Economics 167 Final Project

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1 Benchmark Growth Model

1.1 Base Model Variable Analysis

The Benchmark Growth Model considers the per-capita GDP ($gdpsh60l$), life expectancy ($lifee060$), and primary school enrollment rate ($p60$) to explain the growth rate between 1960 and 1992 ($gr56092$).

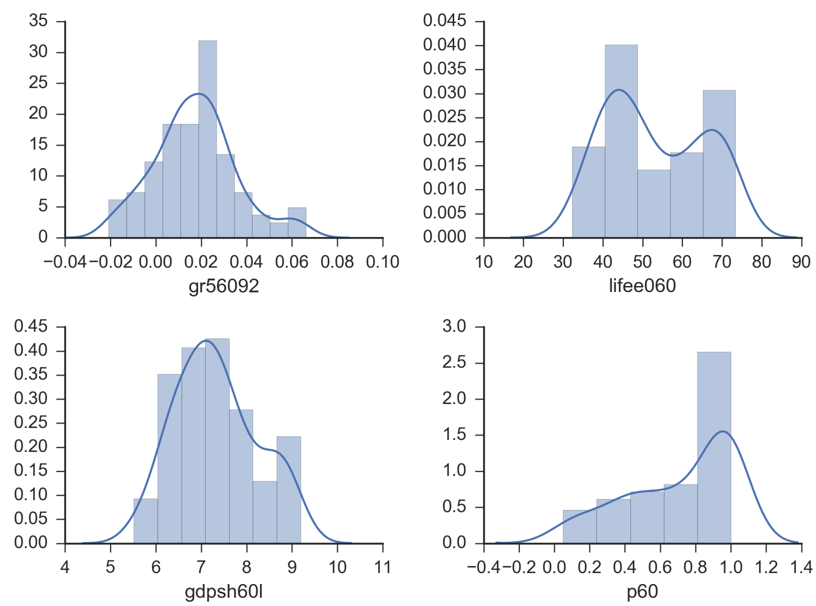
$$gr56092_i = \beta_0 + \beta_1 \ gdpsh60l_i + \beta_2 \ lifee060_i + \beta_3 \ p60_i + \varepsilon_i$$

Before proceeding, we would like to look at some characteristics of the variables we are working with. The mean, minima, maxima, standard deviations, skewness, and kurtosis of each variable are reported in the table below.

Variables	Obs.	Mean	Min	Max	Std	Skewness	Kurtosis
gr56092	103	0.017	-0.021	0.066	0.0181	0.330	3.270
gdpsh60l	103	7.331	5.517	9.187	0.894	0.289	2.297
lifee060	103	53.088	32.300	73.400	12.254	0.212	1.642
p60	103	0.711	0.050	1.000	0.301	-0.711	2.197

Table 1: Describing the Variables in Benchmark Model

It is also helpful to see a visual representation of the distributions of each variable. Histograms (with density curves) for each variable are included below.



Histograms of the Variables

Observations: As we can see from the distribution plots, only primary school enrollment rate, $p60$, is skewed to the right, while the other three regressors are roughly normally distributed. In terms of transformation of regressors, we believe it makes sense to take the log of life expectancy since an increase in average life expectancy from 40 to 50 is more valuable than that from 70 to 80 (because elderly contributes less to economic growth).

There are 103 observations for each variable and no odd values. However, in terms of outliers, we find that there are 4 extreme values for growth rate ($gr56092$), and the corresponding countries are Hong Kong, Korea, Singapore and Taiwan. It's not surprising to find that they are all from Asia, which is where we should expect the highest growth.

1.2 Base Model Regression Analysis

After running OLS regression on the Benchmark Model, we obtained the following result from STATA (*Note that *, **, *** refer to regressor being significant at 1%, 5% and 10% level, respectively*):

$hgr56092$	Coefficient	Std. Error	P-value
(co)	0.0408***	0.0094	0.000
$hgdpsh60l$	-0.0136***	0.0020	0.00
$hlifee060$	0.0011***	-0.0002	0.00
$hp60$	0.0207***	0.0070	0.004

Metrics	Active Solution on B.M.
R^2	0.8068
Adj.R^2	0.799

Table 2: Results after fixing heteroskedasticity (Active Solution)

From the regression results, we find that the three regressors do a fairly good job in explaining variance in growth rate. Logged GDP per capita ($gdpsh60l$), primary school enrollment ($p60$) and life expectancy ($lifee060$) are significant at a 1 % level, indicating that they all play a role in the growth of the economy. Below, we give a more detailed statistical and economic analysis on each of the regressor.

gdpsh60l: The reported coefficient for logged GDP per capita, $gdpsh60l$, is -0.0136, which means that, ceteris paribus, as GDP per capita goes up by 1%, growth rate decreases by 1.36 basis points. Notice that the coefficient for $gdpsh60l$ is negative, implying that the relatively poor countries did "catch up". This serves as evidence for the convergence theory because the lower a country's GDP per capita was to start with, the more growth that country experienced on average.

lifee060: The reported coefficient for life expectancy, $lifee060$, is 0.0011, which means that, ceteris paribus, as average life expectancy increased by a year, growth rate increased by 11 basis points. As expected, life expectancy has a positive slope, indicating that as the people lives longer on average, the labor force grows larger and, therefore, the economy experiences more growth.

p60: The reported coefficient for primary school enrollment rate, $p60$, is 0.0207, which means that, ceteris paribus, as primary school enrollment rate goes up by 1, growth rate increases by 207 basis points . Again, such a positive slope is expected since more education of the general public directly translates to more human capital, which in turn generates more economic growth.

1.3 Reliability of Benchmark Model

At this point we may wonder if the linear specification we have adopted is statistically reliable, or if we should take into account the possibility of a nonlinear relationship between the dependent variable and the regressors or heteroskedasticity.

To test for linearity, we run the RESET test in STATA and obtained a result of $F(3,\ 96) = 0.10$ and $Prob > F = 0.9612$. Since the F statistic is low and the p-value is reasonably high, we concluded that there is no non-linearity problem in the benchmark model.

In terms of heteroskedasticity, we performed the Breusch-Pagan test with the assumption that h_i is a linear function of the three explanatory variables we used in the regression. The result of a hettest yields $Prob > \chi_2^3 = 0.0028$ and we therefore concluded that we detected problem of heteroskedasticity.

To fix this problem we adopted the active solution. To estimate the heteroskedasticity we created the log of the square residuals from the regression and regressed it against all of the variables in the regression and their squares. We then created from that the heteroskedasticity function by taking the exponent and square rooting. Lastly, we divided every variable in the model including the constant and dependent variable by the heteroskedasticity function. The results in the table above reflect these changes (to see the original results please refer to Table 7 in the Appendix).

As expected, we observe that t statistics associated with each regressors have increased (i.e., increased efficiency), while another remarkable change is that Primary School Enrollment, $p60$, now has a slightly larger coefficient and is significant at 1%.

1.4 Economic Theory of Benchmark Model

One of the major theories in economics is that poor countries will eventually catch up in economic production with rich countries. The idea is that output is logarithmic so the further ahead a country, the harder it is for the country to increases its economic output. On the other hand developing countries can increase their output relatively more easily. In our model we do find some evidence of this due to the negative relationship between GDP per capita in 1960 and the growth rate of GDP per capita from 1960-1992. We found a positive relationship with life expectancy and primary school enrollment to the growth rate. As the labor force (life expectancy) and human capital (primary school enrollment) increase the growth rate of a country increases. We see this even in a basic Cobb-Douglas model: $Y(t) = AL^{\alpha}\ K^{\beta}$, where A is technology, L is labor and K is capital (which includes human capital). Output is a function of labor and capital, which is directly what we specified in our model.

2 The George-Xu-Louie Institutional Growth Model

2.1 Principles of the George-Xu-Louie Model

The main hypothesis for our model is that strong institutions improve the growth of countries. We define institutions as the norms, rules, and structures which constitute a society. Some of these variables are intangible, but we attempt to cover all facets of strong or weak institutions through the data and variables we have available to us. We drew inspiration from the work of Daron Acemoglu, who used an institutional perspective to explain treatment and outcomes of various colonies. We expect strong institutions to allow for greater growth because institutions define the rules of the game which allow for economic growth. "Good" and strong institutions, by our definition, outline rules that allow all people to compete and incentivize hard work.

We chose several regressors that seemed to cover a wide spectrum of what we considered important to institutions, and therefore economic growth. Equipment Investment ($eqinv$) is a proxy to strong institutions, as we expect higher investment to be associated with less war, instability, and problematic institutions. We expect the degree of capitalism ($ecorg$) to allow for greater economic growth, as the higher the degree of capitalism, the stronger the incentive to succeed. Rule of law, ($rulelaw$) creates property rights and a stability that is needed for investment. We expect that as ule of law increases, so too does growth. Lastly, for our base model we created a variable that combined all the religion variables included in the set, $religion$, which can help outline different patterns of interaction between religious and secular countries.

We also included regressors that made good economic sense to explain the growth rate of countries. GDP per capita ($gdpsh60l$) and life expectancy ($lifee060l$) are added to keep the model as unbiased as possible. We took the log of life expectancy because it helped account for infant mortality and it seemed more valuable to view our results in percentages as opposed to averages. Below is the base model (Also see Regression C) we use.

$$gr56092_i = \beta_0 + \beta_1\ gdpsh60l_i + \beta_2\ lifee060l_i + \beta_3\ eqinv_i + \beta_4\ ecorg_i + \beta_5\ rulelaw_i + \beta_6\ religion_i + \varepsilon_i$$

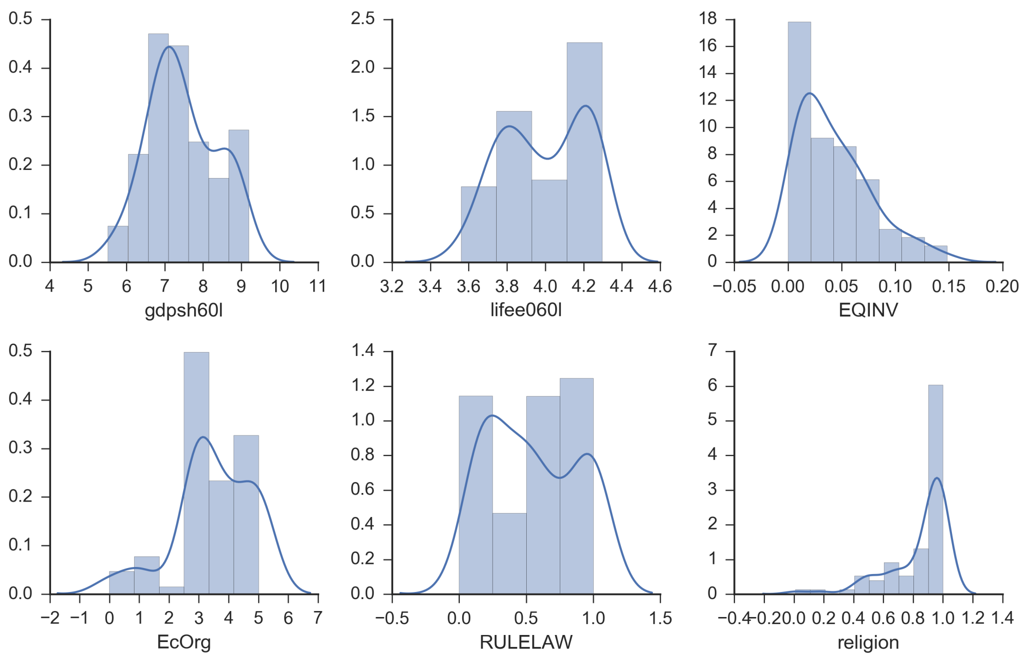
2.2 Describing the Regressors in Institutional Growth Model

Note on how our variables are measured: Equipment investment is the aggregate of electrical and nonelectrical machinery as defined and found in the U.N. ICP. Non-equipment investment is other forms of investment, described further in Delong and Summer (1991). This measure does not include the ICP's producers' transportation equipment component. Capitalism is measured on an index from zero to five, where a higher number means a more capitalist society. Rule of law is on a scale from zero to one, where a higher number indicates a country with greater rule of law. Religion is measured as the proportion of a country that is Catholic, Protestant, Jewish, Confucius, Hindu, Muslim, or Buddhist. Political rights is measured on a scale from one to seven, where a lower numbers is related to stronger political rights. Political instability is on a scale from zero to one, where a higher number is more politically unstable.

Again, we report the histogram and some of the important metrics to describe the regressors we use:

Variable	Obs	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
ecorg	103	3.349	1.486	0	5	-0.649	2.558
eqinv	82	0.040	0.033	0.0002	0.1482	1.085	3.60
noneqinv	82	0.141	0.057	0.030	0.280	0.0985	2.427
pinstab2	95	0.060	0.110	0	0.501	2.120	7.002
prightsb	103	3.957	2.003	1	7	-0.1768	1.641
democ65	93	0.615	0.286	0.072	1	-0.169	1.817
rulelaw	92	0.518	0.325	0	1	0.292	1.686
lifee060l	103	3.945	0.233	3.475	4.295	-0.0166	1.719
rel	103	0.828	0.215	0.01	1	-1.536	4.833

Table 3: Describing the Variables in George-Xu-Louie Model



Histograms of the Variables

We can see that *equiv* and *nonequiv* have the highest number of missing values, though we still have a decent number of observations to work with. In terms of extreme values, *equiv* has one outlier that is from Singapore and *religion* has two outliers from Cyprus and Greece which are mainly made up of Orthodox Christian and Eastern Orthodoxy (both not included in the dataset).

2.3 Institutional Growth Model Regression Analysis

To find the set of regressors that best explains the growth rate, we have run 5 regressions and the results can be found in **Appendix, Table 5** (Note that the results are all corrected for problems with heteroskedasticity, using the active solution). In the following, we attempt to explain the effects of each regressor and compare different variations of our model.

Regression A $\{gdpsh60l,\ lifee060,\ equiv\}$: First of all, we should clarify that we have included three regressors essential in explaining the growth rate in all the variations of our model: GDP per Capita ($gdpsh60l$), life expectancy ($lifee060$) and Equipment investment ($equiv$). The reasoning for such inclusion is that they turn out to be significant in every model specification used and we want to avoid the problem of unbiasedness.

We find that GDP per Capita has a similar effect as the benchmark model. Countries with a higher GDP at the beginning of the period had lower economic growth than countries with a lower GDP. Again, this result speaks to the validity of convergence theory. The negative impact is at least 1.43 basis points, which is greater than the benchmark model.

In all of the models, an increase in life expectancy of one percent leads to an increase in growth rate of at least 2.04 basis points in all of our models. This is in accordance with the benchmark model and theory. As life expectancy increase, the labor force increases (as people can work more) and output increases.

Equipment investment is also included in all of the models as a measure of capital. Countries with higher equipment investment saw higher growth rates of GDP. The effect is significant at a one percent level in every model and is from 1400 to 2000 basis points, if equipment investment were able to go up by 1 unit.

Regression B $\{gdpsh60l$, $lifee060$, $equiv$, $ecorg$, $rulelaw$, $religion\}$: Capitalism ($ecorg$) and rule of law ($rulelaw$) are two of the other regressors included in nearly every model, acting in accordance with our hypothesis that better institutions lead to better economic outcomes. Increases in capitalism and rule of law indices leads to an increase in growth rate. The effect of capitalism is at least 17 basis points and rule of law is at least 161 basis points in each included model. A capitalist country encourages hard work and a country with strong rule of law has well-defined and well-enforced rules.

Religion ($religion$) was added in our regressions because it is a major institution, even though it is not usually enforced by the government. It is statistically significant with a coefficient of at least 77 basis point the regressions it's included in. This result is possibly because religion often ensures values of community and striving for success. Our analysis is slightly problematic though because the religion regressor is admittedly ill-defined. It only includes certain major religions, but excludes many others, most notably Eastern Orthodoxy. Furthermore it does not measure the strength of belief, for example someone who only identifies as religious, but doesn't practice and someone who is vehemently religious are counted the same, but may imply different outcomes.

Regression C $\{gdpsh60l$, $lifee060$, $equiv$, $ecorg$, $rulelaw$, $religion$, $democ65\}$: The effect of Democracy is the opposite of what our hypothesis predicts. An increase on the democracy scale causes a decrease in growth rate. This decrease is at least 69 basis points. This might mean the importance that we put on Democracy is not necessarily founded in economic reason. Indeed we find that the more democratic a country is the lower its growth rate. It should be noted, though, that democracy's significance level fluctuates so the results are not completely solid.

Regression D $\{gdpsh60l$, $lifee060$, $equiv$, $ecorg$, $rulelaw$, $religion$, $democ65$, $prightsb$, $prightsb2\}$: Political rights ($prightsb$) and political instability ($prightsb2$) seemed like important institutions. A stable country with people who are guaranteed certain rights, such as the right to vote, should have out performed a volatile country with a tyrannical government. However, we did not find any evidence of this. Neither regressor was significant in our analysis.

Regression E $\{gdpsh60l$, $lifee060$, $equiv$, $ecorg$, $rulelaw$, $religion$, $democ65$, $nonequiv\}$: Finally, we tried taking out political rights and political instability and added Non Equipment investment ($nonequiv$) in our last regression, forming a slightly different specification. We believe that any increase in capital, human or otherwise, is normally considered to have a positive impact on GDP. Our result is in accordance with this theory. Non-equipment investment is significant at a 5% level and is related with an increase in the growth rate of 691 basis points.

We believe our model specifications are fairly well-encompassing of the factors needed for economic growth. One potential missing variable is a measure of the culture of a society. Certain cultures might be more suited towards growth in GDP than others.

2.4 Model Reliability and Summary

Again, to make sure our results are accurate and efficient, we performed RESET test and the Breusch-Pagan test. Our findings suggest that all of our model specifications do not suffer from nonlinearity but they all have problems with heteroskedasticity. Therefore, we adopted the active solution to fix this problem and the results reported in Appdendix, Table 5, are all corrected for heteroskedasticity.

The goal of our model was to interpret the effect of institutions on economic outcomes. We were specifically expecting to find a positive correlation, better institutions is tied with a higher growth rate. "Good" institutions is ambiguous and not universally defined, but here is related to a fair, involved, and ambitious society. "Good" institutions promote better (higher) economic outcomes for all. Institutions that do so, admittedly founded on a U.S.-based attitude, are capitalism, political freedom and protection, democracy, rule of law, stability and (potentially) religion. Our findings somewhat support our prediction. Democracy appears to work against our hypothesis, greater democracy leading to lower economic outcomes. Furthermore political stability and political rights are not statistically significant even though we predicted them to have an affect.

3 Own Econometric Investigation: Charitable Giving Model

3.1 Introduction and Principles

In our own econometric investigation, we want to see what factors lead to giving or not giving to charity. We suspect that charitable giving depends on who you are and your background as well as your means. In order to capture someone's ability to give we include wealth ($w\_yes\_home2001$) and income ($faminc01$) into our regressions. To figure out someone's propensity to give we use hours volunteered ($hourslb$). Furthermore we wanted to add a measure of knowledge and experience so we added age (age) and education ($ceduc$). Lastly, to understand someone's background we have added minority status ($minority$) and religion ($relig$). Below is our base model specification.

$$totgiving_i = \beta_0 + \beta_1\ faminc01_i + \beta_2\ faminc01\_2_i + \beta_3\ hourslb_i + \beta_4\ hourslb\_2_i \\ +\beta_5\ ceduc_i + \beta_6\ age_i + \beta_7\ relig_i + \beta_8\ minority_i + \varepsilon_i$$

3.2 Describing the Regressors in Charitable Giving Model

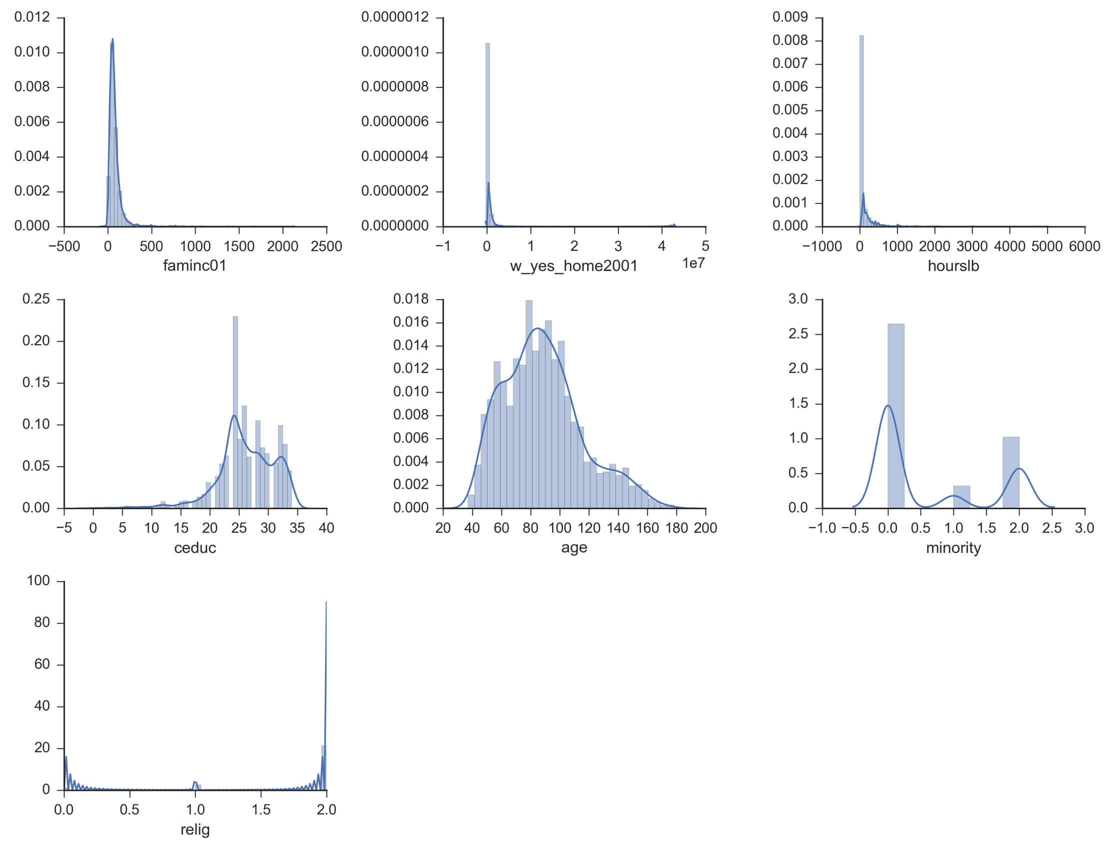
The Data comes from the Center on Philanthropy Panel Study, which is a subsect of the Panel Study of Income Dynamics (PSID). The panel contains data from 7,406 American families on their charitable giving and volunteering habits as well as some extra information on religion, health, income, and descriptive information. The data is originally separated for both "Heads" and "Wives" in married-couple and cohabiting families. Our analysis focuses specifically on families that have both a "head" and a "wife", in other words households with two adults, as the head of the family could be either male or female and "wife" simply refers to a cohabiting adult. In our paper we will continue to use PSID's notation for "head" and "wife."

Family income is all money that went into and out of the house. So this number can be negative, it could range from \$-999,999 to \$999,999. Wealth is defined as the overall amount of money the family has, including assets and equity in home. This number could also be negative and could range from \$-99,999,999 to \$99,999,999. Hours Volunteered is the total number of hours spent on volunteering work over the last year by both the husband and wife. Minority is defined discretely as a 0, 1 or 2. If one member of the head-wife pair is African American or Hispanic, the variable is a 1, if both are the variable is a 2 and if neither is, the variable is a 0. Religion is defined similarly. It is again discrete as a 0, 1, or 2. If one member of the pair is religious (defined as not atheist, agnostic, or none), the variable is set at 1, if both are religious the variable is set at 2 and if neither is religious it is set at 0. An interesting note is that religion is often 0 or 2, implying that religious people tend to trend together. Age is the sum of the head and wife's ages. Education is discretely defined as the number of years of school completed. So for each person in the pair it goes from 0 to 17, where 1 to 16 is the normal school progression, including college, and 17 is and post-college education. In our analysis we use the total education of the pair so it goes from 0 to 34.

The table and graph below help describe the variables we are using:

Variables	Obs	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
totgiving	7,272	1161.95	6468.199	0	491500	60.92183	4550.87
faminc01	7,272	59384.25	76373.69	-59948	2112300	8.630412	145.1725
w_yes_h~2001	7,272	181107.1	827659.4	-335200	4.30E+07	30.52317	1339.21
hourslb	7,272	50.39783	185.7969	0	5000	10.97305	204.7817
ceduc	6,682	20.15579	7.916444	0	34	0.0551643	1.744633
age	4,177	87.11563	27.04058	37	178	0.6304413	3.083405
minority	7,272	0.5684818	0.7318045	0	2	0.8728865	2.36852
relig	7,272	1.356573	0.6584518	0	2	-0.5342524	2.294921

Table 4: Describing the Variables in Charitable Giving Model



Histogram of the Variables (Note: $faminc01$ is in thousands and the charts report densities)

3.3 Charitable Giving Model Regression Analysis

In order to best explain charitable giving we have run several regressions. In **Table 6** you can find the results of the regression (Note that these results are also corrected for problems with heteroskedasticity). In the following, we will explain the effects of each regressor as it is added to the model. As each regression builds on itself.

Regression A $\{faminc01,\ faminc01\_2,\ w\_yes\_home2001\}$: For income we wanted to explore a quadratic relationship. We expected and did indeed find a positive correlation between income and the amount of money given to charity. However, we did also find decreasing returns. As you make more money the extra amount you give to charity decreases. This initial positive impact and then tapering off effect is relevant in all four of the regressions.

Along similar lines as income, we regressed a family's wealth. The distinction between the two is that family income is the amount of money going in our out of household in one year, while wealth is the accumulated assets of a household. With this in my mind, we find that for every extra dollar of wealth, on average, \$.06 goes to charity. As expected, wealthier families give more money in pure dollars to others. This result is consistent in all four models.

Regression B $\{faminc01,\ faminc01\_2,\ w\_yes\_home2001,\ hourslb,\ hourslb\_2\}$: We also wanted to explore a quadratic relationship with hours volunteered. We found, as we expected, a positive relation between volunteer hours and money given to charity, as well as decreasing marginal returns. The more hours you volunteer the less additional money you give to charity. This results makes sense because those who volunteer their time also appear to be willing to volunteer their money to charity.

Regression C $\{faminc01,\ faminc01\_2,\ w\_yes\_home2001,\ hourslb,\ hourslb\_2,\ ceduc,\ age\}$: We also find that each additional year of school completed results in an increase in charitable giving of around \$40. Education reveals the inequality and inherent unfairness in the world, so those who are more educated give more away. They are aware of the struggle of others around them and help them more than those who are ignorant. This result is true in both of the relevant regressions.

Furthermore, we used age as a regressor and found that, on average, someone who is one year older than another ceteris paribus will give about \$9 more to charity. There are a couple potential explanations for this behaviour. The first goes in line with education, people who are older are more experienced and know more of the suffering around them. The second idea is that the closer you are to death, the less weight you put on your assets and thus decide to give more away because you won't be needing them for much longer. This result holds in both of the relevant regressions.

Regression D $\{faminc01,\ faminc01\_2,\ w\_yes\_home2001,\ hourslb,\ hourslb\_2,\ ceduc,\ age,\ relig,\ minority\}$: Finally, for each additional member of the couple that is a minority the amount of money given to charity increases on average by \$63. We believe this could be because income disparity unfairly affects minorities. So, minorities are more aware of the difficulties others face and give more to charity. Likewise, for each additional member that is religious, the amount given to charity increase by \$137. Most major religions have charity as one of their main teachings. So those who are religious thus give more to charity because it is an important principle in their faith.

3.4 Model Reliability and Summary

Charitable giving is particularly difficult to estimate because it is likely decided by many non-reportable factors, such as morals, compassion and other incalculable variables. We have attempted to proxy them here imperfectly (with hours volunteered and potentially religion). That being said, we still have come up with economic factors that can help explain the amount of charitable giving.

Quite clearly, the amount of money given to charity is dependant on your means to give, so income and wealth are important factors. Next we believed the amount of time you spent volunteering would heavily affect the amount of money you give away, so we decided to add that to our regressions. Those who volunteer more are potentially more charitable and thus give away more money. Education and age were added to our regressions because we believed an understanding and familiarity with one's surroundings could induce one to give more away. Finally we added a couple of background-related regressors in religion and minority status. Religions often promote charity, so it seemed plausible that religious people could be more charitable.

As can be seen in the regression table in the appendix, we never achieve a particularly high level of fit, with none of our regressions explaining more than 25% of the variance. This could be because our model is under-specified, which would mean our model is biased. Relevant variables that we omitted could be measurable ones, like whether the household has charitably given before, as well as immeasurable variables, like generosity. If we could measure and have access to such variables, we may be able to attain better fit with a new model that includes such variables.

In our charitable giving regressions we detected heteroskedasticity in every model using a Breusch-Pagan test on the regressors in each model. Again we adopted the active solution and divided each model by its own estimated heteroskedasticity. This process makes its so that we have more homoskedasticity .

We do consistently find RESET problems with our model. We were able to fix this by using a partial log log model. By taking the log of total giving, family income and hours volunteered, we were able to pass RESET. However, by the nature of taking the log we force the total giving, family income and hours volunteered variables to be strictly positive. Due to this requirement, we did not continue to explore a log log model. We did not wish to exclude those, who had negative or zero family income, those who do not volunteer, and those who do not give money to charity. The results of the log log model with an active solution to it's heteroskedasticity is reported for the reader's convenience. The values of the coefficients are consistent with our other results.

4 Appendix & Extra Regressions

Table 5: Section 2 Regression Results

Growth of GDP per Capita (Active Solution)					
Regressor	**A**	**B**	**C**	**D**	**E**
lifee060l	0.081***	0.0586***	0.0204***	0.0678***	0.0613***
	(0.0107)	(0.0106)	(0.0108)	(0.0088)	(0.0083)
eqinv	0.2018***	0.1455***	0.2423***	0.1686***	0.1709***
	(0.0347)	(0.0263)	(0.0317)	(0.0293)	(0.0311)
gdpsh60l	-0.0174***	-0.0204***	-0.0143***	-0.0192***	-0.0168***
	(0.0022)	(0.0017)	(0.0021)	(0.0020)	(0.0017)
ecorg		0.0022***	0.0028***	0.0017**	0.0022***
		(0.0009)	(0.0008)	(0.0008)	(0.0006)
rulelaw		0.022***	0.0209***	0.018***	0.0161***
		(0.0046)	(0.0050)	(0.0039)	(0.0035)
rel		0.0077	0.019***	0.0154***	0.0228***
		(0.0063)	(0.0061)	(0.0050)	(0.0045)
democ65			-0.0069*	-0.0089**	-0.0159***
			(0.0055)	(0.0044)	(0.0042)
prightsb				-0.0006	
				(0.0004)	
pinstab2				0.0096	
				(0.0107)	
noneqinv					0.0691***
					(0.0198)
Intercept	-0.183***	-0.095***	0.0003***	-0.1374***	-0.1431
	(0.0289)	(0.0337)	(0.0316)	(0.0259)	(0.0231)
Measures of Fit					
R^2	0.8964	0.9735	0.9473	0.9555	0.9525
Adjusted R^2	0.8911	0.9709	0.9408	0.948	0.9458

Note: *** implies the coefficient was significant at a 1% level. ** implies the coefficient was significant at a 5% level. * implies the coefficient was significant at a 10% level. The numbers in parenthesis are standard errors.

Table 6: Section 3 Regression Results

Charitable Giving (Active Solution)					
Regressor	**A**	**B**	**C**	**D**	**Log - Log**
faminc01	0.01064***	0.00857***	0.00889***	1.04E-02***	0.53056***
	(0.00062)	(0.00055)	(0.00099)	(0.00107)	(0.05448)
faminc01_2	-8.10E-09***	-6.48E-09***	-6.12E-09***	-6.91E-09***	
	(4.24E-10)	(3.94E-10)	(7.82E-10)	(9.73E-10)	
w_yes_home2001	0.00180***	0.00141***	0.00063***	0.00007***	4.54E-08***
	(0.00009)	(0.00009)	(0.00012)	(0.00013)	(4.28E-09)
hourslb		5.13093***	4.60136***	4.6511***	0.27787***
		(0.50158)	(0.47594)	(0.48964)	(0.02764)
hourslb_2		-0.00093***	-0.00143***	-0.0014***	
		(0.00017)	(0.00028)	(0.00029)	
educ			43.09906***	37.5589***	0.04675***
			(5.49850)	(5.71248)	(0.00934)
age			9.61163***	8.6537***	0.00901***
			(0.94832)	(1.03836)	(0.00131)
minority				63.4553**	0.12448**
				(30.90282)	(0.05083)
relig				137.7821***	0.29029***
				(44.55833)	(0.06194)
co	136.5419***	-1605.923***	-1605.923	-1761.9400***	-2.75446***
	(27.97848)	(25.51327)	(150.48280)	(174.69500)	(0.59291)
Measures of Fit					
R^2	0.1258	0.1165	0.2413	0.2512	0.9782
Adjusted R^2	0.1254	0.1158	0.2397	0.249	0.978

Note: *** implies the coefficient was significant at a 1% level. ** implies the coefficient was significant at a 5% level. * implies the coefficient was significant at a 10% level. In the Log-Log model, total giving – the variable of interest, family income and hours volunteered were logged. The numbers in parenthesis are standard errors.

$gr56092$	Coefficient	Std. Error	P-value
(co)	0.0430***	0.0135	0.002
$gdpsh60l$	-0.0147***	0.0028	0.00
$lifee060$	0.0013***	0.0003	0.00
$p60$	0.0165*	0.0085	0.054

Metrics	Results
R^2	0.4393
Adj.R^2	0.4223

Table 7: Results before fixing heteroskedasticity