Freedom and Economic Growth: Understanding The Interaction Between Institutional Freedoms and Economic Performance Accross Regions

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The interaction of institutionally protected freedoms and economic growth is of notable concern to both voters and policymakers. This study analyzes which freedoms have the greatest impact on economic growth from both a global and regional focus. Fixed effect regression models show regional variation in which freedoms are the most significant drivers of growth, with visualizations indicating greater correlation in regions with stronger institutional histories versus those without. These findings can inform policymakers on how to strengthen institutions to promote growth.

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0.1 Introduction

Political views are informed by personal values. In democratic countries, this takes the form

of deeply ingrained civic virtues, such as human rights. In general, there are very few public

voices in the United States who would oppose these values or claim they have no place in modern

life. However, the value of democracy and freedom is very much an unsettled question from an

international perspective. Evidence of this is found in a recent cross-national Pew Research poll,

where a majority of respondents were noted as not being satisfied with the way democracy is currently working in their country, largely giving economic frustration as the reason (Wike, Silver, and Castillo 2019). Furthermore, it was noted that respondents with negative views on the national economy were more likely to be discontent with how democracy was performing in their country. This poll suggests there is a disconnect with the purported national values commonly found in democratic societies and the everyday concerns of the individual voter.

It would seem that the ideals of democracy and the everyday concerns of economic well-being are at odds with each other. This purported dichotomy between civic freedoms and economic performance is often employed as a narrative by populist figures who promise a prosperous future as a justification for their antidemocratic tendencies. However, the relationship between democratic values and prosperity is likely more complex than this, with previous research even giving some basis for believing that a political system emphasizing democratic values outperforms authoritarian regimes in many measures of economic performance (Acemoglu et al. 2019). The reasoning for this alternative relationship echoes the idea that higher levels of freedom will allow individuals to make better economic decisions for themselves, and that these decisions will generally be reflected in greater economic performance and growth on the whole than what one would expect to see in a less free environment. Essentially, this line of thought claims that freedom and growth act in support of each other, rather than in opposition.

The tensions between the competing theories of a conflict thesis and a mutually reinforcing cycle can lead a researcher to ask what the true relationship between major civic freedoms and economic growth and well being is. Beyond simply identifying which narrative is more accurate, there are several major use cases for this question that make it worthy of investigation. Perhaps the most pressing of these include the perspectives of policymakers who focus on generating growth and those with the goal of spreading democracy.

For the growth-focused policymaker, it is worthwhile to understand whether a causal relationship exists between freedom factors and economic growth because they would want to leverage such a relationship to achieve economic development. This would include stakeholders in both democratic countries and undemocratic regimes. The motivations for these two groups of stakeholders are similar in nature despite the different situations, with the former desiring to keep their position by returning positive outcomes to their constituents, and the latter reliant on providing economic stability to justify remaining in power and deter the population from overthrowing them.

For the democracy-focused policymaker, evidence that democracy is more conducive to economic growth can be used in convincing hybrid regimes to adopt democratizing reforms in order to benefit from the resulting increase in economic strength and security. Similar to the benefits of growth, this could even entice purely self-interested policymakers in authoritarian regimes, who would personally stand to gain from the increase in growth and stability. Furthermore, this alignment could open many avenues for international cooperation between countries that want to increase economic activity with trading partners but view the 'closedness' of their political systems as an issue.

0.2 Literature Review

The idea that democracy is a hindrance to economic growth has a long-rooted history in academic research. In *The Impact of Democracy on Economic Growth: Some Evidence from Cross-National Analysis* (Weede 1983a), Weede refers to Polish-British sociologist Andreski as having formulated one of the earliest versions of the incompatibility thesis, with the claim that for countries lacking in resources, heavy investment prevented democracy from being compatible with quick economic growth (Andreski 1969). Andreski attributed this to a concept he termed *parasitism*, whereby

individuals could gain wealth without contributing to production. Further belief in the idea of incompatibility between democracy and growth is highlighted more sharply by Herman Khan, who believes that the constant championing of democracy in the public sphere is essentially a form of ideological grandstanding. Khan shies away from explicitly decrying democracy as a negative, but for him democracy is merely one answer on how to organize the state and society, and not necessarily the best option just because it has acceptance from the general populace (Kahn 1980).

Different authors provide several alternative theories and explanations for the mechanism that ostensibly makes democracy an unsuitable environment for economic growth. Among them are a lack of investment (Huntington and Nelson 1976) and ever expanding government benefits and welfare (Andreski 1969). For some such as Bauer, the existence of the democratic political arena makes the benefits of organizing anti-competitive pressure groups more cost effective than putting that same amount of effort into enterprise itself. A lack of elections thus prevents these groups from having a negative impact. The myriad strains of thought at this stage in the scholarship all convene into a belief that there is a negative relationship between democracy and economic growth.

Circling back to Weede, his article represented an early counter-current to this prevailing idea, using a cross-sectional regression analysis of data from the World Bank to highlight a lack of evidence supporting the conflict thesis. In particular, he noted that other possible explanatory causes of growth rates were not held constant in this early scholarship, and that future research would be able to more properly isolate the true causes of economic growth. Weede's conclusion was not a complete break from prior research, however. His final thoughts were that the incompatibility was a result of government interference resulting in economic mismanagement. Weede discarded the incompatibility thesis in exchange for a focus on government action, representing a significant step towards the modern institutionally-focused approach.

Discussion around this topic laid mostly dormant until coming back to the forefront in the late 90s, when *Explaining International and Intertemporal Variations in Income Inequality* (Li, Squire, and Zou 1998) reopened the question of institutional impact- though in this case the search was for the causes of inequality, rather than growth. This analysis centered in on Gini coefficients over time, which showed that the inequality varies more from country to country, and any particular level of inequality tends to persist within that given single country. Their conclusions surrounding a possible cause landed on two ideas. The first idea focused on political economy as the hidden variable explaining wealth and income inequality, where the wealthy have the resources to lobby to keep preferential policies in place. The second idea was that the undeveloped nature of credit markets in these countries blocked the poor from making productive investments. The authors took these explanations as cause to believe that inequality would persist because the rich can safeguard their wealth, while others cannot.

Although in this case they are discussing inequality rather than growth, this was a step further in the direction started upon by Weede. Weede discarded the incompatibility thesis and suggested other factors to be determined by future research were driving growth, while Li, Squire and Zou believed specifically that economic performance would be dictated by institutional practices.

The idea that institutions dictate the performance of an economy with respect to growth and inequality metrics, as opposed to any other factor such as geography, culture, or demographics, would be more fully fleshed out by the work of Daron Acemoglu. In *The Colonial Origins of Comparative Development: An Empirical Investigation*, Acemoglu and his co-authors focus on the legacy of colonial history to explain the difference in economic development among countries in the modern day (Acemoglu, Johnson, and Robinson 2001). In conceptual terms, the gist of their hypothesis is that settler mortality impacted how settlements were set up, which had an impact on early institutions, which themselves persisted and had a downstream impact on the development and resulting quality

of modern institutions. In quantitative terms, they found settler mortality a development measure indicative of institutional quality, then found a correlation between mortality rates and European settlements, and linked them further to early and modern institutions to complete the connection of their theories to available data. The significance of this research is in tying economic growth to the performance of these specific institutions. Acemoglu discards other possible explanations by noting that the relationship persists when controlling for diverse factors such as latitude, climate, disease environment, religion, natural resources, soil quality, ethnolinguistic fragmentation, and racial demographics.

In the following years, various other researchers built upon the work Acemoglu put into establishing that institutions are the driving force behind economic growth. In *Foreign Direct Investment and Economic Growth in SSA: The Role of Institutions* by Agbloyor, a dynamic panel approach concludes with the finding that institutions appear to have a positive effect on economic growth in countries lacking fully developed financial markets (Agbloyor et al. 2016). Further findings in that article by the author state that institutional quality positively alters the effect of FDI (foreign domestic investment) on economic growth, and that developing institutional quality could itself be a goal of development policy. In another instance, the institutional theory also was applied by Mathonnat to find what types of democratic institutions are most positive in causing growth, concluding that proportional representation and unitary states were most effective in reducing economic variance (Mathonnat and Minea 2019). Fidrmuc leverages the data provided in the fall of the USSR to uncover more about this relationship, ultimately concluding that democracy has a positive impact on not just growth but on the key factors, such as investment in physical and human capital, when looking specifically at the in the post-Soviet world. (Fidrmuc 2021). Fidrmuc's finding with the greatest impact was that democracy took primacy even when considering economic freedom, a result that stands in opposition to previous research that economic freedom was the

driving factor. Acemoglu also made efforts in providing more detailed, specific and emphatic support for this thesis in "Democracy Does Cause Growth". Here, he uses a fixed-effects OLS regression and determines that democracy has a positive effect on future GDP per capita (Acemoglu et al. 2019). In this work, Acemoglu was able to estimate the potential economic growth, finding that in the 25 years after democratization, long-run GDP increased by 20 to 25 percent, on average. The research done by researchers after Acemoglu builds upon the line of thought, and reinforces the idea that the democratic and free institutions are a boost to economic growth.

0.3 Methodology

To answer the question of what the exact relationship is between specific freedoms and economic growth, I leveraged a fixed effect regression model, using data from the *WorldBank* (World development indicators 2023) and *Global State of Democracy Indices (GSoDI)* (Democracy and Assistance 2024).

The WorldBank is an institution which has supported a large number of development projects through various methods, and was previously used as a reliable source of information in articles such as that written by Weede (Weede 1983b). The WorldBank publishes a variety of 'World Development Indicators', which originate from well-documented and traceable sources. The transparency provided by the WorldBank makes them a useful source of data. For this analysis, I intend to leverage per Capita GDP as the primary dependent variable of interest, using units of constant 2015 United States dollars to make data points comparable across years. Furthermore, I will pull additional variables tracked by the WorldBank as potential constants to remove potential confounding between my freedom variables.

The GSoDI are provided by The International Institute for Democracy and Electoral Assistance

(International IDEA), which is self-described as "an intergovernmental organization that supports democracy worldwide". The institute is supported by a council of member states from regions across the world. The legitimacy of this data is again supported by the transparency provided by International IDEA, who offer a codebook with information on each variable, the conceptualization and measurement framework that goes into developing them, and a technical procedures guide. This provides a comprehensive outline of the theory and data generation process for these indices. While it is arguably more difficult to convert qualitative data such as freedom metrics into a numeric format, the transparent and objective methodology behind this system provides a solid baseline to work with. Regarding the specific fields to investigate, my focus will be on the freedoms of expression, of movement, of the press, and of association and assembly (combined into one measure in the GSoDI indices).

The choice of a fixed effects regression model is based on the structure of these datasets. The data from both GSoDI and the World Bank are longitudinal, organized at the observational level into country and year (i.e. the GDP for the United State in 2020 was \$~28 trillion, etc). Therefore, the GSoDI figures can be used as the independent variables and determine the correlation between the dependent variables, in the form of the World Bank metric on per capita GDP.

Before constructing the model, I also need counteract potential omitted variable bias to the greatest extent possible. For this analysis, I will use both country and year specific effects. The intention of using country fixed effects is to to resolve what is raised in *Democracy Does Cause Growth* (Acemoglu et al. 2019), that there are differences between democracies and non-democracies beyond their governance structure that can also impact GDP, such as historic or cultural factors. As the basis for this investigation is the hypothesis that institutions drive economic growth, these unobserved variables would need to be removed to get an accurate picture.

Additionally, I am including year fixed effects to remove the impact of growth focused on time. The reasoning being that year to year events may have an impact on growth and development unrelated to democracy. As an example, the recent COVID pandemic and the ensuing recovery clearly impacted economic growth during the years from 2020-onward, but are entirely separate from democracy as a whole- their impact was felt globally, regardless of democratic status. Other economic events such as recessions occur on a periodic time frame, that could throw other factors askew. Therefore, the impact of year effects should be fixed as well.

As for what I anticipate to find, my prediction is that there is a positive relationship between higher levels of each of these freedoms and economic growth as indicated by per capita GDP. To delve into a little more detail on how this relationship would operate, my expectation is that press freedoms would correlate with free transmission of information, allowing people to make informed decisions about what job they can benefit the most from working. Freedom of movement similarly allows individuals to move from a less productive industry to a more productive one, which could potentially be seen in individuals moving to areas of a booming job market and providing manpower support. Freedom of association indicates a lower level of friction for individuals in their day-to-day lives and would be associated with less friction in a potential market of goods and services and greater resulting economic activity. Finally, greater political rights in general would showcase how individuals can defend their self-interest against larger agents that would coerce them into an arrangement that would be more beneficial for the larger agent, but less productive for the individual. Taken together, if my hypothesis that growth is impacted mostly by freedoms which allow individuals allow to make better economic decisions, then there may potentially be a difference in the economic growth of a country with a more 'open' society.

0.4 Results

Before putting the above fixed effects regression methodology into practice, I took an exploratory look into the data using two additional methods, making a three pronged approach to understand whether countries with greater personal freedoms outperform countries with fewer freedoms. Firstly, I looked at bivariate plots between my key variables and per capita GDP to visualize the relationship between them and detect any obvious patterns. Secondly, I generated beeswarm plots to understand how the distribution of per capita GDP appeared when focusing on the individual values. Lastly, I examined several regression models to see how significant the relationships were when taken together.

The bivariate plots took the form of scatter plots. For each of the four core variables - freedom of expression, the press, association and assembly, and movement- I took the GSoDI score and per capita GDP in 2015 USD and plotted it against the per capita GDP for that nation. Each year and country combination present in the data was represented by a separate individual point. After doing this, I added a smooth fit line using a loess method, to help show the predicted value of GDP per constant based on the variable. All the variables provided by GSODI were scaled on a 0 to 1 continuous range. At this stage of the project, I looked at the entire dataset, along the whole time period from 1975 to 2022 range and including all regions across the world.

When looking at the full data set, I found each bivariate plot displayed the same pattern, showing minimal increase in predicted GDP per capita until reaching the 0.50 to 0.75 range for each variable. After this point, the per capita GDP increased in an apparently linear rate with the freedom variable in question. The steepest increases were shown in the freedom of association and assembly and the freedom of the press. Freedom of expression increased more slowly, only reaching a predicted per capita GDP of just under $45,000 (in USD 2015) for a hypothetical country with a freedom

of expression score of 1. Freedom of movement increased the slowest, only showing a noticeable increase for countries with a score greater than around .8, and even then the prediction maximized at less than $30,000.

Looking at the entire plot, it would appear that the relationship between freedom variables and per capita GDP is not one-to-one or linear. Rather, there is a threshold before which the GDP increases associated with an increase in freedom are negligible, but after which further increases are associated more strongly with an increase in per capita GDP. What this might suggest is that for a hypothetically perfectly unfree country that scored 0.00 on every freedom measure, incremental increases in freedom will not be associated with an increase in GDP. However, for a hypothetical imperfect regime sitting around the 0.50 - 0.75 range for any given variable, there may be a benefit associated with an increase in freedom.

While causality cannot be taken for granted, it is also worth noting the total absence of low-freedom countries in the highest echelons of the GDP. If it were not for certain outlier countries such as the United Arab Emirates, there would be zero countries with both a 0.75 score on freedom metrics and a per capita GDP greater than $75,000. The implication for policymakers is that they must either replicate exceptional circumstances such as that of the UAE, or be open to increasing freedoms in order to reach the highest possible GDP per capita.

The next approach I took towards analyzing the data was to generate beeswarm plots, to understand the distribution of per capita GDP with respect to institutional values. Each of the beeswarm plots shows the distribution of the GDP per capita, with a different plot for each institutional value. The distribution of the points is identical for each of the four plots, which is to be expected as the distribution of GDP per capita is the same regardless of the freedom variable. The focus of these charts is upon the institutional value, represented by the color of the point. Values closer to

perfectly un-free are shaded closer to red, with values closer to totally free are shaded deep blue. For purposes of readability, I limited the year to 2022, the final year in the data. Since each metric provided by GSoDI is on the same 0.00 to 1.00 scale, the same color scheme can be used for each.

In each of the four beeswarm plots, the same general pattern develops in that the cluster of the lower rated countries on all freedom metrics (light green to red) are below $15000 in per Capita GDP. Above that line, most points are somewhere higher blue section of the color scale indicating greater freedom. Outside of this trend, there are a handful of lower rated countries in the higher echelons of the GDP per capita distribution. However, these are the exception to the rule, and the points generally follow the same gradient as their neighbors in any given section of the chart.

The takeaway from this distribution is in how the relationship shown in the bivariate plots expresses itself in the real distribution of these values. In general, if a country is performing well in GDP per capita, it has a better rating for any and all other variables. On the other hand, if a country had a lower GDP per capita, it is more likely to perform more poorly. The beeswarm plot is useful is highlighting the size of the 'swarm' (collection of points) at the lower end of this distribution. Additionally, several of the outliers are countries highlighted before (such as the UAE) who are able to leverage significant natural resources in a way that other nations cannot replicate. What is notable about this is that the outliers tend to be outliers across all four of the plots, and the ones that rank highly in one category tend to rank well in the others. In other words, it is rare for a country to before exceptionally well or particularly poorly in one variable and perform the opposite in the other three. In general, the beeswarm plots show that a country will either follow the general pattern of greater freedom and greater GDP per capita, or will be in unique economic circumstances particular to that country that allow them to defy the general trend.

With the overall pattern in the data clear from a visualization perspective, I looked into the

statistical regression aiming to confirm this relationship. I generated five distinct regressions, the first of which includes all four of the 'core' variables of interest in the study, drawn from the Global State of Democracy Indices (Democracy and Assistance 2024)- freedom of expression, freedom of the press, freedom of movement, and freedom of association and assembly, the latter two of which are measured in the same variable. To reiterate, these variables are normalized on a 0 to 1 scale, in each case with 0 as the lowest performing score and 1 as the highest. These are set against the independent variable, per capita GDP, which is itself drawn from the Worldbank in units of 2015 USD (World development indicators 2023). Additionally, from Worldbank's Worldwide Governance Indicators (WGI), I included a variable measuring the rule of law, which covers how well a nation is able to enforce the rules of a country, including contracts, property laws, and the like. The intention of this is to remove any confounding between these freedom metrics and a country that is able to enforce the law, as I want to understand freedom's impact from this study, as opposed to merely the strength of the state.

These models were built around the hypothesis that countries with greater personal freedoms outperform those with fewer freedoms. Consistent with prior research (Acemoglu and Robinson 2021), I found that each institutional feature and the rule of law have a significant relationship to growth as represented in per capita GDP. For the freedoms of the movement and association and assembly, this relationship is positive. Freedom of press and expression were more mixed, with press freedoms being significant but negative, and expression not significant. This is an interesting result, as it goes against previous research as well as what has been visualized in the above plots.

To understand the descriptive power of each individual variable, I created four additional models, each with one of the core variables excluded to determine their individual impact in the main model. Interestingly, every model had the freedom of movement as having a significant and positive relationship with per capita GDP, and four of the five models had freedom of association/assembly

as having a significant relationship as well, with the remaining model still significant under a .1 degree. All models had R2 Within adjusted of between 0.055 and 0.62.

I looked into the correlation between the different freedom variables for more insight on the unexpectedly negative signs for the freedoms of expression and of the press. A correlation matrix shows that the lowest correlation value shared by any two of the core variables is .82, with several being closer to .90. This, along with the positive relationship in the bivariate plots and highly similar distributions in the beeswarm plot, lead me to believe that there is noticeable interaction between the impact of the freedom of expression with the other variables in predicting per capita GDP.

While the findings from the visualizations and models covering the entire dataset lend some insight into the overall patterns, the unexpected signs for the freedoms of press and expression in the model raise as many questions as they answer, and furthermore seem to be conflating several different factors into a single result at the expense of any individual one. To see if there could be more tailored recommendations for stakeholders available, I chose to narrow the dataset in two different ways: by focusing on a specific time period, and by breaking the data down to a regional level.

For the time values, I chose to focus the dataset to a more restricted period to further understand what might be specific to the current situation. Including data from the 1970s until today added more data points, but may have been failing to consider the dynamic relationship specific freedoms could have with economic growth over time. I chose to focus on the period of the 2010s for two reasons: the first being that there is a concern over democratic backsliding which became more emphasized during this period, and the second being that it was the most recent 'complete' decade available in the dataset.

Furthermore, I close to look at each region on their own. The reasoning for this was that different regions of the world have separate institutional histories, and combining all regions into one was

conflating all the impacts. As an example, Europe as a region has generally had a longer history of independent institutions and democratic governance, while regions such as the Middle East and Sub-Saharan Africa have a history marked by colonial governance and institutions developed to gain profits ('extraction' institutions in the parlance of Acemoglu's research (Acemoglu, Johnson, and Robinson 2001)) rather than enforce the rule of law. This is a generalization, but by combining these different regions into the same dataset, it is more difficult to identify any specific or local trends. To understand these patterns, I chose to create both additional bivariate visualizations and regression models to investigate more deeply on a regional basis.

In addition to looking at a specific timeframe and from a regional perspective, I also wanted to synthesize these measures. As we were seeing high correlations across these variables, I chose to consider them together as a 'lump sum' to avoid co-linearity. Since the data from GSoDI already came on a continuous, 0 to 1 scale with mostly similar distributions, I chose the computationally straightforward method of averaging the four measures into a single blended variable. Additionally, the regions are originated from the World Bank, and focus on large scale geographic areas which often share a common history: East Asia & Pacific, Europe & Central Asia, Latin America & Caribbean, Middle East & North Africa (MENA), North America, South Asia, and Sub-Saharan Africa.

My investigations from the regional perspective began with bivariate visualizations. When broken down by region, the plots have noticeably different patterns to from what we see in the world data set. In the East Asia and Europe & Central Asia regions, we see a noticeably positive relationship, with countries scoring higher on the freedom score performing noticeably better. We see a similar pattern for North America, with the exception that the limited number of countries performing in the lower half of the blended freedom variable cuts off the lower half of the visualization.

However, we also see other regions where this correlation is not present. In the Latin America & Caribbean, South Asia, and Sub Saharan Africa regions, we see lines that do not exhibit a relationship between per capita GDP and performance on the synthesized freedom variable. Interestingly, the trend line for the Middle East and North Africa region is bivariate, exhibiting a rising relationship for countries around the .3-.4 score on the blended variable, and the upper end of the spectrum, with troughs between. This appears to be driven by the previously mentioned countries such as the UAE that succeed at having a high GDP with very low freedom scores, by leveraging their natural resources. This pattern is specific to the MENA region.

When looking at the regression tables of the models of created on regional data, the results are more mixed, but some further knowledge regarding their relationship of each region becomes apparent. For the regions best described as formerly colonial (MENA, Sub-Saharan Africa, and South Asia) we see only freedom of expression statistically significant in the relationship with GDP per capita, and a negative sign as well. Additionally interesting was that none of the freedom variables are significant in explaining per capita GDP in MENA or Sub-Saharan Africa region. We see mixed results for the regions without a formerly colonial governance system or with prominent historical reforms, with Europe having positive coefficients but no significant relationships, while North America & Caribbean and East Asia region have several positive coefficients between them, with North America in particular having a highly explanatory model overall based on an R2 within adjusted statistic of 0.943.

0.5 Conclusions

This project provides a groundwork for understanding how different measures of freedom impact economic growth, and how the impact changes between regions. When we look at the data in an

aggregate bivariate plot, across the whole available time geographic coverage, we see there is some relationship between GDP per capita and each individual freedom measurement.

Additionally, when we look into beeswarm plots, we see that the distribution of countries on the spectrum of GDP per capita is heavily separated into a cluster of low-freedom and low-GDP per capita, and a cluster of high-freedom and high-GDP per capita. A few exceptions exist on this distribution, but very small in number, and generally in a unique situation economically, driven by significant natural resources.

The regression models, however, do not highlight a clear connection of the relative benefit of individual freedom factors, generally due to co-linearity; however, we do see the freedoms of movement and of association & assembly have a consistently high and positive correlation to GDP per capita. The exact magnitude of these is dependent on the exact composition of the model.

From a regionally-focused perspective, we see different behavior patterns depending on the history of the area. In the East Asia, European and North American regions, we see highly positive trend lines between GDP per capita and a blended, equal weight freedom variable. However, for the Middle East and North Africa, South Asia and Sub-Saharan Africa regions, we see little in the way of a positive relationship in the trend line, with very low per capita GDP across the board.

This finding fits with Acemoglu's thesis in the *Colonial Origins of Comparative Development*, which differentiates between institutions set up to enforce the rule of law versus those set up to extract wealth, and correlated (but not totally determined) those towards modern institutions and economic performance (Acemoglu, Johnson, and Robinson 2001).

Regarding limitations in this project, the issue of co-linearity among the selected freedom variables caused issues with identifying specific trends. While we were still able to identify differences on the regional level, identifying individual trends may require a more differentiated look or a focus on

different measures. Future research in this area could identify the existence of specific institutional features or mechanisms - for example, different electoral rules, the presence of an independent electoral commissions, or the frequency of elections - and tie that to economic growth, hopefully avoiding the co-linearity issues by identifying institutions that vary even between democratic countries.

What new findings from this project are the fact that we see the same pattern in the East Asia and Pacific region, whose history was in general was more similar to the colonial regions than the independent regions, with the exceptions of Australia and New Zealand. In his study, Acemoglu's research pointed to institutional development, such as the Meiji Restoration and democratization experienced by Korea in the 90s, as the way to overcome an extractive colonial history. The existence of a positive trend line in the East Asia & Pacific region, which consists primarily of countries with an extractive colonial history, shows and confirms the possibility for institutional reform in creating economic success.

Regarding key takeaways to be made from this study, the first and most significant is that different regions exhibit different relationships between freedoms and per capita GDP. The regions of Europe and North America benefit from the previous history of strong institutions focused on rule of law governance. The East Asia & Pacific region, while having a mixed institutional history, displayed a similar relationship due to the development of local institutions as seen in the Four Asian Tigers. The regions of the Middle East & North Africa, Latin American & Caribbean, and South Asia do not exhibit this relationship.

The relative relationship of freedoms versus GDP follows Acemoglu's focus on institutional history as a predictor of national growth. The work from this study further highlights that institutional history can reflect on a regional level as well, with regions with an history of institutional resource

extraction having a weaker relationship between GDP growth and freedom as regions with a non-resource extraction oriented history.

The second key takeaway is that in many cases, freedoms are associated with positive growth. However, the regional models indicate that one specific freedom have a greater association to economic growth than another freedom, and that the relative magnitude of the benefit can vary between regions as well.

The final takeaway is that if policymakers want to leverage an institutional relationship to boost economic growth, they must pay attention to the historical institutional situation. Nations in regions with a history of instutitonal resource extraction may not receive the same comparative benefit from growth in freedom due to other institutional issues in play. This can be seen in the countries in South Asia and Sub-Saharan Africa which perform relatively well on the blended freedom variable but nevertheless lag in per capita GDP against comparable nations in other regions. However, institutional quality by region is not wholly deterministic, and can be overcome by reform of institutions to be more open and supportive of freedom, as seen by the example of the East Asia region.
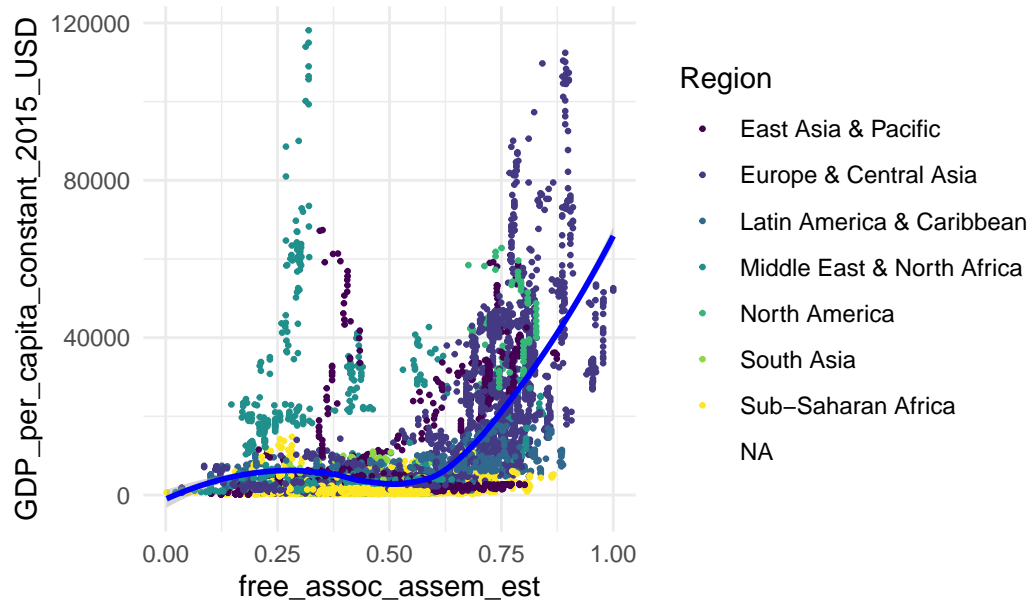
0.6 Appendix

Per Capita GDP (in 2015 USD) vs Freedom of Expression
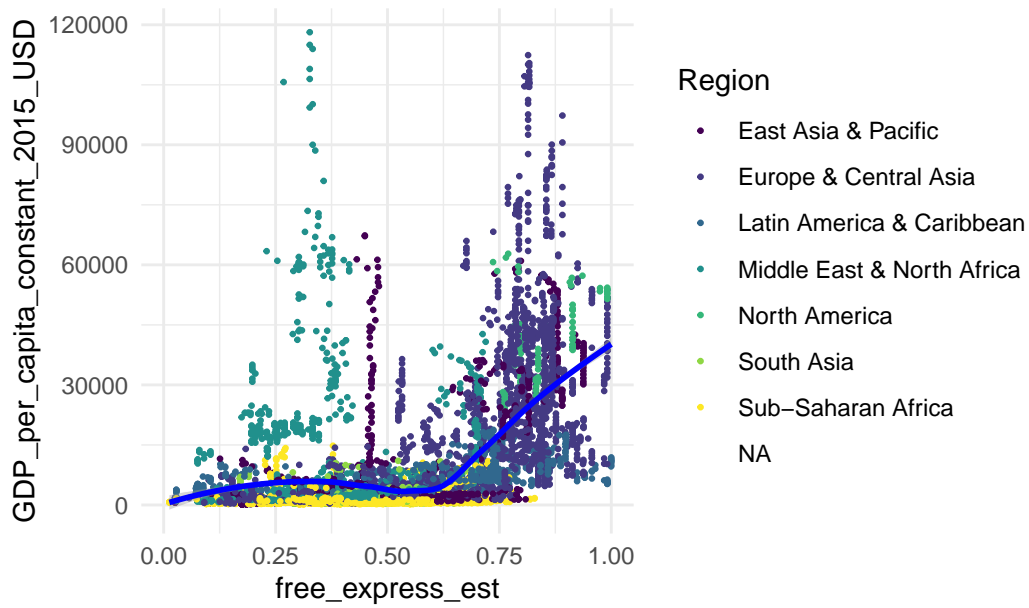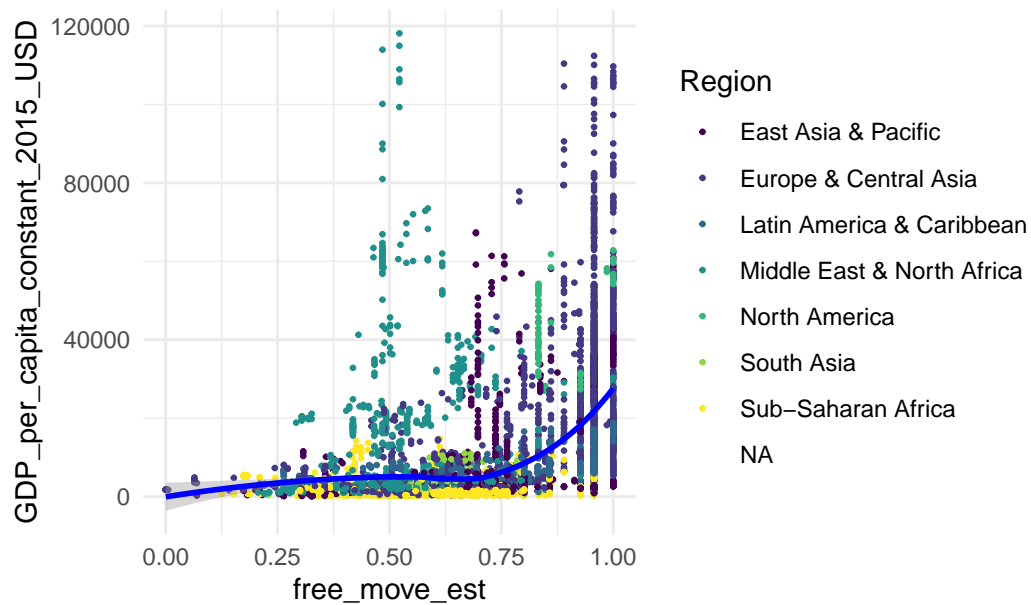

Per Capita GDP (in 2015 USD) vs Freedom of the Press
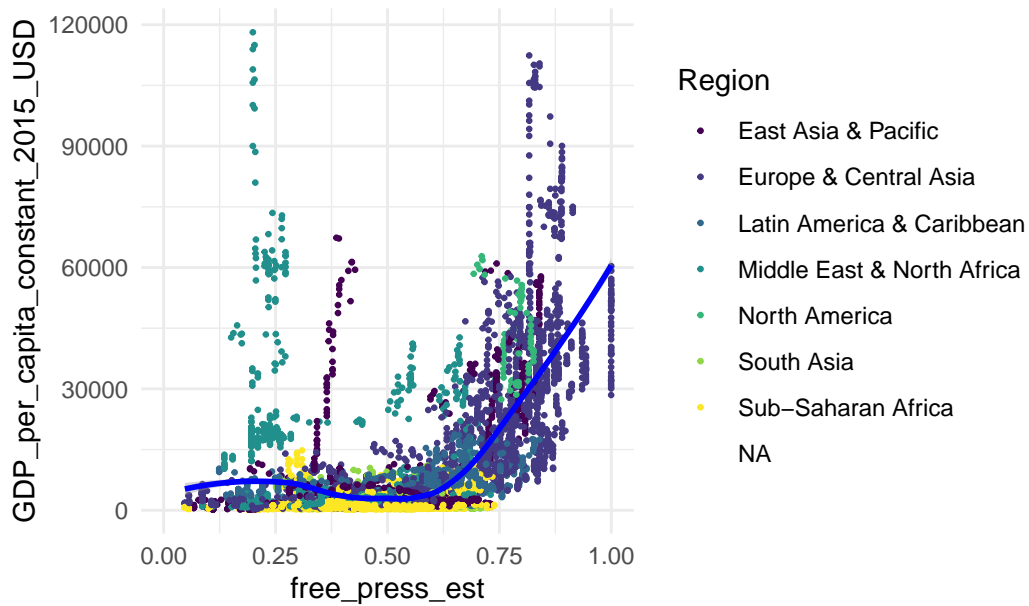
Per Capita GDP (in 2015 USD) vs Freedom of Association a

Per Capita GDP (in 2015 USD) vs Freedom of Movement
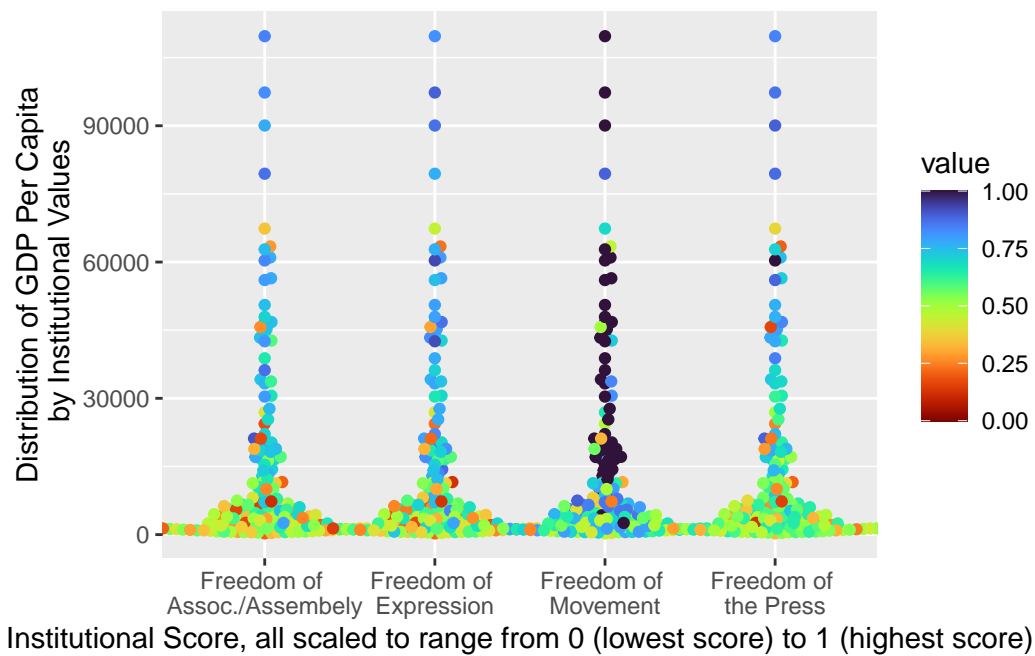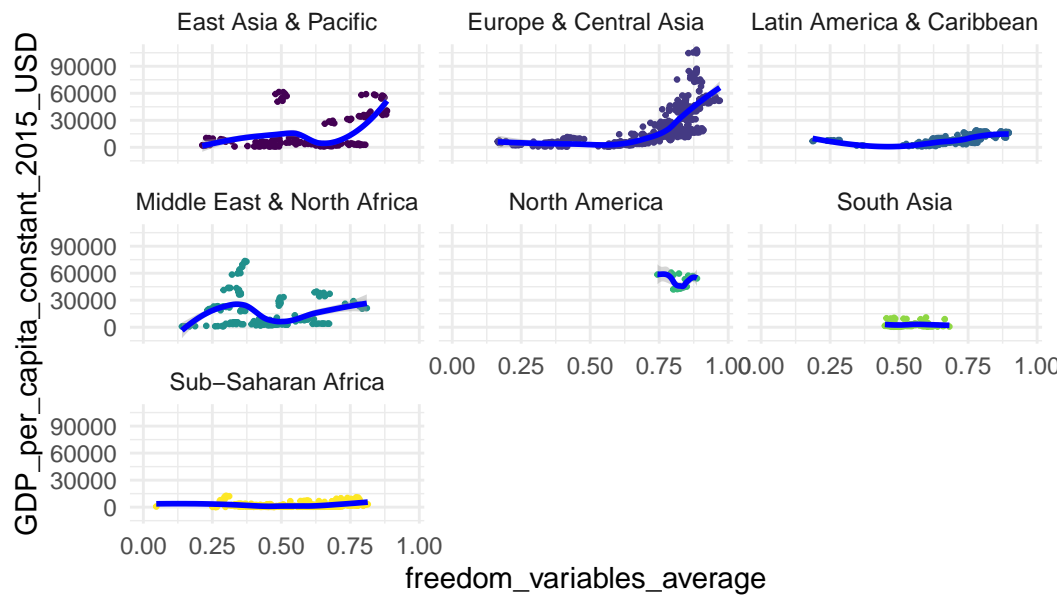
Per Capita GDP (in 2015 USD) vs Average of Freedom Varia

Table 1: Model Results, Part 1

	Core Variables	Expression Removed	Press Removed
free_express_est	−2144.169		−4896.612**
	(1787.208)		(1571.780)
free_press_est	−6124.614**	−7434.663***	
	(2290.759)	(1962.619)	
free_assoc_assem_est	5893.540*	5232.435*	3427.268+
	(2292.123)	(2363.390)	(1910.372)
free_move_est	1928.659*	1799.967*	2018.465*
	(920.468)	(910.175)	(941.131)
rule_of_law	1376.883*	1372.135*	1347.811*
	(536.784)	(538.659)	(545.936)
Urban_population_percentage	−186.344***	−187.277***	−187.138***
	(54.014)	(54.160)	(54.980)
Num.Obs.	3903	3903	3903
R2	0.983	0.983	0.983
R2 Adj.	0.982	0.982	0.982
R2 Within	0.063	0.062	0.056
R2 Within Adj.	0.062	0.061	0.055
AIC	71 991.3	71 994.2	72 018.8
BIC	73 251.5	73 248.1	73 272.7
RMSE	2326.50	2327.97	2335.31
Std.Errors	by: country_name	by: country_name	by: country_name
FE: country_name	X	X	X
FE: year	X	X	X
FE: Region	X	X	X

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 2: Model Results, continued

	Association Removed	Movement Removed
free_express_est	−856.986	−1892.912
	(1858.793)	(1768.828)
free_press_est	−3839.119*	−6208.066**
	(1772.754)	(2313.681)
free_move_est	2539.019**	
	(965.417)	
rule_of_law	1467.056**	1475.543**
	(527.116)	(532.812)
Urban_population_percentage	−189.277***	−192.461***
	(54.898)	(54.339)
free_assoc_assem_est		6505.582**
		(2333.010)
Num.Obs.	3903	3903
R2	0.983	0.983
R2 Adj.	0.982	0.982
R2 Within	0.057	0.061
R2 Within Adj.	0.056	0.060
AIC	72 015.6	71 997.9
BIC	73 269.5	73 251.8
RMSE	2334.36	2329.08
Std.Errors	by: country_name	by: country_name
FE: country_name	X	X
FE: year	X	X
FE: Region	X	X

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 3: Regionalized Model Results

	South Asia	Europe & Central Asia	Middle East & North Africa
free_express_est	−2896.669*	658.387	−2920.155
	(834.962)	(3390.302)	(7192.228)
free_press_est	−572.690	897.291	−8410.976
	(1480.298)	(3062.600)	(10 210.466)
free_assoc_assem_est	4848.336+	6874.392	4556.861
	(2244.358)	(6046.053)	(8452.226)
free_move_est	−889.033	1483.741	7355.957
	(1800.087)	(2233.321)	(4460.533)
rule_of_law	−483.555	−5447.215	895.450
	(677.674)	(4555.427)	(1266.683)
Urban_population_percentage	50.928	−228.947	86.640
	(68.339)	(137.812)	(401.849)
Num.Obs.	80	470	208
R2	0.988	0.995	0.989
R2 Adj.	0.984	0.994	0.987
R2 Within	0.151	0.077	0.048
R2 Within Adj.	0.062	0.064	0.015
AIC	1185.2	8467.3	3758.2
BIC	1240.0	8724.7	3878.4
RMSE	299.14	1731.71	1706.52
Std.Errors	by: country_name	by: country_name	by: country_name
FE: country_name	X	X	X
FE: year	X	X	X
FE: Region	X	X	X

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 4: Regionalized Model Results

	Sub-Saharan Africa	Latin America & Caribbean
free_express_est	−286.911	−388.381
	(892.059)	(2221.907)
free_press_est	−1438.122	777.809
	(862.763)	(2160.526)
free_assoc_assem_est	2034.462	2983.175
	(1359.650)	(2548.494)
free_move_est	−421.797	828.295
	(357.588)	(842.011)
rule_of_law	243.115	−275.278
	(367.920)	(288.365)
Urban_population_percentage	−75.723	206.356+
	(58.836)	(103.947)
Num.Obs.	434	240
R2	0.972	0.988
R2 Adj.	0.968	0.986
R2 Within	0.036	0.129
R2 Within Adj.	0.020	0.103
AIC	6520.4	3754.5
BIC	6764.8	3890.3
RMSE	385.62	513.09
Std.Errors	by: country_name	by: country_name
FE: country_name	X	X
FE: year	X	X
FE: Region	X	X

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 5: Regionalized Model Results

	East Asia & Pacific	North America
free_express_est	−7268.742*	7471.270***
	(3029.833)	(0.000)
free_press_est	7001.861**	−15 732.493***
	(1985.053)	(0.000)
free_assoc_assem_est	−4978.191	−8585.631***
	(6054.607)	(0.000)
free_move_est	6496.711+	916.941***
	(3672.642)	(0.000)
rule_of_law	−313.873	−2486.918***
	(731.031)	(0.000)
Urban_population_percentage	−232.425	2456.675***
	(311.623)	(0.000)
Num.Obs.	190	20
R2	0.998	1.000
R2 Adj.	0.998	0.999
R2 Within	0.188	0.981
R2 Within Adj.	0.157	0.943
AIC	3150.5	277.6
BIC	3260.9	294.5
RMSE	806.71	106.75
Std.Errors	by: country_name	by: country_name
FE: country_name	X	X
FE: year	X	X
FE: Region	X	X

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

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