The Geopolitical Execution and Socioeconomic Consequences of Neoliberal Reforms Under Authoritarian Rule in Latin America During the Late-20th Century: A Panel Analysis

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**Introduction**

The Washington Consensus is an umbrella term used to describe neoliberal reforms that were implemented in various developing countries throughout the early 1980s and late 1990s, particularly those in Latin America (and Asia). They were collectively conceived and supported by the International Monetary Fund (IMF), World Bank (WB), and the U.S. Department of Treasury, and were designed to improve the economies of these developing regions of the world. These 10 economic principles that were effectuated in their respective countries in the late-20th century are as follows:

1. Decrease government budget deficits.

2. Direct public spending to institutions and programs essential for long-term growth (e.g. education, healthcare).

3. Implement tax reforms.

4. Set fixed real interest rates (based on markets).

5. Set competitive exchange rates.

6. Liberalize trade (or free trade).

7. Encourage foreign direct investments.

8. Privatize industry (e.g. move public goods. such as oil, gas, water, to private sector).

9. Remove barriers to entry (eliminating monopolistic competition in certain markets).

10. Protect property rights.

These economic reforms, however, were mostly implemented by military dictatorships or autocratic leaders. Examples of these include but are not limited to: Chile under Augusto Pinochet from 1973-1990, Peru under Alberto Fujimori from 1990-2000, and Argentina under the military junta from 1976-1983 (Undurraga 11, 2015). Due to the nature and extent of these authoritarian regimes, those living under such regimes experienced human rights abuses, rigged elections, deteriorated working conditions, and much more. Given these facts, one might be inclined to believe that a leader who rules a country with an iron fist would be responsible for any of its economic downturns that may occur. However, surprisingly enough, through the neoliberal policies prescribed by the Washington Consensus, these autocratic regimes are credited with drastically improving the economies of their associated developing countries, insofar as having some living in those regions today to wish to have their authoritarian leaders back. Even today, scholars of democracy studies usually uniformly agree that these authoritarian regimes had, indeed, boosted their countries’ economies, at the expense of lowering their quality of democracy (Weyland 136, 2004).

In my research paper, I would like to investigate the extent to which, under authoritarian rule, neoliberal reforms, as per the Washington Consensus, improved the economies of Latin American countries from approximately the late 1970s to the early 1990s. Such curiosity can be formalized into the following questions: To what extent did, under authoritarian rule, changes in inflation, foreign direct investments (FDIs), exchange rates, worker-oriented political parties, health and education social spending, and government social expenditures over time improve the economies of Latin American countries in the late-20th century?

**Literature Review & Theory**

Existing Research

Latin America is a continent that has a continual history of political instability, economic decline, and social stratification. Politically, democracies in the region have always been threatened and overthrown by internal and/or foreign-backed military coups. Economically, inequality – usually defined as the unequal distribution of resources across society - in the region has always been cited as the worst in the world, where more than half the population live on $2 a day (Centeno and Hoffman 365, 2003). Socially, Latinx are grouped by their ethnicity and race, where being an indigenous person makes you susceptible to being poor and marginalized (*World Bank*, 2002); the same applies to blacks and other minorities in the region. Latin America, then was in desperate need of fixing its inequalities.

Later on, starting in the 1980s and 1990s, Latin America countries then implemented several policy instruments, as recommended by the Washington Consensus, in order to combat their respective economic inefficiencies and inequalities. This was done to not only have these “lagging countries” keep catch up with modern policy reforms (Williamson 5, 2014), but also have them rely more on markets (Walton 165, 2004). The overall positive effects of these economic initiatives in the continent were such that hyperinflation and economic growth had been lowered and raised, respectively.

However, these economic policies were usually implemented by autocratic leaders in the continent during the late-20th century leaders (such as the ones mentioned before) and are usually credited with improving their countries’ economies up to the present. However, some are skeptical of this idea, as some have discovered that the contributions of these authoritarian rulers had little to no impact on the improvement of their countries’ economies (Easterly and Pennings, 2017).

Given that scholars of this subject have discovered and presented results that are contrary to each other, I have taken upon myself to discover the truth regarding the relationship between authoritarian rule and GDP growth in LA from circa late-20th century. This is found in my hypotheses and methodology sections.

Hypotheses

Now that I have searched for, presented, and explained the existing academic literature on the history and politics of Latin America as a whole – whose findings mostly cover the late-20th century, I will now state and formalize my alternative and null hypotheses in relation to my research question. My hypotheses, based on certain variables from the Segura-KaufmanDataSet dataset (hereafter referred to as the SK dataset) and current academic literature on the topic of economic growth in LA under authoritarian rule, are as follows:

H0: In a comparison of Latin American countries in the late-20th century, those that were authoritarian were not more likely to have a higher GDP growth percentage than those that were not.

HA: In a comparison of Latin American countries in the late-20th century, those that were authoritarian were more likely to have a higher GDP growth percentage than those that were not.

Extracting the information from my research question: The independent variable of interest (IVI) is whether a Latin American country was authoritarian. The control variables (CVs) – used to account for omitted variable bias (OVB) which can potentially bias the IVI – are Latin American countries themselves, the years 1973-1997, lagged GDP growth, inflation, capital openness, real exchange rates, whether a Latin American country had a popularly-based president, per capita health and education, and per capita government social expenditures. The dependent variable (DV), then, is GDP growth.

**Data & Methodology**

The dataset that I will be using to test and explain my hypotheses is the SK dataset. Its file name is “Segura-KaufmanDataSet.csv”, implying that it is an Excel CSV file. It was used in Professors Kaufman’s and Segura-Ubiergo’s (2001) research paper entitled “Globalization, Domestic Politics, and Social Spending in Latin America: A Time-Series Cross-Section Analysis, 1973–97”. Both the dataset and article can be publicly found and freely accessed on Professor Kaufman’s scholastic website (*Rutgers University*, 2019).

The dataset spans cross-sectional time-series data – otherwise known as panel data – from 1973-1997 for 14 different Latin American (LA) countries. These LA countries are as follows: Argentina, Bolivia, Brazil, Chile, Costa Rica, Dominican Republic, El Salvador, Mexico, Uruguay, Ecuador, Guatemala, Paraguay, Peru, and Venezuela. Each country has its own code number and time period – spanning 14 years (from 1973-1997) for each. The unit of analysis, then, is countries.

The dataset also contains variables that measure macroeconomic variables for each country in each year, such as inflation, real exchange rates, and GDP growth (some of which are variables used to control for my IVI that is being tested in my hypotheses and used in my regression models). The population of interest is, of course, LA countries, but the sample size that comes from the data only contains the aforesaid 14 ones; the data is missing a few more LA countries, such as Cuba and Panama. Furthermore, a brief screening of the data seems to suggest that it is an unbalanced panel, as there are some missing observations for some countries in certain years. This attrition can probably be attributed to the fact that the country in question is either undergoing a regime transition or is reluctant to report on how it is performing as a whole to international economic institutions and related think tanks. But, such exclusion, I believe, would not bias statistical results derived from the data, as the econometric techniques that I intend to use to analyze the data would account for it.

Since my research focuses on the performance of select LA countries’ economies from 1973-1997 (as based on the available information given in the RK dataset), I have chosen a number of variables that will serve as my CVs. These will be used in obtaining more accurate statistical estimates of my IVI, as we will later see. Table 1 below not only shows which variables I have chosen as my IVI, CVs, and DV, but also provides some summary statistics for each one.

**Table 1: Summary Details on Latin American Countries’ Macroeconomic Variables 1973-1997**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Number of Observations | Mean | Standard Deviation | Minimum | Maximum | Measures Which Neoliberal Reform? |
| **Independent Variables** |  |  |  |  |  |  |
| Authoritarian  (IVI) | 347 | .432 | .496 | 0 | 1 | N/A |
| Country  (CV) | 350 | 8.286 | 4.999 | 1 | 17 | N/A |
| Year  (CV) | 350 | 1985 | 7.221 | 1973 | 1997 | N/A |
| Lagged GDP  (CV) | 275 | 1.338 | .917 | -3.912 | 3.179 | N/A |
| Inflation  (CV) | 342 | 164.389 | 832.888 | .156 | 11749.61 | 3 |
| Capital Openness  (CV) | 349 | 68.522 | 19.939 | 21.6 | 100 | 7 |
| Real Exchange Rate  (CV) | 343 | 345.737 | 730.313 | .804 | 3433.927 | 5 |
| Popularly-Based Government  (CV) | 343 | .344 | .476 | 0 | 1 | N/A |
| Per Capita Health & Education  (CV) | 313 | 106.47 | 71.706 | 18.177 | 314.478 | 2 |
| Per Capita Social Expenditure  (CV) | 313 | 255.904 | 256.415 | 23.783 | 1510.62 | 3 |
| **Dependent Variable** |  |  |  |  |  |  |
| GDP Growth  (DV) | 289 | 1.351 | .899 | -3.912 | 3.179 | N/A |

**Note:** IVI = independent variable of interest. CV = control variable. DV = dependent variable. Authoritarian, based on the “Democracy Scale” variable from the dataset, has been recoded as a dummy variable (1 = authoritarian, 0 = democracy). Lagged GDP and GDP growth are measured in logs. Popularly-Based Governments is also a dummy variable (1 = president has ties with labor unions, 0 = president does not). Variable names above do not exactly match their corresponding variable names in the Segura-KaufmanDataSet.csv dataset or in upcoming econometric analyses. Numbers in last column each indicate which neoliberal reform (refer to the introduction) is being measured by which CV.

It should be said, however, that I had to compromise with my data in a few ways. One is that it is not perfect. Not only does it not contain data on all LA countries, but also does not contain all the variables that can be used to measure the remaining neoliberal reforms implemented in said countries in the late-20th century. Another is that the data does not span even further than 1997. Lastly, it was data aggregated by select professors who have used it for their own research papers, not for ones such as mine. Nonetheless, given the purpose of this paper and the econometric techniques used to test my hypothesis, the data is more than sufficient.

While some may be aware of the mass amounts of dictatorships that LA has experienced throughout the past several decades, some do not - or, at least, are not aware of how prominent such socio-political phenomena occurs within the continent. Therefore, it would be in my and the reader’s interest to see a simple illustration of how frequently LA countries has fallen under authoritarian rule throughout the late-20th century. Figure 1 below depicts two histograms of the authoritarian variable, where the first and second depict the frequency of LA countries being democratic and authoritarian regimes from 1974-1997, respectively.

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A quick examination of each histogram above – from left to right – seems to suggest upward and downward trends of the type of regime LA countries held, respectively. The first histogram suggests that the number of LA countries under democratic rule was initially low, but then continually increased from 1975-1997. The second histogram, however, suggests that the number of LA countries under authoritarian rule was initially high, but then continually declined from 1975-1997. Both juxtaposing the two histograms together and existing research on/recent history of contemporary democratization in LA support these trends.

I created Table 1 and Figure 1 for a couple reasons. Table 1 is meant to not only showcase which variables, from the RK dataset, will I be analyzing and using in my econometric models, but also allow the reader to see that they are valid measures of the concepts stated in my research question and hypotheses. Note that the former is an investigation of the effects of some of the neoliberal reforms in authoritarian LA countries prescribed by the Washington Consensus, whereas the latter wishes to test the relationship between authoritarian rule and GDP growth over time in LA countries, while controlling for said reforms. Figure 1 is meant to not only showcase the changes in regime type for LA countries over time, but also serve as a statistical disclaimer – in that any results derived from the quantitative methods used here may still be subject to error due to some LA countries no longer being authoritarian in certain time periods.

Now that I have presented and explained my data and the variables from which I will be analyzing, I would like to also present and explain the route on which my hypothesis will be tested. My hypothesis will be tested using two types of regressions of the DV on the IVI and CVs from my research question.

The first is a pooled OLS regression. It will be done repeatedly – exactly 4 times, with each time having more CVs in the regression model. While this type of regression is simple to perform and understand, it will allow me to not only see any initial results that may be interpreted and accepted prematurely based on panel data, but also use it as a benchmark for later – even more complex – regressions for the same data. The p-value of the F-statistic for each time that this regression model is ran will determine if each regression’s IVs’ estimated coefficients, collectively speaking, are statistically significant or not.

The second is a fixed effects (FEs) regression. It will also be done repeatedly – exactly 5 times. Each time is a different variation of the model, such as one with no country or year FEs, one with only country FEs, one with only year FEs, and one with both country and year FEs. Moreover, every variation of this regression model will have a different number of regressors each time, to see which regression will provide the most accurate and unbiased estimated results. While this type of regression is more complex in terms of computation and intuition than the previous one, it will not only allow me to have a much clearer picture of my interpretation of my IVI, but also, I would believe, is a more appropriate model of estimating the relationship between the IVI and DV, while controlling for all other IVs. To elaborate, since I am dealing with panel data – where my data contains 14 different time periods across 14 different (LA) countries, and that I would like to estimate the relationship between authoritarian rule and GDP growth for each country in different years, it would make sense to use this kind of the regression for my research. Indeed, using FEs regression would also allow me to estimate the potential causal impact of neoliberal reforms under authoritarian rule on GDP growth in LA from 1973-1997. Such a discovery, then, would have a stronger – more accurate – explanation of said relationship.

With the parameters and justification of the procedures for the research design outlined above, I will now provide my regression models below. Note that each model is supposed to be in its general form; it does not reflect every kind of regression done in the upcoming tables.

Regression Models

1. Pooled OLS regression:

log(GDPi) = β0 + β1\*(Authoritariani) + + β2\*(Countryi) + β3\*(Yeari) + β4\*(log(laggedGDP)) + β5\*(Inflationi) + β6\*(CapitalOpeni) + β7\*(RealERi) + β8\*(PopGovernments) +β9\*(PerCapitaHEi) + β10\*(PerCapitaSEi) + εi

2. Fixed effects regression:

log(GDPit) = β0 + β1\*(Authoritarianit) + + β2\*(Countryi) + β3\*(Yeart) + β4\*(Inflationit) + β5\*(CapitalOpenit) + β6\*(RealERit) + β7\*(PopGovernmentsit) +β8\*(PerCapitaHEit) + β9\*(PerCapitaSEit) + **σi** + μit

**Results & Discussion**

Using Stata, I perform pooled OLS regression and FEs regression – both country and year using the IVI, CVs, and DV from the same RK dataset. Table 2 shows the estimated coefficient results yielded from pooled OLS regression, while Table 3 shows the estimated coefficient results yielded from fixed effects regression – both country and year. Figure 2, however, shows a plot that depicts the residuals of the GDP Growth and authoritarian rule variables after removing their means with fixed effects. This is to examine the variation in the authoritarian and GDP Growth variables after they have been demeaned, which is the variation providing the coefficient of interest.

**Table 2: Determinants of Log GDP Growth in Latin American Countries 1973-1997**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) |
| Authoritarian | 0.256\*\*  (0.107) | 0.377\*\*\*  (0.126) | 0.373\*\*\*  (0.131) | 0.419\*\*\*  (0.148) |
| Country |  | -0.019  (0.013) | -0.020  (0.016) | -0.023  (0.017) |
| Year |  | 0.010  (0.007) | 0.010  (0.008) | 0.012  (0.009) |
| Lag GDP |  | 0.235\*\*\*  (0.074) | 0.234\*\*\*  (0.074) | 0.215\*\*\*  (0.073) |
| Inflation |  |  | 0.000  (0.000) | 0.000  (0.000) |
| Capital Openness |  |  | 0.000  (0.003) | -0.001  (0.003) |
| Real Exchange Rate |  |  | 0.000  (0.000) | 0.000  (0.000) |
| Popularly-Based Governments |  |  |  | 0.147  (0.118) |
| Per Capita Health & Education |  |  |  | 0.000  (0.001) |
| Per Capita Social Expenditures |  |  |  | 0.000  (0.000) |
| Intercept | 1.240\*\*\*  (0.070) | -17.929  (13.157) | -18.586  (16.024) | -23.804  (16.879) |
|  |  |  |  |  |
| Number of Observations | 286 | 234 | 226 | 205 |
| R2 | 0.020 | 0.119 | 0.112 | 0.128 |
| P-Value | 0.017 | 0.000 | 0.000 | 0.000 |

**Note:** Heteroskedasticity-robust standard errors in parentheses. \*\*\* indicates p < 0.01. \*\* indicates p < 0.05. \* indicates p < 0.10. Numbers are rounded to 3 digits. Lag GDP, one of the control variables, is measured in logs. Country represents “Code” in the dataset. Authoritarian, based on the “Democracy Scale” variable from the dataset, is coded as a dummy variable (1 = authoritarian, 0 = democracy). Popularly-Based Governments is also a dummy variable (1 = president has ties with labor unions, 0 = president does not). R2 is based on adjusted R-squared computed results for later columns. P-Value is the p-value for the F-Statistic for each regression. Data is from the Segura-KaufmanDataSet.csv dataset.

Given the results in Table 2, I will now interpret the estimated coefficients on authoritarian in Columns 1, 2, 3, and 4, respectively: A LA country that is authoritarian is associated with a 25.6% increase in GDP growth. A LA country that is authoritarian is associated with a 37.7% increase in GDP growth, holding all other independent variables constant. A LA country that is authoritarian is associated with a 37.3% increase in GDP growth, holding all other independent variables constant. A LA country that is authoritarian is associated with a 41.9% increase in GDP growth, holding all other independent variables constant. Note that I will not be interpreting the estimated coefficients on my CVs, as they are not of importance or directly relevant to my hypothesis. Rather they are meant to not only account for OVB as much as possible, but also help to obtain more accurate estimated coefficients on authoritarian for each regression.

It is worth mentioning that, from Table 1, the means of the authoritarian and GDP growth variables are 0.432 and 1.351, respectively. Given 0.432, this would mean that LA countries are, on average, tend to lean towards being democratic (since authoritarian = 1, democratic = 0). Given 1.351, this would mean that GDP growth, on average, is 1.35%. Give these results, we can say that, on average, LA countries tend to be democratic and have a low GDP growth percentage over time.

It can be also noted that, in Table 2, there is seemingly an upward trend in the percentage increases in GDP growth whenever a LA country is under authoritarian rule, while controlling for other factors that can affect GDP (except for Column 1, which has no other CVs). It can be interpreted that there are certainly more factors at play when it comes to estimating the relationship between authoritarian rule and GDP growth. In addition, based on the asterisks attached to the coefficients on authoritarian, it seems that the IVI is statistically significant at the 1% level. This is further supported by the fact that even the p-values for the F-statistic for each regression (except for the in Column 1) is much less than 0.05, further indicating that there is no relationship between all of the included IVs and DV. Because the pooled OLS regression model as a whole is statistically significant at the 5%, we can reject H0 – that LA countries were not more likely to have a higher GDP growth percentage than those that were not. We can, then, state that there exists a relationship between a LA country under authoritarian rule – given all other IVs - and GDP growth.

While some – particularly scholars of democracy studies – may be inclined to agree with the initial conclusion above, others may not. There are a few reasons as to why using pooled OLS regression may not be sufficient to test my hypothesis/answer research question. The first is that it does not completely eliminate OVB. After all, whether examining a country in LA, there are still many more possible predictors of GDP growth, such as interest rates, oil prices, a consumer price index (CPI), and other plausible economic variables. The second is that it does not account for factors that vary across countries and years. Pooled OLS regression is simply multivariate OLS regression applied to panel data; it does not account for the things aforementioned. The third and last is that it provides estimated results based on the data, which itself has missing observations. Having missing data can lead to skewed results, and thus, wrong interpretations. Enter, then, FEs regression.

**Table 3: Estimated Effects of Macroeconomic Variables on Log GDP Growth in Latin American Countries 1973-1997**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) |
| Authoritarian | 0.256\*\*  (0.107) | 0.149  (0.169) | 0.240\*  (0.125) | 0.223\*  (0.129) | 0.012  (0.192) |
| 1974 Year |  | -0.095  (0.324) |  | -0.054  (0.335) | -0.084  (0.348) |
| 1975 Year |  | -0.379  (0.337) |  | -0.412  (0.348) | -0.365  (0.362) |
| 1976 Year |  | -0.157  (0.330) |  | -0.143  (0.341) | -0.168  (0.354) |
| 1977 Year |  | -0.254  (0.324) |  | -0.219  (0.335) | -0.195  (0.347) |
| 1978 Year |  | -0.473  (0.330) |  | -0.453  (0.341) | -0.437  (0.355) |
| 1979 Year |  | -0.302  (0.330) |  | -0.233  (0.341) | -0.337  (0.357) |
| 1980 Year |  | -0.243  (0.347) |  | -0.109  (0.357) | -0.375  (0.379) |
| 1981 Year |  | -0.822\*\*  (0.369) |  | -0.781\*\*  (0.377) | -0.957\*\*  (0.394) |
| 1982 Year |  | -1.864\*\*\*  (0.549) |  | -1.657\*\*\*  (0.560) | -2.228\*\*\*  (0.583) |
| 1983 Year |  | -0.678  (0.490) |  | -0.558  (0.502) | -0.635  (0.506) |
| 1984 Year |  | -1.107\*\*\*  (0.337) |  | -1.001\*\*\*  (0.345) | -1.084\*\*\*  (0.356) |
| 1985 Year |  | -1.136\*\*\*  (0.356) |  | -1.019\*\*\*  (0.362) | -1.202\*\*\*  (0.376) |
| 1986 Year |  | -0.594\*  (0.357) |  | -0.508  (0.364) | -0.636\*  (0.378) |
| 1987 Year |  | -0.265  (0.340) |  | -0.198  (0.346) | -0.393  (0.380) |
| 1988 Year |  | -0.795\*\*  (0.353) |  | -0.767\*\*  (0.360) | -0.987\*\*  (0.406) |
| 1989 Year |  | -0.687\*  (0.359) |  | -0.613\*  (0.362) | -0.660  (0.400) |
| 1990 Year |  | -0.438  (0.370) |  | -0.410  (0.373) | -0.563  (0.424) |
| 1991 Year |  | -0.366  (0.342) |  | -0.278  (0.345) | -0.702\*  (0.412) |
| 1992 Year |  | -0.047  (0.353) |  | 0.023  (0.357) | -0.214  (0.426) |
| 1993 Year |  | -0.483  (0.342) |  | -0.395  (0.345) | -0.436  (0.434) |
| 1994 Year |  | -0.069  (0.349) |  | 0.035  (0.350) | -0.281  (0.456) |
| 1995 Year |  | -0.215  (0.377) |  | -0.113  (0.379) | -0.285  (0.509) |
| 1996 Year |  | -0.472  (0.369) |  | -0.363  (0.367) | -0.516  (0.485) |
| 1997 Year |  | -0.146  (0.351) |  | -0.051  (0.353) | -0.295  (0.495) |
| Inflation |  |  |  |  | -0.001  (0.000) |
| Capital Openness |  |  |  |  | 0.005  (0.006) |
| Real Exchange Rate |  |  |  |  | -0.001\*\*  (0.000) |
| Popularly-Based Governments |  |  |  |  | 0.130  (0.164) |
| Per Capita Health & Education |  |  |  |  | -0.001  (0.002) |
| Per Capita Social Expenditures |  |  |  |  | 0.001  (0.001) |
| Constant | 1.240\*\*\*  (0.070) | 1.705\*\*\*  (0.269) | 1.247\*\*\*  (0.074) | 1.607\*\*\*  (0.261) | 1.550\*\*\*  (0.525) |
|  |  |  |  |  |  |
| Number of Observations | 286 | 286 | 286 | 286 | 249 |
| R2 | 0.020 | 0.168 | 0.013 | 0.152 | 0.225 |
| P-Value | 0.017 | 0.001 | 0.000 | 0.009 | 0.001 |
| Country Fixed Effects | No | Yes | Yes | No | Yes |
| Year Fixed Effects | No | Yes | No | Yes | Yes |

**Note:** Standard errors are in parentheses, except for Column 1, whose standard errors are robust to heteroskedasticity. \*\*\* indicates p < 0.01. \*\* indicates p < 0.05. \* indicates p < 0.10. Numbers are rounded to 3 digits. Authoritarian, based on the “Democracy Scale” variable from the dataset, is coded as a dummy variable (1 = authoritarian, 0 = democracy). Popularly-Based Governments is also a dummy variable (1 = president has ties with labor unions, 0 = president does not). 1973 Year is the reference group for “#### Year” variables. R2 is based on adjusted R-squared computed results for later columns. P-Value is the p-value for the F-Statistic for each regression. Data is from the Segura-KaufmanDataSet.csv dataset.

Given the results in Table 3, I will now interpret the estimated coefficients on authoritarian in Columns 1, 2, 3, 4, and 5, respectively: A LA country that is authoritarian is associated with a 25.6% increase in GDP growth. A LA country that is authoritarian is associated with a 14.9% increase in GDP growth, controlling for country and year fixed effects. A LA country that is authoritarian is associated with a 24% increase in GDP growth, controlling for only country fixed effects. A LA country that is authoritarian is associated with a 22.3% increase in GDP growth, controlling for only year fixed effects. A LA country that is authoritarian is associated with a 1.2% increase in GDP growth, controlling for all other independent variables and both country and year fixed effects.

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Given Figure 2, we can see that there seems to be an almost-perfectly horizontal fitted line between the residuals of GDP growth and the residuals of authoritarian, after removing their means with fixed effects. After some brief examination of the plot, we can see that the residuals seem to be distributed horizontally, some cluster toward the middle (there are many outliers), and they do not have a clear pattern. Therefore, it can be said that the FEs model – with having the IVI alone – runs into the problems of heteroskedasticity and non-linearity.

It can be noted that, in Table 3, there is not a clear trend in the percentage increases in GDP growth whenever a LA country is under authoritarian rule, while controlling for other factors that can affect GDP (except for Column 1, which has no other CVs) and fixed effects. However, in Column 5, the estimated coefficient on authoritarian, while controlling for other independent variables and country and year fixed effects, not only is quite different from the others, but also seems to be the most accurate estimate obtain from our regressions. It not only controls for as many IVs as the data allows, but also for unobservable country and year factors not captured in the model. This, then, eliminates OVB entirely – something that the pooled OLS regression model failed to do.

The p-value of the F-statistic for the regression model in Column 5 suggests that the regression model is statistically significant at the 5%. Because of this, we can reject H0 - that LA countries were not more likely to have a higher GDP growth percentage than those that were not. We can, therefore, state otherwise, that there exists a relationship between a LA country under authoritarian rule – given all other IVs and GDP growth. Moreover, since this would mean that a LA country that is authoritarian is associated with a 1.2% increase in GDP growth, controlling for all other independent variables and both country and year fixed effects, it would also mean that authoritarian rule did not have a very strong effect on GDP growth in LA from 1973-1997, which is contrary to what many democracy studies scholars believe.

At this point, one may be inclined to agree with the initial conclusion above, especially since the one initially derived from the pooled OLS regression model was subject to much criticism. However, one should be careful in doing so, as even the FEs model – both country and year – is still not sufficient to test my hypothesis/answer research. The first reason is that the residuals of the model may be autocorrelated. If the residuals are autocorrelated, then the model is misspecified, which would then require a new FEs or other regression model in order to test the hypothesis. This could be corrected by including an instrumental variable in the FEs model, but developing an instrumental for this is both very difficult and beyond the scope of this paper. The second reason is that the standard errors in Table 3 may not be correct. If the residuals are autocorrelated, then robust standard errors are no longer valid. Instead, clustered standard errors have to be used. They allow regression errors to have arbitrary correlation within clusters (i.e. within entities), but assume they are uncorrelated across clusters. The third and last reason is that the model, as a result of controlling for both country and year fixed effects, introduces many year dummy variables (see Columns 2, 4, and 5). This, in turn, introduces more statistical noise in the model, meaning that the model is more likely to suffer from autocorrelated residuals, measurement errors, sampling errors, etc. Our FEs model, then, is also subject to both much criticism.

**Conclusion**

This research was motivated by my curiosity in and skepticism of scholars of democracy studies accepting the mainstream belief, in political science academia, that, from 1973-1997, LA countries saw increases in their economic growth, despite being under authoritarian rule. I first stated my research question related to these political-economic phenomena, formalized a hypothesis based on the existing research, data, and variables available to me, and then tested it using pooled OLS regression and FEs regression – both country and year. After testing my hypothesis in the two regression models, and ultimately focusing on the results given in the last column of Tables 2 and 3, I found that, from 1973-1997, LA countries under authoritarian rule did, indeed, have a strong association with GDP growth. However, the estimated effect of authoritarian rule on GDP growth is quite small. Nonetheless, whether the impact of neoliberal reforms in LA countries under authoritarian rule on GDP growth during that particular time frame is small or huge is debatable, as scholars’ opinions on and my econometric analyses of the matter contradict each other. Determining whether there was such a type of relationship between authoritarian rule and GDP growth in LA countries from 1973-1977, how strong it was, and if it could causal instead, require both further research into the matter and more advanced econometric techniques in estimating it.

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**Appendix A – Stata Code**

// Joel Cabrera

// Advanced Cross-Sectional and Panel Data (01:220:401)

// Professor Piehl

// December 9, 2019

// 1. Preliminaries & Summary Statitics

// Packages

describe

// ssc install outreg2

// ssc install asdoc, replace // do "asdoc reg y x's" to obtain file with stars denoting statistical significance

des // checks variable names

// Note: When using asdoc, be sure to close doc every time to update asdoc file

// Configuring data & new variables

xtset code year // setting as panel data; code = country

generate lgdp = log(gdpgrowth) // Replaces negative values

gen laggdp = L.gdpgrowth

generate llaggdp = log(laggdp)

generate authoritarian = 0 if (democracyscale >= 6 & democracyscale ~=.)

replace authoritarian = 1 if democracyscale < 6

list authoritarian

// Table 1: Descriptive Statistics

asdoc summarize authoritarian code year llaggdp inflation capitalopenness realexchangerate popularlybasedgovernments percapitahealthandeducation percapitasocialexpenditures lgdp // can also add ", separator(4)" to separate rows by 4 in Stata

// Figure 1: Histogram

// twoway histogram year, discrete freq by(code, total) \*\*\*ignore, meant to produce graph containing multiple histograms, but was unable to add authoritarian to y-axis

twoway histogram year, discrete freq by(authoritarian) xlabel(1973(1)1997) ylabel(1(1)12)

// 2. Pooled OLS Regression (+ figures/tables) (stat. sign = F-test)

// Table 2a: Regression Models

asdoc reg lgdp authoritarian, robust // 1

asdoc reg lgdp authoritarian code year llaggdp, robust // 2

asdoc reg lgdp authoritarian code year llaggdp inflation capitalopenness realexchangerate, robust // 3

asdoc reg lgdp authoritarian code year llaggdp inflation capitalopenness realexchangerate popularlybasedgovernments percapitahealthandeducation percapitasocialexpenditures, robust // 4

// 3. Fixed Effects Regression (extremely useful to count for unbalanced panel) (+ figures/tables) (stat. sign = F-test) // llaggdp = dropped

// Table 3: Regression Models

asdoc reg lgdp authoritarian, robust // 1, no country or year FEs (no i.year or fe)

asdoc xtreg lgdp authoritarian i.year, fe // 2, country & year FEs (FE within regression) (both i.year and fe)

asdoc xtreg lgdp authoritarian, fe // 3, country FEs (no i.year, only fe), linear year

asdoc reg lgdp authoritarian i.year // 4, year FEs (no fe, only i.year)

asdoc xtreg lgdp authoritarian i.year inflation capitalopenness realexchangerate popularlybasedgovernments percapitahealthandeducation percapitasocialexpenditures, fe //5, country & year FEs (both i.year and fe)

// Figure 2: Residual plot of 2nd model

// 2 ways

/\* 1st way

xtreg lgdp i.year, fe // get demeaned y

predict y\_resfe, e

xtreg authoritarian i.year, fe // get demeaned x

predict x\_resfe, e

scatter y\_resfe x\_resfe || lfit y\_resfe x\_resfe

\*/

// 2nd way

reg lgdp authoritarian i.year i.code

avplot authoritarian, name(avplot1)