Senior Project
Department of Economics

"The Culture of Corruption: Religion's Impact"

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Abstract

This paper seeks to identify an omitted variable bias in the model used by Goel and Nelson (2010). It attempts to explain how and why religion influences corruption, and why the history variables in Goel and Nelson's model may not be adequate for encompassing the cultural aspects of corruption. This analysis is unable to replicate a result by Goel and Nelson (2010), and an omitted variable bias conclusion cannot be drawn. However, religion is shown to affect corruption. This study uses a panel dataset merged from a variety of sources covering the years 1995, 2000, 2005, and 2010.

I would like to thank Dr. Francesco Renna and Dr. Mike Nelson for their help in this project.

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I: Introduction

Corruption has always been, and will continue to be, a serious problem for many countries. The World Bank estimates that about $1 trillion is paid out in bribes every year. Considering in 2010, the world's gross domestic product totaled about $76 trillion, this is a fairly substantial amount ("Gross domestic product," 2010). How to reduce corruption is a question that needs answering. However, before addressing that, more investigation is required into the origin of corruption. Identifying the variables that promote, hinder, and sustain corruption can lead us towards the reduction of it.

This paper seeks to identify an omitted variable bias in the model used by Goel and Nelson (2010). It attempts to explain how and why religion influences corruption, and why the history variables in Goel and Nelson's model may not be adequate for encompassing the cultural aspects of corruption.

The larger a government is, the greater the monitoring power it will likely have. With more monitoring, the chances of getting caught participating in corrupt activities increase, which in turn increases the opportunity cost. However, how much control a government has on an economy can also influence corruption. More regulation can increase a company's or person's desire to engage in corrupt activities that create better opportunities to profit. A country's population distribution could affect its monitoring power. Corruption can be viewed internally as an acceptable aspect of business in different countries' cultures. However, outsiders looking in could view these possibly normal practices as corrupt. The age of a country and its religious views could influence how corruption is perceived and handled. Understanding a nation's

history, religious views, and governmental strength can help policy makers more effectively deal with corruption. like what?

This paper will have the following structure: Section II will contain a review of previous literature - mainly pertaining to the influence of culture on corruption. Section III will explain the model for the analysis in this paper and describe the data used. Section IV will explain and interpret the results of my analysis. And section V will draw conclusions, express the limitations of this paper, and point out what can be done in the future to expand knowledge on this subject. An appendix follows in section VI.

II: Literature Review

I asked for 5 recommendations on paper, but he did not deliver

Goel and Nelson (2010) try to answer two questions: First, what are the effects of the size and scope of the public sector on the incidence of corruption across countries? Second, how important are historical and geographic influences in affecting institutions that have a large bearing on corruption? The scope of government constitutes what areas the government can participate in legislating. They find evidence that a larger public sector lowers corruption because the incentives for officials to accept bribes decreases. While larger regulation was found to increase corruption by creating greater incentives to partake in it. They conclude that government intervention has the possibility of overriding the reduced corruption made by a larger government.

Their second question, how history and geography affect corruption, was not completely positive or negative either. Their results showed that only some geographic factors influenced corruption. The square kilometers of land and the natural resource wealth of a country did not make any difference. However, how the population was distributed seemed to matter. Countries that had more congested populations tended to have lower corruption. To judge how a country's

history influences corruption, Goel and Nelson, took old countries, i.e. those achieving independence before 1900, and new countries, i.e. those achieving independence after 1950, and compared corruption levels. Both new and old countries correlated with higher corruption. They inferred that underdeveloped institutions in new countries promote corruption, and the inertia from cultural norms in old countries allows corruption to continue.

Seleim and Bontis (2009) analyze how culture can affect corruption. Using a dataset from the GLOBE project, they look at how different values of individuals influence corruption. The cultural practices surveyed in the data consist of variables such as uncertainty avoidance and future orientation. The analysis by Seleim and Bontis (2009) finds future orientation to be correlated with lower corruption, reinforcing the idea that culture affects corruption. Religion could capture the moral values here because the emphasis on these values can vary for each religion.

La Porta et al. (1999) look at the three most widespread religions: Protestant, Catholic, and Muslim. They find that Protestant dominated countries have stronger governments, but Catholic and Muslim denomination governments have weaker ones. However, La Porta et al. (1999) finds with the inclusion of law systems and ethnolinguistic fractionalization, Catholicism and Islam lose statistical significance. In their model, they find these political variables to take precedence over cultural or religious variables in influencing government performance.

Paldam (2008) analyzes the impact of religion on corruption. Religion is one aspect of culture, and culture has been shown to affect levels of corruption. Paldam shows that, in fact, religion does seem to influence corruption. Tribal religions and Reform Christians decrease corruption, but other religions increase corruption. Reform Christians are Anglicans and Protestants, and Pre-Reform Christians consist of Catholic, and Orthodox. The largest divide in

corruption levels was between the two different sects of Christianity. This could be explained by the development of the Reform Churches, who formed with the purpose of escaping the moral state of the Catholic Church. These Reform Churches have a different tolerance to corruption than their predecessors. According to Paldam (2008), Islam increases corruption with similar strength and significance to the Pre-Reform Christian churches.

Congruent with the theory that a country's history influences culture, and culture influences corruption, religion influences corruption. Harrison and Huntington (2001) back this theory, but challenges Paldam's (2008) results about the Anglican Church. They say Protestant dominated countries are less corrupt than others. According to Harrison and Huntington (2001), Protestant views hold that everyone is responsible to keep themselves from sinning. Catholic, Orthodox, and Anglican churches tend to think that people are weak and will sin. Protestants tend to value achievement much less than Catholics. Harrison and Huntington (2001) argue that because Protestants don't value achievement as much, they are more comfortable in their current economic situations--thus discouraging corrupt activities that would further ones socioeconomic status. Governments in mostly protestant countries tend to be more market oriented, while governments with larger Catholic populations tend to intervene in the economy more. As one would expect from the previously described literature, Protestant countries have lower corruption due to greater economic freedoms.

Based on the review of the literature, this paper will contribute to the understanding of corruption by emphasizing the need for religion in models using culture explanatorily.

III: Data and the Model

This paper's models are composed of control variables that are often used in previous models showing factors of corruption. First, in most models that study corruption, GDP per

capita is used to explain the economic prosperity of a country. Individuals in wealthier nations are less inclined to use illegal methods to increase wealth because the opportunity cost of getting caught accepting a bribe tends to be greater. More money is spent on education in wealthier nations. And more educated individuals have a better understanding of right and wrong and what it means to be civil (Goel & Nelson 2010).

Furthermore, the level of democracy in a country can be a determinant of corruption. In a democratic country, government officials can be voted out of office. The possibility of losing the official's office discourages corrupt activity. People in democratic countries tend to have more freedom. If groups against corruption want to organize, the people can do so with less fear of an oppressive government (Goel & Nelson 2010). This data comes from the Freedom House Political Rights index ranging from 0-14. 0 is most democratic and 14 is the least.

Like GDP per capita and democracy, the amount of government intervention on an economy was shown to be statistically significant in the models run by Goel and Nelson (2010). The less intervention on an economy, the less corruption there is. The Index of Economic Freedom by the Heritage Foundation will be used to measure government intervention. The index data in this paper ranges from 8 to 89.5. Smaller values indicate more intervention while larger values indicate less intervention.

The size of government was also shown to be a determinant of corruption. Governments that spend a larger percentage of their country's GDP have lower corruption. In more adequately funded governments, officials take a greater income risk accepting bribes. With more government employees or officials around, corrupt practices become more difficult to keep undetected. Included from the World Bank, countries' government expense as a percent of GDP is denoted as *GovernmentSpending* in these models.

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Goel and Nelson (2010) find urbanization to significantly affect corruption as well. More urbanized countries have less corruption. The idea is that, individuals in more urban environments have less ability to engage in corrupt acts. With more people around, the chances of getting caught may increase. From the World Bank, the urban population of a country as a percent of the overall country's population will be included in the model.

Goel and Nelson (2010) and La Porta et al. (1999) use legal systems in their models. In both papers, as well as this one, legal systems are binary variables. Every country is designated as having one of five legal systems: French, Scandinavian, Socialist, German, or English common law. Goel and Nelson (2010) found English common law to reduce corruption. Like them, this paper will use English common law in the models.

New and old countries in Goel and Nelson's paper both were shown to increase corruption. New countries will likely have underdeveloped monitoring institutions. With a lower chance of getting caught, the opportunity cost of engaging in corrupt activities decreases. While old countries likely have well developed monitoring institutions, they may suffer from another issue. Older cultures may have corruption engrained in the culture. Nations outside could view this as corruption, but the culture of the corrupt country may accept this as a normal business occurrence (Goel & Nelson 2010). Goel and Nelson (2010) define an old country has one that declared independence before 1900, and a new country is one that declared independence after 1950. This paper will use those same definitions.

Paldam (2008) and La Porta et al. (1999) find Catholicism to increase corruption and Protestantism to reduce it. The Protestant denomination was formed with the purpose of escaping corruption within the Catholic Church. Because Protestant culture is naturally adverse to corruption, countries with high Protestant populations should have less corruption. Conversely,

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countries with high Catholic populations should have more corruption because of the greater acceptability of it in Catholic culture.

La Porta el. al (1999) relates Islam to Catholicism. Higher Muslim populations have more corruption. They attribute this to Muslim countries tending "to have more interventionist and less efficient, but better paid, governments" (p. 32).

Protestant, Catholic, and Muslim populations as a percent of the whole population of each country will be included from the CIA World Factbook.

The data used is a panel dataset with observations from 1995, 2000, 2005, and 2010. This differs from Goel and Nelson (2010) who used 1995-1997, 1998-2000, and 2001-2003. The Transparency International Corruption Index of Perceived Corruption will be the way this paper measures corruption as the dependent variable. The index for the years this paper uses ranges from 1 to 10 with 1 as most corrupt and 10 being least corrupt.

This study uses the following models that include the history variables in Goel and Nelson's paper:

(Note: The corruption index ranges from most corrupt to least corrupt – 1 being most corrupt and 10 being least. So a positive coefficient actually reduces corruption. Also, democracy has a negative coefficient because a higher score on the Freedom House index indicates less democracy.)

(1) $Corruption_{it} = \beta_0 + \beta_1 GDPperCapita_{it} - \beta_2 Democracy_{it} + \beta_3 English_i - \beta_4 New_i - \beta_5 Old_i + \mu$

(3) $Corruption_{it} = \beta_0 + \beta_1 GDPperCapita_{it} - \beta_2 Democracy_{it} + \beta_3 English_i - \beta_4 New_i - \beta_5 Old_i + \beta_6 GovernmentIntervention_{it} + \beta_7 GovernmentSpending_{it} + \beta_8 Urban_{it} + \beta_9 Subpop_{it} + \mu$

The subscripts i and t denote the country and the time respectively.

Religion is then added to these models to see if there is an omitted variable bias by comparing the differences.

$$(2)\ Corruption_{it} = \beta_0 + \beta_1 GDPperCapita_{it} - \beta_2 Democracy_{it} + \beta_3 English_i - \beta_4 New_i - \beta_5 Old_i + \beta_6 Protestant_{it} - \beta_7 Catholic_{it} - \beta_8 Muslim_{it} + \mu$$

$$(4)\ Corruption_{it} = \beta_0 + \beta_1 GDPperCapita_{it} - \beta_2 Democracy_{it} + \beta_3 English_i - \beta_4 New_i - \beta_5 Old_i + \beta_6 GovernmentIntervention_{it} + \beta_7 GovernmentSpending_{it} + \beta_8 Urban_{it} + \beta_9 Subpop_{it} + \beta_{10} Protestant_{it} - \beta_{11} Catholic_{it} - \beta_{12} Muslim_{it} + \mu$$

This paper uses random effects like Goel and Nelson (2010). Random effects is used in this situation instead of fixed effects because there are time invariant variables such as *New, Old,* and *English.*

IV: Results

GDPperCapita – Like previous models, Per Capita GDP reduces corruption with at least a 95% significance level in regressions (1), (2), and (4). Wealthier nations engage in fewer corrupt activities.

Democracy – Democracy is the sum of the Freedom House Political Rights and Civil Liberties indices. The negative coefficient is consistent with previous models. A lower number in the sum means more economic freedom. So as the sum goes up, economic freedom decreases while corruption increases. This is significant at the 99% level in models (1) and (2). Also it is significant at the 90% level and the 95% level in models (3) and (4) respectively.

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See random effects model results for (3) and (4) on page 17

GovernmentIntervention – This paper finds the level of government intervention in a country to affect corruption levels greatly like Goel and Nelson (2010). It is significant at the 99% level in both models (3) and (4). In reference to model 3, a 1 point increase in the Heritage Foundation index leads to a 0.046 increase in the corruption index.

GovernmentSpending – Along with Goel and Nelson (2010), this paper finds government spending to increase the corruption index (less corruption). This is significant at the 95% level in model (3) and the 99% level in model (4).

Urban – Again in agreement with Goel and Nelson (2010), this paper finds urban population to increase the corruption index (less corruption). This is significant at the 95% level in model (3) and the 99% level in model (4). Larger percentages of people living in urban environments coincide with less corruption.

English – Unlike Goel and Nelson (2010), this paper does not find any significance of English Common Law in any model. The coefficients are all positive, but without significance no real conclusions can be drawn.

Subpop – Although the direction of the coefficient is in agreement with the previous work, like English Common Law, this paper does not find any significance of subnational governments per population in contrast to Goel and Nelson's findings. They found that more subnational governments per population reduced corruption significantly.

The results show that Protestantism decreases corruption and is significant in both models. In model (2) Catholicism increases corruption with significance, but then loses that significance in model (4). Islam is not significant in either model, and the variable switches from positive to negative going from model (2) to (4). In all models neither old country nor new country find any significance.

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With the addition of religion in model (2) from model (1), there is a noticeable change in the results of new and old countries. The coefficient and t-stat on new countries drop from -0.61541 to -0.47005 and -1.29 to -0.90 respectively. Old country decreases in both areas as well. The coefficient changes from -0.2104 to -0.05234, and the t-stat changes from -0.38 to -0.08. These decreases with the inclusion of religion suggest there is an omitted variable bias. Unfortunately however, this paper was unable to reproduce the significant results in the new and old country variables that Goel and Nelson (2010) found. Therefore, this paper cannot claim there is an omitted variable bias in their models.

V: Conclusions and Limitations

This paper has similar findings with Goel and Nelson (2010). Wealthier nations are less corrupt. Countries with more democracy have less corruption. People with more economic and political freedom engage in fewer corrupt activities. And more urbanized populations are less corrupt. However, the number of subnational governments per population and English common law were not significant.

This paper shows that religion does in fact, affect corruption. The morals within different religions can have an effect on what people view as acceptable behavior. Protestants reduce corruption while Catholics increase it. However, this paper was unable to replicate the results produced by Goel and Nelson (2010), so this paper cannot conclude that religion is an omitted variable bias in their models.

In the future, a better study could be done with a larger number of countries evaluated. Many countries are lacking religious data among other variables. Also, this panel dataset only covered 20 years. Generally, religion changes very slowly, and in the countries with frequently

updated, precise data, there was very little movement. Data has increased every year, so the future could provide an improved data set.

A Two Stage Least Squares model could be used in the future to acquire accurate results by controlling for reverse causality.

VI: References

Central Intelligence Agency, (2013). *The world factbook*

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Goel, R., & Nelson, M., (2010). Causes of corruption: History, geography and government. *Journal of Policy Modeling*, *32*(4), 433-447.

Gross domestic product 2010, ppp. (2010). Retrieved from http://siteresources.worldbank.org/DATASTATISTICS/Resources/GDP_PPP.pdf

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The Heritage Foundation, (2013). *Index of economic freedom.*

The World Bank, (2013). *World databank.*

Transparency International, (2013). *Corruption perceptions index.*

VII: Appendix

Table 1: Variable Definitions and Sources

Variable	Source	Description
Corruption	1	Transparency International Corruption Index of Perceived Corruption. (ranges from 1-10: 1 being most corrupt. 10 being least)
GDPperCapita	2	GDP per capita (In US dollars).
Democracy	3	Sum of the Freedom House Political Rights and Civil Liberties Indices used to measure democracy. (Each index ranges from 1-10: 1 is most free. 10 is least)
GovernmentIntervention	4	Index of government intervention in the economy. (ranges from 1-100: 1 being most intervention. 100 being least)
GovernmentSpending	2	Government consumption (% of GDP)
English	5	Binary variable that equals 1 if the country's law is based on English Common Law; if not, then 0.
New	6	Binary variable equals 1 if the country became independent after 1950; if not, then 0.
Old	6	Binary variable equals 1 if the country became independent before 1900; if not, then 0.
Urban	2	Urban population (% of total)
Protestant	6	Protestants in the country (% of population)
Catholic	6	Catholics in the country (% of population)
Muslim	6	Muslims in the country (% of population)
Subpop	2,6	Number of first-order administrative divisions per 100,000 population

Sources:
1. Transparency International, http://www.transparency.org/cpi2012/results
2. The World Bank
3. Freedom House, Freedom in the World country ratings, http://www.freedomhouse.org/report/freedom-world/freedom-world-2012
4. Heritage Foundation, http://www.heritage.org/index/explore
5. La Porta, et al. (1999)
6. US Central Intelligence Agency, The World Factbook

Table 2: Summary Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
Year	1092	2003	5.52647	2186795	1995	2010
Corruption	435	4.3974	2.30562	1913	1.2	10
Catholic	390	0.29667	0.35961	115.6996	0	0.994
Protestant	391	0.12789	0.23723	50.0044	0	0.97
Muslim	409	0.26373	0.71684	107.8669	0	.99
Democracy	717	6.75174	3.99438	4841	0	14
GDPperCapita	717	9940	15984	7126665	64	121386
GovernmentIntervention	549	59.05428	11.62339	32421	8	89.5
GovernmentSpending	631	16.22504	6.70963	10238	3	64
Urban	698	50.03436	25.73847	34924	3.53182	100
English	879	0.27304	0.44577	240	0	1
New	643	0.65785	0.4748	423	0	1
Old	643	0.17574	0.38089	113	0	1
Subpop	894	1.8157	7.56074	1623	0	92.47486

Table 3: Random Effects Models 1 and 2 Results

Variable	**Model 1**	**Model 2**
Intercept	4.804626*** (10.3)	4.965251*** (9.68)
GDPperCapita	0.000022*** (3.59)	0.000019** (3.06)
Democracy	-0.12192*** (-4.37)	-0.10505*** (-3.42)
English	0.475844 (1.1)	0.341238 (0.7)
New	-0.61541 (-1.29)	-0.47005 (-0.90)
Old	-0.2104 (-0.38)	-0.05234 (-0.08)
Protestant		0.922153* (1.85)
Catholic		-0.58365* (-1.87)
Muslim		-0.48909 (-1.62)
Observations	105	91
R-squared	0.1367	0.1541

T-statistics are located in the parenthesis.
*Denotes Significance at the 10% level
**Denotes Significance at the 5% level
*** Denotes Significance at the 1% level

Table 4: Random Effects Models 3 and 4 Results

Variable	Model 3	Model 4
Intercept	1.126037 (1.18)	-3.09294*** (-3.85)
GDPperCapita	2.92E-06 (0.39)	0.000056*** (7.58)
Democracy	-0.05349* (-1.69)	-0.08529** (-2.59)
English	0.803375 (1.14)	-0.219848 (1.05)
GovernmentSpending	0.044697** (2.39)	(0.052212)*** (3.26)
GovernmentIntervention	0.046255*** (5.3)	0.092513*** (8.54)
Urban	0.004062** (2.18)	0.016414*** (5.36)
Subpop	0.285005 (1.35)	0.094736 (1.38)
New	-1.00534 (-1.41)	-0.17323 (-0.85)
Old	-0.38651 (-0.50)	-0.36359 (-1.61)
Protestant		1.561227*** (3.65)
Catholic		-0.09853 (-0.39)
Muslim		0.212455 (-0.76)
Observations	73	63
R-squared	0.2141	0.8437

T-statistics are located in the parenthesis.
*Denotes Significance at the 10% level
**Denotes Significance at the 5% level
*** Denotes Significance at the 1% level

VIII: SAS Code

```
data 1995combined;
merge Corruption GDPperCapita GovernmentIntervention GovernmentSpending Democracy Urban Religions Systems
Population NaturalResources Landarea Internet Independence Subdivisions;
by country;
run;
data 2000combined;
merge Corruption GDPperCapita GovernmentIntervention GovernmentSpending Democracy Urban Religions Systems
Population NaturalResources Landarea Internet Independence Subdivisions;
by country;
run;
data 2005combined;
merge Corruption GDPperCapita GovernmentIntervention GovernmentSpending Democracy Urban Religions Systems
Population NaturalResources Landarea Internet Independence Subdivisions;
by country;
run;
data 2010combined;
merge Corruption GDPperCapita GovernmentIntervention GovernmentSpending Democracy Urban Religions Systems
Population NaturalResources Landarea Internet Independence Subdivisions;
by country;
run;


data one;
set mydata;

proc corr data=mydata;
run;


%macro tscsdata(version, in=_last_, out=, ts=, cs=, vars=, nreg=, keep=);
%if &version ne %then %put TSCSDATA macro Version 2.1;
%if &in=_last_ %then %let in=&syslast;
%let notesopt = %sysfunc(getoption(notes));
options nonotes;

*
  in  =  Names the input data set. last-created used by default.
 out  =  Names the output data set.
  ts  =  The variable in the input data set which identifies the time points
  cs  =  The variable in the input data set which identifies the cross sections
 vars =  List of model variables with the response variable first followed by
         explanatory variables separated by spaces
 nreg =  The number of explanatory variables
 keep =  Binary variables (1=keep the observation for analysis by TSCSREG)
         Note: any obs in the IN= data set with a zero value for keep will
               necessarily have a zero for keep in the OUT= data set.
*;

/* Sort data appropriately for TSCSREG. */

proc sort data=&in out=&out;
 by &cs;
 run;

data _null_;
 x=&nreg+1;
 call symput('nregp1',x);
 run;
```

```
/* Set keep variable to zero for the observations
   with missing values for one or more of the model variables.
*/
data &out ;
 set &out end=_eof;
 if _n_ <1.5 then do;
   _message="Observations excluded due to missing model variable values:";
   put _message;
   _count=0;
 end;
 array _x{&nregp1} &vars ;
 _miss=(nmiss(of &vars)>0.5);
 _miss=_miss*&keep;
 if _miss=1 then do;
   put "   Obs=" _n_ "   &cs=" &cs "   &ts=" &ts;
   &keep=0;
   _count+1;
 end;
 if _eof then do;
   put "Number excluded due to missing values: " _count;
   put " ";
 end;
 drop  _count _miss _message;
 run;


/* Set the keep variable to zero for those cross sections
   with too few time points (i.e. 1 or 0).
*/

proc means data=&out noprint n;
 where &keep=1;
 by &cs;
 var &keep;
 output out=_temp(keep=&cs _n) n=_n;
 run;

data &out;
 merge &out _temp end=_eof;
 by &cs;
 if _n_ <2 then do;
   _message=
   "Observations excluded due to too few time points for the cross section:";
    put _message;
    _count=0;
 end;
 _temp=(_n<1.5)*(&keep=1);
 if _temp then do;
   &keep= 0;
   put "   Obs=" _n_ "   &cs=" &cs  "   &ts=" &ts;
   _count+1;
 end;
 if _eof then do;
   put "Number excluded due to too few time series values: " _count;
   put " ";
 end;
 drop _n _temp _message  _count;
 run;


/* Set the keep variable to zero for those time points with too
```

```
  few cross sections (i.e. 1 or 0).
*/

proc sort data=&out;
 by &ts &cs;
 run;

proc means data=&out noprint n;
 where &keep=1;
 by &ts;
 var &keep;
 output out=_temp(keep=&ts _n) n=_n;
 run;

data &out;
 merge &out _temp end=_eof;
 by &ts;
 if _n_ <2 then do;
  _message=
 "Observations excluded due to too few cross section values for a time point:";
  put _message;
  _count=0;
 end;
 _temp=(_n<1.5)*(&keep=1);
 if _temp then do;
  &keep= 0;
  put "   Obs=" _n_ "   &cs=" &cs "   &ts=" &ts;
  _count+1;
 end;
 if _eof then do;
  put "Number excluded due to too few cross section values: " _count;
  put " ";
 end;
 drop _n _temp _message _count;
 run;

proc sort;
 by &cs &ts;
 run;

options &notesopt;
%mend;

data one;
set mydata;
_keep=1.0;

proc panel data=one;
where _keep=1;
id country year; model corruption = gdppercapita democracy new old/ranone;
        id country year; model corruption = gdppercapita democracy new old protestant catholic muslim/ranone;
        id country year; model corruption = gdppercapita democracy new old governmentspending governmentintervention
urban subpop/ranone;
        id country year; model corruption = gdppercapita democracy new old governmentspending governmentintervention
urban subpop protestant catholic muslim/ranone;
run;

 %tscsdata(in=one,
        out=one2,
        ts=year,
        cs=country,
        vars=corruption gdppercapita democracy english new old,
```

```
                        vars=corruption gdppercapita democracy english new old protestant catholic muslim,
                        vars=corruption gdppercapita democracy english new old governmentspending
governmentintervention urban subpop,
                        vars=corruption gdppercapita democracy english new old governmentspending
governmentintervention urban subpop protestant catholic muslim,
        nreg=4,
                        7,
                        8,
                        11,
        keep=_keep)

%tscsdata(in=one2,
        out=one3,
        ts=year,
        cs=country,
        vars=corruption gdppercapita democracy english new old,
                        vars=corruption gdppercapita democracy english new old protestant catholic muslim,
                        vars=corruption gdppercapita democracy english new old governmentspending
governmentintervention urban subpop,
                        vars=corruption gdppercapita democracy english new old governmentspending
governmentintervention urban subpop protestant catholic muslim,
        nreg=4,
                        7,
                        8,
                        11,
        keep=_keep)


proc panel data=one3;
where _keep=1;
id country year; model corruption = gdppercapita democracy new old/ranone;
        id country year; model corruption = gdppercapita democracy new old protestant catholic muslim/ranone;
        id country year; model corruption = gdppercapita democracy new old governmentspending governmentintervention
urban subpop/ranone;
        id country year; model corruption = gdppercapita democracy new old governmentspending governmentintervention
urban subpop protestant catholic muslim/ranone;
run;
```