28   0.783    -1.944264    1.468077
         2013  |  -.2005535   .8625757    -0.23   0.817    -1.906934    1.505827
         2014  |  -.4709247   .8623565    -0.55   0.586    -2.176872    1.235022
         2015  |  -.5065059   .8624347    -0.59   0.558    -2.212608    1.199596
         2016  |  -.6705384   .9539201    -0.70   0.483     -2.55762    1.216543
         2017  |  -.7566211   .9533182    -0.79   0.429    -2.642512     1.12927
         2018  |  -.8405559   .9527704    -0.88   0.379    -2.725363    1.044251
         2019  |  -.9014537   .9524405    -0.95   0.346    -2.785608    .9827007
         2020  |  -.8184692   .9528128    -0.86   0.392     -2.70336    1.066422
               |
         _cons |  -2.559912    1.25986    -2.03   0.044    -5.052216   -.0676092
--------------------------------------------------------------------------------

. outreg2 using TimeOnly1.doc, append ctitle(Model 3) addtext(Time Fixed Effects, Yes)
       keep(ln_Defores
> tation ln_CorrControl ln_GDP_2015 ln_UrbanPop)
TimeOnly1.doc
dir : seeout

.
. reg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop i.Year

      Source |       SS           df       MS      Number of obs   =       154
-------------+----------------------------------   F(23, 130)      =      5.66
       Model |   380.59156        23  16.5474591   Prob > F        =    0.0000
    Residual |  380.065581       130  2.92358139   R-squared       =    0.5003
-------------+----------------------------------   Adj R-squared   =    0.4119
       Total |  760.657141       153   4.9716153   Root MSE        =    1.7098

--------------------------------------------------------------------------------
ln_Deforesta~n | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |  -1.633861   .1952442    -8.37   0.000    -2.020128   -1.247594
   ln_GDP_2015 |   1.412839   .2909692     4.86   0.000     .8371916    1.988487
   ln_UrbanPop |  -1.692342   .7925206    -2.14   0.035    -3.260249   -.1244345
   ln_RuralPop |  -1.287121   1.244856    -1.03   0.303    -3.749921    1.175678
               |
          Year |
         2002  |  -.0300425    .888228    -0.03   0.973    -1.787295     1.72721
         2003  |  -.1104056   .8875791    -0.12   0.901    -1.866375    1.645564
         2004  |  -.1104343   .8876893    -0.12   0.901    -1.866621    1.645753
         2005  |  -.3119644   .8862755    -0.35   0.725    -2.065354    1.441426
         2006  |  -.5309418    .885362    -0.60   0.550    -2.282525    1.220641
         2007  |  -.2516568   .8868479    -0.28   0.777    -2.006179    1.502866
         2008  |  -.3097539   .8865279    -0.35   0.727    -2.063643    1.444136
         2009  |  -.5290746   .8856403    -0.60   0.551    -2.281208    1.223059
         2010  |  -.5244776   .8856486    -0.59   0.555    -2.276627    1.227672
         2011  |  -.3606678   .8620493    -0.42   0.676    -2.066129    1.344794
         2012  |  -.2448507    .862267    -0.28   0.777    -1.950743    1.461041
         2013  |  -.2137045   .8624422    -0.25   0.805    -1.919943    1.492534
```

```
        2014  |  -.4848006   .8622338    -0.56   0.575    -2.190627    1.221026
        2015  |  -.5236272   .8623665    -0.61   0.545    -2.229716    1.182462
        2016  |  -.7127977   .9545442    -0.75   0.457    -2.601249    1.175654
        2017  |  -.8022447   .9540879    -0.84   0.402    -2.689794    1.085304
        2018  |  -.8928704   .9538622    -0.94   0.351    -2.779973    .9942319
        2019  |     -.9608   .9539179    -1.01   0.316    -2.848012    .9264126
        2020  |  -.8910056   .9551417    -0.93   0.353    -2.780639     .998628
              |
       _cons  |   7.195768   9.519032     0.76   0.451     -11.6365    26.02803
-------------------------------------------------------------------------------

. outreg2 using TimeOnly1.doc, append ctitle(Model 4) addtext(Time Fixed Effects, Yes)
      keep(ln_Defores
> tation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop)
TimeOnly1.doc
dir : seeout

.
. reg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect i.Year

      Source |       SS           df       MS      Number of obs   =       154
-------------+----------------------------------   F(24, 129)      =      6.27
       Model |  409.422773        24  17.0592822   Prob > F        =    0.0000
    Residual |  351.234368       129  2.72274704   R-squared       =    0.5382
-------------+----------------------------------   Adj R-squared   =    0.4523
       Total |  760.657141       153   4.9716153   Root MSE        =    1.6501

-------------------------------------------------------------------------------
ln_Deforesta~n | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
---------------+---------------------------------------------------------------
ln_CorrControl |  -.8327806   .3100081    -2.69   0.008    -1.446139    -.219422
   ln_GDP_2015 |   2.289328   .3890978     5.88   0.000     1.519488    3.059167
   ln_UrbanPop |  -1.055352    .789469    -1.34   0.184    -2.617335     .506632
   ln_RuralPop |   .5834735   1.331789     0.44   0.662    -2.051504    3.218451
 ln_GovtEffect |  -1.402665   .4310486    -3.25   0.001    -2.255505    -.549825
               |
          Year |
         2002  |  -.2820769    .860669    -0.33   0.744    -1.984932    1.420778
         2003  |  -.3742261   .8603791    -0.43   0.664    -2.076507    1.328055
         2004  |  -.3866487   .8608522    -0.45   0.654    -2.089866    1.316568
         2005  |  -.6244518   .8606668    -0.73   0.469    -2.327302    1.078399
         2006  |  -.6779525   .8556047    -0.79   0.430    -2.370787    1.014882
         2007  |  -.5375851   .8603439    -0.62   0.533    -2.239797    1.164626
         2008  |  -.5233962   .8580518    -0.61   0.543    -2.221073     1.17428
         2009  |  -.6297864     .85524    -0.74   0.463      -2.3219    1.062327
         2010  |  -.6811141   .8560421    -0.80   0.428    -2.374814    1.012586
         2011  |  -.4695345   .8325859    -0.56   0.574    -2.116826    1.177757
         2012  |  -.6037298   .8394001    -0.72   0.473    -2.264503    1.057044
         2013  |   -.467482   .8359385    -0.56   0.577    -2.121407    1.186443
         2014  |  -.6659544   .8339517    -0.80   0.426    -2.315948    .9840394
         2015  |  -.6986062    .833955    -0.84   0.404    -2.348607    .9513942
         2016  |  -1.018181    .925943    -1.10   0.274    -2.850182    .8138196
         2017  |  -1.117174    .925807    -1.21   0.230    -2.948906    .7145573
         2018  |  -1.141946   .9236936    -1.24   0.219    -2.969497    .6856042
         2019  |  -1.206893   .9236717    -1.31   0.194      -3.0344    .6206138
         2020  |  -1.281873   .9295449    -1.38   0.170       -3.121    .5572547
               |
        _cons  |  -6.954423   10.16349    -0.68   0.495    -27.06313    13.15428
-------------------------------------------------------------------------------

. outreg2 using TimeOnly1.doc, append ctitle(Model 5) addtext(Time Fixed Effects, Yes)
      keep(ln_Defores
> tation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect)
TimeOnly1.doc
dir : seeout

.
. reg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect
      ln_PoliticStab
> le i.Year

      Source |       SS           df       MS      Number of obs   =       151
-------------+----------------------------------   F(25, 125)      =      6.86
```

```
       Model |  439.781939        25  17.5912776   Prob > F        =    0.0000
    Residual |  320.573555       125  2.56458844   R-squared       =    0.5784
-------------+----------------------------------   Adj R-squared   =    0.4941
       Total |  760.355494       150  5.06903663   Root MSE        =    1.6014

-----------------------------------------------------------------------------------
ln_Deforestation | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-----------------+-----------------------------------------------------------------
  ln_CorrControl |  -1.574421   .3769043    -4.18   0.000    -2.320361   -.8284806
     ln_GDP_2015 |   2.675694   .4195874     6.38   0.000     1.845278    3.506109
     ln_UrbanPop |   .3110153   .9134234     0.34   0.734    -1.496763    2.118794
     ln_RuralPop |   2.356556   1.508651     1.56   0.121    -.6292512    5.342364
   ln_GovtEffect |  -1.464864   .4502198    -3.25   0.001    -2.355905   -.5738233
ln_PoliticStable |   .7264278   .2432923     2.99   0.003     .2449222    1.207933
                 |
            Year |
           2002  |  -.5351892   .8678404    -0.62   0.539    -2.252753    1.182375
           2003  |   -.655731   .8678271    -0.76   0.451    -2.373269    1.061806
           2004  |  -.5618204   .8688196    -0.65   0.519    -2.281322    1.157681
           2005  |  -.8531428   .8690505    -0.98   0.328    -2.573102     .866816
           2006  |  -.9380193   .8692831    -1.08   0.283    -2.658439    .7823999
           2007  |  -.7447001   .8683228    -0.86   0.393    -2.463219    .9738185
           2008  |  -.7308905   .8681886    -0.84   0.401    -2.449144    .9873624
           2009  |  -.8826558   .8700209    -1.01   0.312    -2.604535    .8392236
           2010  |  -.9026393   .8694968    -1.04   0.301    -2.623481    .8182028
           2011  |  -.5357882   .8550531    -0.63   0.532    -2.228044    1.156468
           2012  |  -.4857839   .8623654    -0.56   0.574    -2.192512    1.220944
           2013  |  -.3350275   .8625684    -0.39   0.698    -2.042157    1.372102
           2014  |  -.6200977   .8724045    -0.71   0.479    -2.346695    1.106499
           2015  |  -.5757072   .8739356    -0.66   0.511    -2.305334     1.15392
           2016  |  -.8579443   .9411646    -0.91   0.364    -2.720626    1.004737
           2017  |  -.9924898   .9399561    -1.06   0.293     -2.85278       .8678
           2018  |  -1.150935   .9347223    -1.23   0.221    -3.000866    .6989966
           2019  |  -1.286172   .9333254    -1.38   0.171    -3.133339    .5609945
           2020  |  -1.335787   .9365409    -1.43   0.156    -3.189317    .5177441
                 |
           _cons |  -21.35969   11.70646    -1.82   0.070    -44.52822    1.808847
-----------------------------------------------------------------------------------

. outreg2 using TimeOnly1.doc, append ctitle(Model 6) addtext(Time Fixed Effects, Yes)
      keep(ln_Defores
> tation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect ln_PoliticStable)
TimeOnly1.doc
dir : seeout

.
. *Entity & time fixed effects
. xtreg ln_Deforestation ln_CorrControl i.Year, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =      1808
Group variable: Country                         Number of groups  =       101

R-sq:  Within  = 0.0174                         Obs per group: min =         5
       Between = 0.1402                                        avg =      17.9
       Overall = 0.0884                                        max =        20

                                                F(20,100)         =      0.66
corr(u_i, Xb)  = -0.3381                        Prob > F          =    0.8591

                               (Std. err. adjusted for 101 clusters in country)
---------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+-----------------------------------------------------------------
ln_CorrControl |   .0839617   .0578623     1.45   0.150    -.0308355    .1987589
               |
          Year |
         2002  |  -.0003381   .0039994    -0.08   0.933    -.0082728    .0075966
         2003  |   .0004687   .0041377     0.11   0.910    -.0077404    .0086778
         2004  |   .0047739   .0055937     0.85   0.395     -.006324    .0158717
         2005  |    .001612   .0046063     0.35   0.727    -.0075267    .0107507
         2006  |   .0007227   .0046556     0.16   0.877    -.0085138    .0099592
         2007  |   -.001124   .0056203    -0.20   0.842    -.0122746    .0100265
```

```
        2008  |  -.0025533   .0061423    -0.42   0.679    -.0147395    .0096329
        2009  |  -.0021141   .0060117    -0.35   0.726    -.0140412    .0098129
        2010  |  -.0019347   .0058402    -0.33   0.741    -.0135215    .0096522
        2011  |   .0317039   .1009849     0.31   0.754    -.1686473    .2320552
        2012  |   .0318918   .1009489     0.32   0.753    -.1683879    .2321715
        2013  |   .0314041   .1010513     0.31   0.757    -.1690788     .231887
        2014  |   .0327026   .1006574     0.32   0.746    -.1669988    .2324039
        2015  |     .03126   .1000894     0.31   0.755    -.1673144    .2298345
        2016  |  -.1207505   .0970455    -1.24   0.216    -.3132859    .0717849
        2017  |  -.1182336   .0970942    -1.22   0.226    -.3108656    .0743984
        2018  |  -.1203258   .0974177    -1.24   0.220    -.3135997    .0729481
        2019  |  -.1175852   .0971302    -1.21   0.229    -.3102886    .0751183
        2020  |  -.1192407   .0969486    -1.23   0.222    -.3115839    .0731026
              |
        _cons |   2.056015   .2083831     9.87   0.000     1.642589    2.469441
--------------+----------------------------------------------------------------
      sigma_u |  2.5833655
      sigma_e |  .49013825
          rho |  .96525383   (fraction of variance due to u_i)
-------------------------------------------------------------------------------

. outreg2 using StateTime1.doc, replace ctitle(Model 1) addtext(Country Fixed Effects, Yes, Time
       Fixed
>  Effects, Yes) keep(ln_Deforestation ln_CorrControl)
StateTime1.doc
dir : seeout

.
. xtreg ln_Deforestation ln_CorrControl ln_GDP_2015  i.Year, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        154
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.1852                         Obs per group: min =         5
       Between = 0.1466                                        avg =      17.1
       Overall = 0.1113                                        max =        20

                                                F(8,8)            =          .
corr(u_i, Xb)  = -0.8244                        Prob > F          =          .

                                  (Std. err. adjusted for 9 clusters in country)
-------------------------------------------------------------------------------
              |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
--------------+----------------------------------------------------------------
ln_CorrControl |   .1063108   .2099166     0.51   0.626    -.3777578    .5903794
   ln_GDP_2015 |   2.174778   1.322544     1.64   0.139    -.8750127    5.224569
              |
         Year |
        2002  |   -.240728   .2267454    -1.06   0.319    -.7636037    .2821478
        2003  |  -.3007031   .2362086    -1.27   0.239     -.845401    .2439949
        2004  |  -.3800681   .2390072    -1.59   0.150    -.9312197    .1710834
        2005  |  -.4507435   .2599661    -1.73   0.121    -1.050226    .1487395
        2006  |  -.5078387   .2971995    -1.71   0.126    -1.193182    .1775045
        2007  |  -.5930296   .3018453    -1.96   0.085    -1.289086     .103027
        2008  |  -.6089222   .3226863    -1.89   0.096    -1.353038    .1351938
        2009  |  -.5925762    .336567    -1.76   0.116    -1.368701    .1835486
        2010  |  -.6863287   .3629734    -1.89   0.095    -1.523347    .1506895
        2011  |  -.5574707   .3987364    -1.40   0.200    -1.476958     .362017
        2012  |  -.5449388   .3544359    -1.54   0.163    -1.362269    .2723917
        2013  |  -.5382606   .3330722    -1.62   0.145    -1.306326    .2298053
        2014  |  -.5768979   .3589786    -1.61   0.147    -1.404704    .2509083
        2015  |  -.6173086   .3717203    -1.66   0.135    -1.474497      .23988
        2016  |  -.6341599   .4998425    -1.27   0.240    -1.786799     .518479
        2017  |  -.6801841   .5150017    -1.32   0.223     -1.86778    .5074119
        2018  |  -.6993546   .5357131    -1.31   0.228    -1.934711     .536002
        2019  |   -.717283   .5505746    -1.30   0.229     -1.98691    .5523443
        2020  |  -.6860545   .5179646    -1.32   0.222    -1.880483    .5083741
              |
        _cons |  -16.38016   10.61625    -1.54   0.161    -40.86127    8.100955
--------------+----------------------------------------------------------------
      sigma_u |  3.5788884
      sigma_e |  .63580693
```

```
           rho |  .96940439   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. outreg2 using StateTime1.doc, append ctitle(Model 2) addtext(Country Fixed Effects, Yes, Time
      Fixed
> Effects, Yes) keep(ln_Deforestation ln_CorrControl ln_GDP_2015)
StateTime1.doc
dir : seeout

.
. xtreg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop  i.Year, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        154
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.3454                         Obs per group: min =         5
       Between = 0.0282                                        avg =      17.1
       Overall = 0.0104                                        max =        20

                                                F(8,8)            =          .
corr(u_i, Xb)  = -0.9485                        Prob > F          =          .

                                  (Std. err. adjusted for 9 clusters in country)
------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |  -.1170418      .29106    -0.40   0.698    -.7882272    .5541437
   ln_GDP_2015 |   1.649394    1.461195     1.13   0.292    -1.720127    5.018915
   ln_UrbanPop |   8.099315    6.826484     1.19   0.269    -7.642586    23.84121
               |
          Year |
         2002  |  -.1423267    .0640865    -2.22   0.057    -.2901104    .0054571
         2003  |  -.2490957    .0830639    -3.00   0.017    -.4406414   -.0575499
         2004  |  -.3587568    .1309851    -2.74   0.025    -.6608091   -.0567045
         2005  |  -.4848398    .2036489    -2.38   0.044     -.954455   -.0152246
         2006  |  -.6009836    .2872318    -2.09   0.070    -1.263341    .0613741
         2007  |  -.6755635    .2926225    -2.31   0.050    -1.350352   -.0007749
         2008  |  -.7411414    .3604972    -2.06   0.074    -1.572449    .0901666
         2009  |  -.8025317    .4376211    -1.83   0.104    -1.811688    .2066244
         2010  |    -.91234    .4880623    -1.87   0.099    -2.037814    .2131338
         2011  |  -.7891931    .4199951    -1.88   0.097    -1.757704    .1793173
         2012  |  -.7839737    .3773518    -2.08   0.071    -1.654149     .086201
         2013  |  -.7921884    .3575211    -2.22   0.058    -1.616634    .0322568
         2014  |  -.8662241    .3883404    -2.23   0.056    -1.761739    .0292905
         2015  |  -.9441784    .4181925    -2.26   0.054    -1.908532    .0201753
         2016  |  -.9993171    .5056132    -1.98   0.084    -2.165263     .166629
         2017  |  -1.089702    .5465402    -1.99   0.081    -2.350026    .1706216
         2018  |   -1.16249    .6008386    -1.93   0.089    -2.548026    .2230465
         2019  |  -1.232266    .6408039    -1.92   0.091    -2.709962    .2454308
         2020  |  -1.252974    .6744481    -1.86   0.100    -2.808254    .3023062
               |
         _cons |   -43.2417    25.82592    -1.67   0.133    -102.7964    16.31299
---------------+----------------------------------------------------------------
       sigma_u |  6.7368744
       sigma_e |  .57218855
           rho |  .99283791   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. outreg2 using StateTime1.doc, append ctitle(Model 3) addtext(Country Fixed Effects, Yes, Time
      Fixed
> Effects, Yes) keep(ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop)
StateTime1.doc
dir : seeout

.
. xtreg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop  i.Year, fe
      vce(cluster co
> untry)

Fixed-effects (within) regression               Number of obs     =        154
Group variable: Country                         Number of groups  =          9
```

```
R-sq:  Within  = 0.3862                         Obs per group: min =          5
       Between = 0.0546                                        avg =       17.1
       Overall = 0.0330                                        max =         20

                                                F(8,8)             =          .
corr(u_i, Xb)  = -0.9101                        Prob > F           =          .

                                   (Std. err. adjusted for 9 clusters in country)
--------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |   .0814644   .1542733     0.53   0.612    -.2742904    .4372192
   ln_GDP_2015 |   .9471536   1.496642     0.63   0.544    -2.504109    4.398416
   ln_UrbanPop |   1.627507   4.810439     0.34   0.744    -9.465386     12.7204
   ln_RuralPop |  -4.459406   4.317141    -1.03   0.332    -14.41475    5.495937
               |
          Year |
          2002  |  -.1700747   .0743588    -2.29   0.051    -.3415463     .001397
          2003  |  -.2577339   .0863116    -2.99   0.017    -.4567687   -.0586991
          2004  |  -.3562538   .1123906    -3.17   0.013    -.6154269   -.0970807
          2005  |  -.4469502   .1548182    -2.89   0.020    -.8039615   -.0899388
          2006  |  -.5265157   .2106191    -2.50   0.037    -1.012204   -.0408273
          2007  |  -.6218608   .2333998    -2.66   0.029    -1.160082   -.0836398
          2008  |   -.679555   .2851452    -2.38   0.044    -1.337101   -.0220089
          2009  |  -.7197867   .3440381    -2.09   0.070     -1.51314    .0735665
          2010  |  -.8145134   .3753197    -2.17   0.062    -1.680002    .0509754
          2011  |  -.6852473   .3958647    -1.73   0.122    -1.598113    .2276183
          2012  |  -.7099324   .3644037    -1.95   0.087    -1.550249     .130384
          2013  |  -.7357629   .3515937    -2.09   0.070    -1.546539    .0750136
          2014  |  -.7762314   .3548705    -2.19   0.060    -1.594564    .0421014
          2015  |  -.8458986   .3776006    -2.24   0.055    -1.716647    .0248499
          2016  |  -.8740827   .4702768    -1.86   0.100    -1.958543    .2103776
          2017  |  -.9497096   .5017992    -1.89   0.095    -2.106861    .2074414
          2018  |  -1.014217    .543996    -1.86   0.099    -2.268674    .2402397
          2019  |  -1.079428   .5844818    -1.85   0.102    -2.427246     .268389
          2020  |   -1.12621    .623423    -1.81   0.108    -2.563826    .3114064
               |
         _cons |   3.259083   27.73801     0.12   0.909    -60.70488    67.22305
---------------+----------------------------------------------------------------
       sigma_u |  5.1157355
       sigma_e |  .55634317
           rho |  .98831138   (fraction of variance due to u_i)
--------------------------------------------------------------------------------

. outreg2 using StateTime1.doc, append ctitle(Model 4) addtext(Country Fixed Effects, Yes, Time
      Fixed
> Effects, Yes) keep(ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop)
StateTime1.doc
dir : seeout

.
. xtreg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect
      i.Year, fe
> vce(cluster country)

Fixed-effects (within) regression               Number of obs      =        154
Group variable: Country                         Number of groups   =          9

R-sq:  Within  = 0.4248                         Obs per group: min =          5
       Between = 0.0489                                        avg =       17.1
       Overall = 0.0265                                        max =         20

                                                F(8,8)             =          .
corr(u_i, Xb)  = -0.9386                        Prob > F           =          .

                                   (Std. err. adjusted for 9 clusters in country)
--------------------------------------------------------------------------------
               |               Robust
ln_Deforesta~n | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
---------------+----------------------------------------------------------------
ln_CorrControl |   .1443979   .1714446     0.84   0.424     -.250954    .5397498
   ln_GDP_2015 |   1.701084   1.698086     1.00   0.346     -2.21471    5.616877
```

```
  ln_UrbanPop |   4.572146    4.68082     0.98   0.357    -6.221845    15.36614
  ln_RuralPop |   -2.60336   4.633993    -0.56   0.590    -13.28937    8.082647
ln_GovtEffect |  -.5262407   .3299497    -1.59   0.149    -1.287106    .2346248
              |
         Year |
        2002  |  -.2241694    .077375    -2.90   0.020    -.4025966   -.0457423
        2003  |  -.3396226   .0604766    -5.62   0.001    -.4790818   -.2001634
        2004  |  -.4552881   .0966292    -4.71   0.002    -.6781153   -.2324608
        2005  |   -.601327   .1449584    -4.15   0.003    -.9356016   -.2670524
        2006  |  -.6621093   .2077562    -3.19   0.013    -1.141196   -.1830225
        2007  |  -.7808333   .2357178    -3.31   0.011      -1.3244    -.237267
        2008  |  -.8266806   .2830353    -2.92   0.019    -1.479361       -.174
        2009  |  -.8606945   .3352117    -2.57   0.033    -1.633694    -.087695
        2010  |  -.9887925   .3785044    -2.61   0.031    -1.861625   -.1159598
        2011  |  -.8695373   .3249421    -2.68   0.028    -1.618855   -.1202194
        2012  |  -.9681352   .2805896    -3.45   0.009    -1.615176   -.3210944
        2013  |  -.9478261   .2629788    -3.60   0.007    -1.554256   -.3413958
        2014  |  -1.004349   .2628805    -3.82   0.005    -1.610553   -.3981457
        2015  |  -1.085382   .2884863    -3.76   0.006    -1.750632   -.4201311
        2016  |  -1.145946   .3555684    -3.22   0.012    -1.965889   -.3260043
        2017  |  -1.246896   .3885514    -3.21   0.012    -2.142897   -.3508944
        2018  |  -1.305989   .4197261    -3.11   0.014    -2.273879   -.3380986
        2019  |  -1.385776   .4454209    -3.11   0.014    -2.412918   -.3586332
        2020  |  -1.476882   .4419948    -3.34   0.010    -2.496124   -.4576399
              |
        _cons |  -19.57777   33.37579    -0.59   0.574    -96.54248    57.38695
--------------+----------------------------------------------------------------
      sigma_u |  6.1716307
      sigma_e |  .54080515
          rho |  .99237992   (fraction of variance due to u_i)
-------------------------------------------------------------------------------

. outreg2 using StateTime1.doc, append ctitle(Model 5) addtext(Country Fixed Effects, Yes, Time
      Fixed
> Effects, Yes) keep(ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop
      ln_GovtEffect
> )
StateTime1.doc
dir : seeout

.
. xtreg ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop ln_GovtEffect
      ln_PoliticSt
> able  i.Year, fe vce(cluster country)

Fixed-effects (within) regression               Number of obs     =        151
Group variable: Country                         Number of groups  =          9

R-sq:  Within  = 0.4640                         Obs per group: min =         5
       Between = 0.0240                                        avg =      16.8
       Overall = 0.0118                                        max =        20

                                                F(8,8)            =          .
corr(u_i, Xb)  = -0.9112                        Prob > F          =          .

                                    (Std. err. adjusted for 9 clusters in country)
---------------------------------------------------------------------------------
                |               Robust
ln_Deforestation | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
----------------+----------------------------------------------------------------
  ln_CorrControl |   .0674001   .1725783     0.39   0.706    -.3305663    .4653664
     ln_GDP_2015 |   .7232143   2.378113     0.30   0.769    -4.760724    6.207153
     ln_UrbanPop |   4.149609   6.153133     0.67   0.519    -10.03954    18.33876
     ln_RuralPop |  -3.139391   4.835284    -0.65   0.534    -14.28958    8.010793
   ln_GovtEffect |  -.6132381    .415609    -1.48   0.178    -1.571634     .345158
ln_PoliticStable |   .3409333   .2178729     1.56   0.156    -.1614825     .843349
                |
            Year |
           2002  |  -.0833611   .0866725    -0.96   0.364    -.2832283    .1165061
           2003  |  -.1818036   .0990748    -1.84   0.104    -.4102704    .0466632
           2004  |  -.2231996   .1570493    -1.42   0.193    -.5853559    .1389567
           2005  |  -.3400182   .2163925    -1.57   0.155    -.8390203    .1589839
           2006  |  -.3546979   .2807917    -1.26   0.242    -1.002205    .2928089
```

```
        2007  |  -.4728701   .3342308    -1.41   0.195    -1.243608    .2978674
        2008  |  -.5063532   .3598597    -1.41   0.197    -1.336191    .3234848
        2009  |  -.5337809   .3846304    -1.39   0.203     -1.42074    .3531785
        2010  |  -.6175192   .4504266    -1.37   0.208    -1.656205    .4211665
        2011  |    -.36902   .6380445    -0.58   0.579    -1.840353    1.102313
        2012  |  -.4233007   .6661907    -0.64   0.543    -1.959539    1.112938
        2013  |   -.406573   .6358715    -0.64   0.540    -1.872895    1.059749
        2014  |  -.5148583   .7114589    -0.72   0.490    -2.155485    1.125769
        2015  |  -.5382968    .756499    -0.71   0.497    -2.282787    1.206193
        2016  |   -.528292   .8985647    -0.59   0.573    -2.600386    1.543802
        2017  |  -.6198469   .9121642    -0.68   0.516    -2.723301    1.483608
        2018  |  -.7242127   .8806065    -0.82   0.435    -2.754895    1.306469
        2019  |  -.8267865   .8860503    -0.93   0.378    -2.870022    1.216449
        2020  |  -.9474842   .8414799    -1.13   0.293     -2.88794    .9929718
              |
        _cons |  -8.657422   45.17428    -0.19   0.853    -112.8295    95.51466
-----------------+----------------------------------------------------------------
      sigma_u |  5.2287637
      sigma_e |  .52269552
          rho |  .99010579   (fraction of variance due to u_i)
----------------------------------------------------------------------------------

. outreg2 using StateTime1.doc, append ctitle(Model 6) addtext(Country Fixed Effects, Yes, Time
      Fixed
> Effects, Yes) keep(ln_Deforestation ln_CorrControl ln_GDP_2015 ln_UrbanPop ln_RuralPop
      ln_GovtEffect
>  ln_PoliticStable)
StateTime1.doc
dir : seeout
```