The Quality of Legal Systems and Property Rights by State: A Ranking and Their Implications for Economic Freedom

Ryan H. Murphy
Southern Methodist University

Abstract

This paper constructs a new measure of the quality of the legal system and property rights by U.S. state, combining five pieces of data to develop a novel measure of institutional quality. It integrates this measure to the *Economic Freedom of North America* index to give a more complete subnational comparison of United States institutions. The quality of the legal system and property rights are measured to be strongest in the upper Midwest and northern New England, and weakest in the South and Hawaii. The integration of this data into *Economic Freedom of North America* has considerable implications for our understanding of economic freedom at the regional level.

1   Introduction

State and local level law enforcement and legal systems have grown in salience in recent years in the United States, with the Black Lives Matter movement, reforms to the cash bail system, spreading concern about the abuse of civil asset forfeiture, and gradual movements towards reforming the excesses of the tough-on-crime laws of the 1990s. However, little has been done to integrate these kinds of variables into subnational measures of institutional quality. This includes cross-state measures of economic freedom, even though effective legal systems, the rule of law, and an inclusive protection of property rights are the single greatest cornerstone of free economic institutions.

This paper attempts to integrate these variables, where possible, into the *Economic Freedom of North America* (EFNA) index (Stansel et al., 2018). EFNA, an intellectual relative to the Economic Freedom of the World index (Gwartney et al., 2019), measures the economic freedom of Mexican and U.S. states and Canadian provinces. For the purposes of this paper, I will focus on the fifty U.S. states, for which data density is greater and EFNA is most frequently applied. Secondly, I will be using the subnational version of the index that ignores footprint of the federal government in the economy. A recent literature review of applications of EFNA can be found in Stansel and Tuszynski (2018).

EFNA, currently, uses only three sets of variables: government spending, taxation, and labor market regulation. The choices of these variables are driven in part to keep yearly data consistent across Canadian provinces and U.S. and Mexican states. The lack of subnational data for the freedom to trade internationally, one area of the *Economic Freedom in the World* index, is missing for the obvious reason that tariff rates and other trade barriers are the same throughout each country. However, as will be discussed in the following section, EFNA neglects the legal system and property rights under the assumption that differences across U.S. states are small or non-existent. It will be argued that this assumption is untenable. Furthermore, in its present construction, far too much emphasis is placed on fiscal policy, as will be discussed in Section 4.

An alternative to EFNA is the *Freedom in the 50 States* index (Ruger and Sorens, 2018). EFNA, EFW, and *Freedom in the 50 States* are all summarized in Table 1. Underlying some of its indicators, it does include some measures of property rights and the quality of the legal system. But *Freedom in the 50 States* uses these measures very modestly, and not in the sense that is intended in this paper. For instance, about

a third of its regulatory policy component concerns land use freedom (about half of that third being rent control), with most of the component being measures of regulations, as opposed to protections of property rights. We will, however, make use of eminent domain reform, which enters *Freedom in the 50 States* with a very small weight (0.2%) as part of the land use freedom component. Another 3.3% of the total *Freedom in the 50 States* index is "lawsuit freedom" (i.e., tort reform and the abuse of the legal system), which is more relevant. Asset forfeiture appears elsewhere in the index – in the personal (not economic) freedom side – and receives a weight of 2.6% of the total index.

Table 1: Distinguishing three freedom indices

Economic Freedom of North America (Subnational)	Freedom in the 50 States (Economic Only)	Economic Freedom of the World
Government Spending (33%) Taxation (33%) Labor Market Regulation (33%)	Government Spending (25%) Taxation (25%) Regulation (50%)	Size of Government (20%) Legal System and Property Rights (20%) Sound Money (20%) Freedom to Trade Internationally (20%) Regulation (20%)

After discussing the "smoking gun" evidence for the relevance of the differences in quality of the legal systems and property rights across states, the section which subsequently follows will build an index using five components: property crime, corruption perceptions, liability reform ("lawsuit freedom" above), civil asset forfeiture, and eminent domain. To varying extents, these variables have potential to be extended to include a time series element, so going beyond a cross section of data would be possible. Using this methodology, legal systems and property rights are evaluated to be best in the upper Midwest and northern New England. They are evaluated to be the worst in the states geographically spanning from Texas and Oklahoma to South Carolina, plus Kentucky and Hawaii.

I will then integrate this legal system and property rights index into EFNA. In doing so, I will recommend rearranging the index to give less weight to state fiscal policies and adding another labor market regulation variable, occupational licensure. Implementing this change has significant, and sometimes surprising effects on the rankings of states. Driven primarily by the addition of data on the legal system, these large changes feature improvements in the rankings by Maine, Wyoming, Vermont, Wisconsin, and Iowa, and significant declines in the rankings by Arizona, Oklahoma, Nevada, Georgia, and Louisiana.

2   Subnational Differences in Legal System Quality and the Protection of Property Rights within the United States Exist

In the early stages of the *Economic Freedom of North America* report, it was asserted that measuring differences in some aspects of economic freedom subnationally is unnecessary because those characteristics are essentially constant within countries. This holds true most intuitively for the freedom to trade internationally, where with rare exceptions (see, e.g., Bell, 2016), everyone faces the same tariff rates. But this was asserted not just for free trade, but also regarding the quality of the legal system and property rights. In the original 2002 report, it states

> In extending the work on economic freedom, it would seem obvious to include the tried and true measures used in Economic Freedom of the World. This is not as easy as it sounds. Some categories of the world index have too little variance among North American jurisdictions to measured [sic] accurately. For example, the stability of the legal system (one of the areas of Economic Freedom of the World) does not differ among states and provinces (Karabegovic et al., 2002)

The 2002 report is not necessarily alone in this assumption. In fact, Glaeser (2011, p. 232) asserts that,

"[g]enerally speaking, America and Europe have relatively well-established rule of law, so no place is going to stand out too much in that arena."

But this is not *a priori* true; it is an empirical proposition that can be tested with data, should the data exist. In fact, in other contexts, the relative performance of legal systems across the U.S. states is well-studied (see, e.g. Berkowitz and Clay, 2006; Sobel and Hall, 2007; Choi et al., 2010; Iyengar, 2011; Dove, 2015). Given that it would be later argued that the quality of the legal system and property rights is the most important area of economic freedom by the first author of *Economic Freedom of the World* (Gwarntey 2009), it would be disconcerting if these variables was omitted in the face of significant cross-sectional variation were to be present.

Two of the nine components of the legal system and property rights area of *Economic Freedom of the World* originate with the World Bank's *Doing Business* report (Doing Business 2018, c.f. Djankov et al. 2002).[1] The first is a combination of two measures of the difficulty of registering property (the length of time it takes to register property and its cost as a percentage of the property) and the second is two measures of the difficulty in using the legal system to enforce a contract (the number of days it takes in court and the cost as a percentage of the value of the contract). Unlike many measures of the legal system or property rights, the *Doing Business* numbers are "hard" data and not survey or expert based.

In recent years, the World Bank has begun collecting data in multiple cities in larger countries so as to allow for the observation of regional variation within a country. In the United States, they report data for Los Angeles and New York City. This is the data that would test the empirical proposition assumed in Karabegovic et al. (2002). If there is negligible variation across the United States, scores for Los Angeles and New York City should differ minimally.

They do not. To express this most bluntly, I "scored" New York City and Los Angeles as if these cities were different countries[2] and calculated the averages and standard deviations of the property registration and contract enforcement scores, by country, in EFW. I then calculated what the z-score of New York City and Los Angeles would be if they were countries. For property registration, New York City has a z-score of 0.79 (12 days and 3.4% of the value of property) and Los Angeles has a z-score of 1.19 (20 days and 0.9% of the value of the property). Worse, the z-score of contract enforcement in New York City is 1.34 (370 days and 22.9% of the value of the contract) but in Los Angeles it is -0.07 (495 days and 42% of the value of the contract).

These numbers should not be interpreted as some crude test for statistical significance of one city against another. The correct interpretation is that the difference between Los Angeles and New York City in the cost and length of time it takes to, for one, enforce a contract is greater than two arbitrarily countries would be expected to be. The differences between the two cities in their property registration is undesirably large but excusable. However, the differences in contract enforcement makes the assumption of Karabegovic et al. (2002) untenable. In one particular measure, the differences in the quality of the legal system and property rights between Los Angeles and New York City are roughly as large as the differences that exist between two randomly selected countries.

There was not an especially a strong reason to believe Los Angeles and New York City would have different legal systems as compared to two other randomly selected regions of the United States. Both are very large cities located in large, coastal, left-leaning states. A difference in the z-score of a full point may have been acceptable if the reputation of the cities or states differed greatly, for instance if the World Bank had calculated the differences between a state with a reputation for good governance with one with poor governance, like Illinois or Louisiana. The presumption would instead be that states and cities that actually have especially good or bad reputations for governance would lie further outside the boundaries implied by

---

[1]Very recently, an attempt has been made in the form of Doing Business North America at fully replicating the Doing Business report for subnational governmental units across North America (Slivinski, 2019). This new report does contain variables concerning the cost and ease of registering property. However, the variables that are available do not cleanly align with what is used in Economic Freedom of the World. For example, much of the data that was collected is about transparency. Those which are closest are "number of forms to legally transfer title on immovable property, "time to process deed," and "cost required to process deed." The time to process the deed is very close to what *Doing Business* collects, but it is not available for most states. The cost (fee?) to process the deed does not appear to be the complete cost of transferring property. The processing fee and the number of forms by themselves do not constitute a close analogue to the data that *Economic Freedom of the World* uses. This is discussed again in the Appendix.

[2]*Economic Freedom of the World* averages them together to generate a single number for the United States.

Los Angeles and New York City.

These variables are equivalent to two-ninths of the legal system and property rights area of Economic Freedom of the World, for two regions of the United States. They are the "hardest" numbers in the category (i.e., they are neither expert nor survey based). These numbers show considerable variation across the regions, comparable to variation across actual countries. The assumption of Karabegovic et al. (2002) is incorrect. There is a "smoking gun" that differences exist in the quality of legal systems and property rights across regions of the United States. The question remaining is how best to measure it.

3 Measuring the Differences in the Legal System and Property Rights across States

Two-ninths of the measures of *Economic Freedom of the World* imply that the differences across the quality of the legal system and property rights within the United States is non-negligible. The other seven-ninths of the legal system and property rights fall under the headings "Judicial Independence," "Impartial Courts," "Protection of Property Rights," "Military Interference in Rule of Law and Politics," "Integrity of the Legal System," "Reliability of Police," and "Business Costs of Crime." Subnational measures of the legal system and property rights would ideally be quite similar to these.

We can start by looking to the primary alternative to *Economic Freedom of North America*, *Freedom in the 50 States* (Ruger and Sorens, 2018). F50 differs in emphasis from EFNA insofar as it uses as many measures of economic freedom as it can identify, even if they have limited time series variation, while ignoring Canada and Mexico.[3] The three most pertinent data sources used by F50 are scores by the U.S. Chamber of Commerce of each state's liability system, grades by the Institute for Justice of each state's rules governing civil asset forfeiture, and grades by the Institute for Justice of each state's rules reforming eminent domain following the *Kelo v. City of New London* Supreme Court ruling. The data and others in this section are summarized in Table 2. More detail on the data sources can be found in the Appendix.

Table 2: Summary statistics of new legal system variables, 2016 or most recent data*

Variable	N	Mean	St. Dev.	Min	Max
Liability System	50	63.394	6.956	46.3	76.5
Asset Forfeiture	50	2.651	2.687	0	9.091
Eminent Domain	50	4.436	3.372	0	10
Property Crime	50	2458.2	595.232	1513	3937
Corruption	50	15.245	3.514	8	23.5

*Raw data are reported, except for Civil Asset Forfeiture and Eminent Domain, which were presented on an A-F grade scale, and corruption, where recent scores have been averaged and summed. When incorporated to the index, all variables will be translated to a 0-10 scale.

The litigious culture in the United States is widely criticized for stultifying commerce (Olson, 1992; Olson, 2003; c.f. Schwartz et al., 2000; Hubbard, 2006), although critics of tort reform have argued that reforms have prevented victims from finding justice (Bodine, 2012; Daniels and Martin, 2015; c.f. Nolan and Ursin, 1994). While I acknowledge this important issue and that tort reform has lost some of its political salience at this point in time, the inclusion of the U.S. Chamber of Commerce data as a dimension of legal quality adds more than it detracts in the context of property rights. On the other hand, the question of its inclusion would be more difficult if we wished to measure the provision of justice, as such, rather than the quality of the legal system with an emphasis on property rights.

The importance of the inclusion of data on eminent domain law is comparatively, much clearer. In the *Kelo* case, the Supreme Court ruled that "public use" in the Takings Clause of the Fifth Amendment implied

---

[3]Presently, *Economic Freedom of North America* exclusively prioritizes consistent data that can be had yearly across U.S. and Mexican states and Canadian provinces.

that the government could seize land not just for uses like building infrastructure, but also in cases where the state believes redevelopment will increase tax revenues. In response to outrage that spanned the political spectrum (and which saw dramatization in the 2017 film, *Little Pink House*), many U.S. states passed laws preventing public entities from applying eminent domain in the manner *Kelo* found to be constitutional. Yet according to Institute for Justice, many of these changes were merely cosmetic, and some states did not reform at all. While it is unlikely that any particular person will see their house seized for the purpose of economic development, this kind of abrogation of private property rights well beyond what was believed to be constitutionally permissible is a worthy inclusion in the subnational index.

Lastly, civil asset forfeiture has come to the fore recently as a clear abuse of state power. In the international context, countries are often compared by the risk private individuals face of expropriation of their assets. Cross-nationally, these comparisons are often made using the *International Country Risk Guide*'s data on expropriation risk, for example by Knack and Keefer (1997). These risks are usually only that severe in kleptocracies. Yet in the United States, police departments in many localities are permitted to seize assets that they merely believe to have been involved in a crime, with no due process in place, and worse, use these assets to fund their own departments. Simply driving across the country with your life savings on hand has been viewed as sufficient basis for police departments to expropriate it (Khan, 2018). As long as kleptocratic expropriation is permitted in many U.S. states, it is relevant for the security of private property rights in a region.

These three data sources are bit of a smattering and obviously are not by themselves representative of the quality of the legal system and property rights in each state. If anything, they roughly match the reform priorities of the organizations who created the data. This is not really a mark against the data; the issues at various points in recent history have been emphasized for good reason. However, assigning too much weight to the three areas of reform may be misleading for our purposes here.

Besides the sources already used by F50, I have focused on two sources of data which approximately match components of EFW. "Business Costs of Crime" may be reasonably proxied by data on property crime per capita. This is available by year from the FBI Uniform Crime Statistics. Crime, in general, is often thought of as more of an "output" of institutions than an "input," but the basic security of property rights is a core aspect of economic freedom. This is true regardless of the cause of lower levels of property crime, whether that means more resources devoted to combatting crime or cultural influences on crime rates; the question of measurement is concerned with whether property rights are protected, not of fundamental causes. Finally, the inclusion of property crime may give pause for measuring the effects of subnational economic freedom on certain social indicators (e.g., homicide rates, as in for example, Stringham and Levendis, 2010), but as long as the presence of the property crime data is known to be in the index and excluded when is appropriate, the benefits outweigh the costs of using it.

The second measure I am using is corruption. Corruption is found explicitly in the Heritage Foundation's *Index of Economic Freedom*, but not explicitly in *Economic Freedom of the World*. One reason for this is that a longstanding (if contrarian) hypothesis is that in countries where bureaucracy and regulation are sufficiently onerous, corruption may be good (e.g., Leff, 1964; Shleifer and Vishny, 1993; Bologna and Ross, 2015; Hall et al., 2019), this being in such a way that means more economic freedom, not less. However, through the "Integrity of the Legal System" component of the EFW, corruption does enter the index already, essentially. Secondly, the relevance of the corruption-as-greasing-the-wheels-of-bureaucracy argument is much weaker subnationally, as regulatory policy in the United States is nowhere near bad enough for corruption to be thought of as a good (e.g. Mendez and Sepulveda, 2006; Heckleman and Powell, 2010; O'Reilly, 2015).

There are many ways of measuring corruption by state. The one which is the most cleanly "institutional" is simply a law against corruption. However, there appears to be a certain amount of reverse causality in the data (states with corruption are more highly incentivized to pass laws against corruption), as states with stronger laws against corruption are often those with worse reputations (Enten, 2015). Additionally, corruption convictions data from the Public Integrity Section of the Department of Justice are questionable, as it has been criticized for its inaccuracy and lack of comprehensiveness (Boylan and Long, 2003; Alt and Lassen, 2014).

The Institute for Corruption Studies has published corruption perceptions data detailing reporters' judgements of the frequency of legislative, executive, and judicial corruption, both legal and illegal (see Dincer
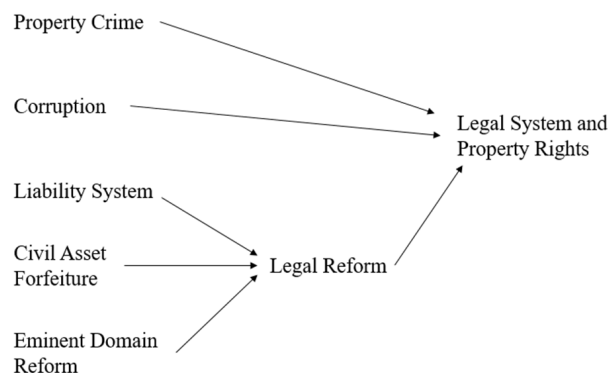
Figure 1: Taxonomy of subnational legal system and property rights

and Johnston, 2015). While judicial corruption is the most important aspect of corruption for evaluating the quality of the legal system and property rights, at this granular level, the variation in judicial corruption alone is erratic and does not convincingly capture how corruption varies across states and across time. However, aggregating all forms of corruption itemized by Dincer and Johnston into a single number appears to work reasonably well. In its current state, the corruption perceptions dataset contains four years of data (2014-2017), with certain state-years missing. Fortunately, each state has been scored at least one year. If the four years are averaged together with whichever years are available, the best five states in (low) corruption are North Dakota, Wyoming, Iowa, Washington, and New Hampshire. The bottom five are Louisiana, Georgia, Kentucky, Alabama, and New Jersey (with Illinois rated as sixth worst). This is the measure of corruption used in the final index.

To gain a lengthier panel element, corruption perceptions could also be buttressed with corruption convictions per capita as gathered by Transactional Records Clearinghouse (TRAC). This approach has been championed by Cordis and Milyo (2016), and it appears to avoid many of the pitfalls of other corruption convictions data. For the purposes of this paper, however, I will continue to use the cross-section of corruption perceptions I have derived from the Institute for Corruption studies, while noting this possibility of developing time variation for states as well.[4]

To aggregate the data and create the index of the quality of the legal system and property rights, I assign Property Crime and Corruption a full weight each. For aforementioned reasons, I assign reform scores for limited liability, eminent domain, and asset forfeiture a one third weight under the heading "Legal Reform." This aggregation is given visually in Figure 1. When this is done, the top five legal systems are evaluated to be New Hampshire, Maine, North Dakota, Wyoming, and South Dakota. The bottom five are Arkansas, Louisiana, Oklahoma, Hawaii, and Mississippi. This data is given in Table 3. In the Appendix, I discuss some of the additional possible data sources that were explored but ultimately dismissed. Also in the Appendix, I briefly evaluate a few potential correlates of the measure, finding some relationships in multiple regressions, but perhaps surprisingly, not the quality of the legal system and property rights does not appear to be caused by output per capita, although of course, this result is not conclusive.[5]

The five variable index of the legal system and property rights constructed in this section is more limited than what is found in *Economic Freedom of the World*, and it has no measure of important dimensions of the legal system, such as the rule of law. However, the results and rankings are broadly consistent with both casual empiricism and the smell test. Furthermore, the geographic clustering apparent in the data, with

---

[4]I have also not used "Corruption Reflections" from the Institute for Corruption Studies. These are instances of corruption being referenced in the media each year. As the Institute notes, the variation in the data is dominated by the corruption scandal which hit the Olympics that took place in Utah. It is possible that the data could be altered by simply removing these data points, but for purposes here, the Corruption Perceptions appears to work adequately. Ultimately, Corruption Reflections could be used in conjunction with the TRAC convictions data to secure a workable time element.

[5]In a series of unreported regressions, I attempted to tie the state level measure of legal system and property rights to per capita output growth. This relationship is not apparent in the cursory analysis of the data, although this of course does not preclude it from becoming apparent when using better identification strategies.

Table 3: Legal system and property right by state

State	Property Crime	Corruption	Liability System	Civil Asset Forfeiture	Eminent Domain	Legal Reform	Legal System	Rank
Alabama	4.33	3.91	5.51	0.91	8.18	4.87	4.37	44
Alaska	3.15	7.24	6.81	2.73	1.82	3.78	4.72	39
Arizona	4.24	5.31	6.54	0.91	8.18	5.21	4.92	34
Arkansas	3.39	4.58	5.77	0.91	0	2.23	3.4	50
California	5.48	6.25	4.99	5.45	0.91	3.78	5.3	30
Colorado	4.93	7.97	6.78	4.55	1.82	5.29	6.06	17
Connecticut	7.65	6.46	6.59	4.55	1.82	4.32	6.14	14
Delaware	4.86	7.55	7.65	0.91	1.82	3.16	5.19	29
Florida	5.09	5.99	5.6	2.73	10	6.11	5.73	20
Georgia	4.16	3.8	6.24	0.91	8.18	5.11	4.36	45
Hawaii	4.2	5.47	6.28	0.91	0	2.4	4.02	47
Idaho	7.83	7.45	7.05	0.91	2.73	3.56	6.28	13
Illinois	6.95	4.48	4.8	0.91	2.73	2.81	4.75	38
Indiana	5.37	5.63	6.77	8.18	7.27	7.41	6.14	15
Iowa	6.84	8.13	7.22	0.91	6.36	4.83	6.6	9
Kansas	5.06	6.15	6.76	0.91	7.27	4.98	5.4	25
Kentucky	6.53	3.91	5.9	0.91	2.73	3.18	4.54	43
Louisiana	3.31	2.71	4.65	2.73	7.27	4.88	3.63	49
Maine	8.12	7.29	6.8	8.18	2.73	5.9	7.1	2
Maryland	6.26	6.25	6.39	7.27	1.82	5.16	5.89	18
Massachusetts	8.37	5.78	6.78	0	0	2.26	5.47	24
Michigan	7.35	6.98	6.55	0.91	9.09	5.52	6.62	8
Minnesota	6.7	8.02	6.8	2.73	6.36	5.3	6.67	7
Mississippi	4.85	4.58	5.63	3.63	0	3.09	4.17	46
Missouri	4.76	6.46	5.66	8.18	1.82	5.22	5.48	23
Montana	5.1	6.88	6.05	0.91	1.82	2.93	4.97	33
Nebraska	6.32	7.99	7.3	4.55	2.73	4.86	6.39	11
Nevada	5.38	5.16	6.04	0.91	8.18	5.04	5.19	28
New Hamp.	8.51	8.06	7.07	0.91	8.18	5.39	7.31	1
New Jersey	8.41	3.91	5.93	1.82	0	2.58	4.97	32
New Mexico	1.45	4.79	5.52	9.09	9.09	7.9	4.71	40
New York	8.41	4.84	6.63	4.55	0	3.73	5.66	22
N. Carolina	4.94	5.99	7.02	8.18	3.64	6.28	5.74	19
N. Dakota	6.23	9.17	6.79	0	10	5.6	7	3
Ohio	5.4	6.3	6.42	0.91	1.82	3.05	4.92	35
Oklahoma	4.23	4.84	6.1	0.91	0	2.34	3.8	48
Oregon	4.28	7.4	6.12	5.45	8.18	6.59	6.09	16
Pennsylvania	7.84	4.84	5.94	0.91	6.36	4.4	5.69	21
Rhode Island	7.38	6.04	6.46	0.91	0	2.46	5.29	27
S. Carolina	3.47	5.26	5.94	0.91	8.18	5.01	4.58	42
S. Dakota	7.14	7.4	6.95	0.91	10	5.95	6.83	5
Tennessee	4.6	7.24	6.57	0.91	0.91	2.8	4.88	36
Texas	4.87	5.1	5.85	2.73	3.64	4.07	4.68	41
Utah	4.32	6.77	6.9	0.91	7.23	5.03	5.37	26
Vermont	7.97	7.97	7.38	4.55	0.91	4.28	6.74	6
Virginia	7.5	6.09	6.83	0.91	8.18	5.31	6.3	12
Washington	2.74	8.07	6.38	0.91	3.64	3.64	4.82	37
West Virginia	6.95	4.95	4.63	0.91	3.64	3.06	4.99	31
Wisconsin	7.28	5.52	6.66	7.27	5.45	6.46	6.42	10
Wyoming	7.21	8.49	6.97	0.91	7.27	5.05	6.92	4

poorly rated states found in the South and highly rated states found in the upper Midwest and northern New England, suggest that the chosen combination of variables is capturing something in the data. This geographic clustering is consistent with the general finding in the international context that cold weather and distance from the equator are positively linked to institutional quality (Olsson, 2005). That we would find weaker institutions in the South is consistent with the general empirical finding that historical experience with slavery predicts lower institutional quality today (Dell, 2010; Acemoglu et al., 2012).

4   Integration to EFNA and Revision Suggestions

One of the primary motivations in constructing the measure found in Section 3 was for the purpose of potentially improving the *Economic Freedom of North America* index. Certain choices made in the section were due to allowing for some amount of time series variation in the data. It is worth noting that, as presently constructed, the Legal System and Property Rights component of the *Economic Freedom of the World* itself uses far fewer variables in the earlier years as well.[6] With all that said, let us reconstruct EFNA.

As is presently constructed, EFNA places a one-third weight on government spending, a one-third weight on taxation, and, when using the subnational version of the index, a one-third weight on labor market regulation. The [limited] "Size of Government" area of EFW, meanwhile, only places a one-fifth weight on taxation and spending combined.[7] There is reason to measure taxation at a much more granular level for subnational regions because differences between spending and taxation subnationally can persist indefinitely (e.g., interregional transfers). This is unlike at the country level, where any amount of spending will eventually show up on someone's tax bill, as Milton Friedman would remind us. But assigning separate areas to spending and taxation means that the equivalent of "Size of Government" is receiving an implicit weight of two-thirds, far higher than the weight used by EFW (20%).

However, arguably this weighting issue is even worse. The labor market regulation area of EFNA contains three variables – unionization, minimum wage rates, and government employment as a share of employment. Government employment is only tenuously related to the concept of "regulation," and is really another measure of the size of government. In other words, one third of the remaining one third (i.e., 11.1% of the total) of EFNA is best understood as the size of government. The total weight placed on the size of government in EFNA is 77.8%. According to Gwartney (2009), one of the "Ten Things We Have Learned from the EFW Project" (2009: 942) is that "Government Spending as a Share of the Economy Is Not a Very Good Measure of Economic Freedom or Reliance on Markets" (2009: 945). In fact, in the most recent version of EFW (2017 data), the top five countries in [limited] "Size of Government" are Guatemala, Cambodia, Honduras, Nigeria, and Haiti, none exactly a shining example of free markets at work. This does not mean it is not important to include the size of government as a component of economic freedom, but that on its own it is a poor indicator. In the cross-country context, it may be[8] negatively correlated with other areas of economic freedom (c.f. Ott, 2018).

In addition to reducing weight placed on government spending, a second recommendation is to incorporate occupational licensure into EFNA. Licenses for low income jobs have become a very widespread problem for labor markets at the state level. The Institute for Justice, again, provides extensive data for studying the issue, and it clearly falls under the heading of a "Labor Market Regulation."[9] While it only has two

---

[6]If the legal system and property rights index were to be incorporated as proposed here, it would require data that runs back through the early 1980s. It is my reading that a full panel of data for corruption and crime will be possible, or it will at least be very close. I have previously pointed to the relevant data sources, but making decisions about how precisely to integrate them as a panel goes being the scope of this "proof of concept" paper.

[7]EFW has five measures of the size of government: government consumption as a share of consumption, transfers and subsidies as a percentage of GDP, government investment as a share of investment, the top marginal income tax rate, and government capital share. These five were chosen to capture the idea of the burden of government, with the three spending measures and capital share capturing the government's footprint in the economy and the top marginal income tax rate meant to capture the deadweight loss burden of that spending.

[8]The most recent data in EFW includes a measure of government ownership of assets in the economy. When this data is included, a negative correlation is no longer obvious.

[9]Two additional measures of regulation, more broadly defined, have very recently made available. Slivinski (2019) contains state level data on three dimensions of the cost of starting a business. The State RegData data set contains counts of words and restrictions in the administrative code for forty-six of the fifty states (see Broughel and McLaughlin, 2019). If the "labor market regulation" area of EFNA were to be generalized into a "regulation" area, these measures would be good places to start.

periods of observation, it can slide in to replace government employment share in labor market regulation. Some observers, such as Kleiner and Kreuger (2013); Soltas (2014), have argued that occupational licensure has slowly replaced the role of private sector labor unions, as their rise coincided with the decline of private sector unions; it would be best for EFNA to reflect both unions and licenses as opposed to only the one that has improved over time. More discussion of how the Institute for Justice data was implemented can be found in the Appendix.

Taking all this together, I propose to re-organize and to re-weight EFNA along the lines found in Table 4. The current government spending area, the current taxation area, and the current government employment component of labor market regulation are assigned to the new Area 1, Size of Government, and each are given a one-third weight in the area. Occupational licensure joins union density and minimum wages in the new Area 2, Labor Market Regulations. The index developed in Section 3 slides in as the new Area 3, Legal System and Property Rights. As before, the proposed index is the simple average of the three areas.

Table 4: Present and proposed construction of EFNA

Current EFNA	Area 1, Government Spending	Area 2, Taxes	Area 3, Labor Market Regulation
	comprised of three measures of spending	comprised of four measures of taxation	comprised of minimum wages, government employment, and union density
Proposed EFNA	Area 1, Size of Government	Area 2, Labor Market Regulation	Area 3, Legal System and Property Rights
	comprised of government spending, taxes, and government employment	comprised of minimum wages, union density, and occupational licenses	comprised of index developed in Section 3

Upon implementing these changes, the top five states in economic freedom are New Hampshire, North Dakota, South Dakota, Virginia, and Nebraska. The full rankings and scores can be found in Table 5. The bottom five are Hawaii, Kentucky, West Virginia, California, and Alaska. Those which improved the most in their rankings are Maine (from 36th to 15th), Wyoming (27th to 7th), Vermont (44th to 25th), Wisconsin (30th to 11th), and Iowa (33rd to 16th). Those which fell the most in the rankings are Arizona (10th to 33rd), Oklahoma (9th to 29th), Nevada (21st to 40th), Georgia (7th to 21st), and Louisiana (24th to 38th). The proposed changes result in much stronger regional clustering in the scores (though not as strong of clustering as the legal system and property rights subindex alone), with the strongest performance found to be primarily in the upper Midwest.

While, for the most part, shifts in the rankings are driven by the addition of the legal system and property rights subindex, a few other points are worth explicating. Some counterintuitive scores appear in the Size of Government area, essentially because of the movement of government employment data from "Labor Market Regulation" to "Size of Government." Various rural states have especially poor scores in government employment, for example Wyoming, whose brutally low score causes its overall Size of Government score to fall to 49th of the fifty states. Wyoming rises in the new version of the index despite this scoring, as the implicit weight placed on government employment has not actually changed in one version of the index versus the other – it is only now more obvious when it is in the Size of Government area instead of the Labor Market Regulation area.

Secondly, states with robust economies seem to receive good government employment scores not because of small numbers of public employees, but because of large devisors (i.e., total employment). The states with the best (lowest) government employment to total employment ratio are Massachusetts, Pennsylvania, and Rhode Island. As such, the overall Size of Government rankings for those three states are 7th, 13th, 20th. It is possible that a more appropriate devisor would be the working age population of each state, as otherwise the variation may be driven by division bias (see Borjas, 1980) more than what the variable is intended to

Table 5: Proposed construction of EFNA with scores and ranks

State	Economic Freedom (Rank)	Area 1, Size of Govt. (Rank)	Area 2, Labor Market Regulation (Rank)	Area 3, Legal System and Property Rights (Rank)
Alabama	5.42 (35)	5.99 (35)	5.92 (25)	4.37 (44)
Alaska	4.74 (46)	4.37 (46)	5.13 (36)	4.72 (39)
Arizona	5.56 (33)	7.31 (9)	4.44 (44)	4.92 (34)
Arkansas	5.05 (42)	5.75 (38)	6.01 (21)	3.40 (50)
California	4.66 (47)	5.54 (42)	3.27 (48)	5.17 (30)
Colorado	6.42 (9)	7.08 (11)	6.13 (18)	6.06 (17)
Connecticut	6.14 (18)	7.05 (12)	5.22 (34)	6.14 (14)
Delaware	5.45 (34)	5.74 (39)	5.42 (32)	5.19 (29)
Florida	6.53 (6)	8.83 (1)	5.04 (39)	5.73 (20)
Georgia	6.10 (21)	7.44 (6)	6.49 (13)	4.36 (45)
Hawaii	4.49 (50)	6.25 (27)	3.21 (49)	4.02 (47)
Idaho	6.34 (12)	6.53 (21)	6.21 (17)	6.28 (13)
Illinois	5.85 (27)	6.81 (18)	6.01 (22)	4.75 (38)
Indiana	6.43 (8)	7.11 (10)	6.04 (10)	6.14 (15)
Iowa	6.24 (16)	5.69 (40)	6.42 (14)	6.60 (9)
Kansas	6.12 (20)	6.37 (25)	6.60 (10)	5.40 (25)
Kentucky	4.53 (49)	5.34 (44)	3.71 (46)	4.54 (43)
Louisiana	5.35 (38)	6.11 (30)	6.30 (15)	3.63 (49)
Maine	6.26 (15)	6.05 (33)	5.64 (29)	7.10 (2)
Maryland	6.07 (22)	6.84 (17)	5.48 (31)	5.89 (18)
Massachusetts	6.01 (24)	7.43 (7)	5.12 (37)	5.47 (24)
Michigan	6.01 (23)	6.85 (16)	4.57 (42)	6.62 (8)
Minnesota	5.88 (26)	5.88 (37)	5.07 (38)	6.67 (7)
Mississippi	4.83 (45)	4.35 (47)	5.96 (24)	4.17 (46)
Missouri	6.12 (19)	7.03 (14)	5.86 (26)	5.48 (23)
Montana	5.58 (32)	6.42 (23)	5.36 (33)	4.97 (33)
Nebraska	6.55 (5)	6.72 (19)	6.53 (12)	6.39 (11)
Nevada	5.24 (40)	7.74 (4)	2.80 (50)	5.19 (28)
New Hampshire	7.40 (1)	7.95 (2)	6.93 (5)	7.32 (1)
New Jersey	5.63 (31)	6.22 (28)	5.69 (27)	4.97 (32)
New Mexico	4.93 (43)	4.00 (50)	6.09 (19)	4.71 (40)
New York	4.93 (44)	4.68 (45)	4.47 (43)	5.66 (22)
North Carolina	6.33 (14)	6.36 (26)	6.90 (6)	5.74 (19)
North Dakota	6.97 (2)	6.05 (32)	7.88 (2)	7.00 (3)
Ohio	5.37 (36)	6.00 (34)	5.20 (35)	4.92 (35)
Oklahoma	5.64 (29)	6.16 (29)	6.97 (3)	3.80 (48)
Oregon	5.13 (41)	5.96 (36)	3.34 (47)	6.09 (16)
Pennsylvania	6.33 (13)	7.03 (13)	6.28 (16)	5.69 (21)
Rhode Island	5.27 (39)	6.60 (20)	3.91 (45)	5.29 (27)
South Carolina	5.63 (30)	5.56 (41)	6.74 (7)	4.58 (42)
South Dakota	6.91 (3)	7.35 (8)	6.54 (11)	6.83 (5)
Tennessee	6.23 (17)	7.81 (3)	6.00 (23)	4.88 (36)
Texas	6.40 (10)	7.57 (5)	6.94 (4)	4.68 (41)
Utah	5.85 (28)	6.51 (22)	5.66 (28)	5.37 (26)
Vermont	5.90 (25)	5.49 (43)	5.48 (30)	6.74 (6)
Virginia	6.66 (4)	6.97 (15)	6.71 (8)	6.30 (12)
Washington	5.37 (37)	6.38 (24)	4.91 (40)	4.82 (37)
West Virginia	4.62 (48)	4.25 (48)	4.64 (41)	4.99 (31)
Wisconsin	6.40 (11)	6.07 (31)	6.70 (9)	6.42 (10)
Wyoming	6.48 (7)	4.20 (49)	8.32 (1)	6.92 (4)

capture. I raise these points to explain what appears in Table 5, but it was not an intention of this paper to "fix" this particular issue. Again, the data was already present in *Economic Freedom of North America*, but it was less apparent when government employment was a component of the Labor Market Regulation area of the index.

A final set of comparisons to make are between the current (original) build of EFNA, my proposed adjustments and additions, and the aforementioned *Freedom in the 50 States*(F50) (economic freedom only) index. Since I have buttressed EFNA with some of the same variables that appear in F50, one might expect my proposal would split the difference between them. This is not exactly true. While the correlation coefficient between the original build of EFNA and my proposal is 0.776, and the correlation coefficient between the original build of EFNA and F50 is a nearly identical 0.767, the correlation coefficient between my proposal and F50 is only 0.576. Even though F50 includes some of the legal system variables, my sharper focus on them along with data on property crime and corruption has meant that I take a less sanguine evaluation of states in the U.S. South and a more positive evaluation of the upper Midwest.

Rankings for the three indices are provided in Table 6 There are many examples of the new proposed index falling ten ranks higher or lower than the rankings of either previous index. Among the states that the new index sees much more favorably than previous rankings are Iowa, Maine, Minnesota, Nebraska, Vermont, Wisconsin and Wyoming. Among those the index sees much less favorably are Alabama, Arizona, Arkansas, Georgia, Louisiana, and Tennessee.

Table 6: Ranking comparisons of the current Economic Freedom of North America index, my proposed changes, and the Freedom in the 50 States index

State	EFNA (Current)	F50	EFNA (Proposed)	State	EFNA (Current)	F50	EFNA (Proposed)
Alabama	25	18	35	Montana	28	22	32
Alaska	46	29	46	Nebraska	12	30	5
Arizona	10	14	33	Nevada	21	15	40
Arkansas	29	21	42	New Hampshire	2	3	1
California	47	48	47	New Jersey	35	46	31
Colorado	8	11	9	New Mexico	43	43	43
Connecticut	19	31	18	New York	50	50	44
Delaware	39	38	34	N. Carolina	13	23	14
Florida	1	1	6	N. Dakota	11	6	2
Georgia	7	7	21	Ohio	38	32	36
Hawaii	37	49	50	Oklahoma	9	12	29
Idaho	17	9	12	Oregon	45	42	41
Illinois	23	36	27	Pennsylvania	26	19	13
Indiana	14	5	8	Rhode Island	40	37	39
Iowa	33	34	16	S. Carolina	32	25	30
Kansas	15	13	20	S. Dakota	5	4	3
Kentucky	49	26	49	Tennessee	4	2	17
Louisiana	24	28	38	Texas	3	10	10
Maine	36	44	15	Utah	20	20	28
Maryland	22	45	22	Vermont	44	47	25
Massachusetts	18	27	24	Virginia	6	8	4
Michigan	34	17	23	Washington	31	41	37
Minnesota	41	40	26	West Virginia	48	39	48
Mississippi	42	35	45	Wisconsin	30	24	11
Missouri	16	16	19	Wyoming	27	33	7

5   Conclusion

This paper has constructed a subnational analogue to the Legal System and Property Rights area of the *Economic Freedom of the World* index and shown how it can be integrated into *Economic Freedom of North America*. In doing so, it also made two additional changes in reducing the implicit weight on the size of government and adding occupational licensure. While some of the choices of data followed the *Freedom in the 50 States* index, the final rankings led to real differences not only between the new index and *Economic Freedom of North America*, but even greater departures from *Freedom in the 50 States*. The general pattern, geographically, is to reduce rankings of states in the South and improve rankings of states in the upper Midwest and northern New England.

The legal system and property rights data was constructed using three components formed from five variables. Property crime and corruption each receive a full weight. The last third is a legal reform component composed of data on eminent domain, civil asset forfeiture, and each state's liability system. The resulting index is strongly geographically clustered, with the bottom ten states being composed of eight contiguous states running from Texas and Oklahoma to South Carolina, plus Hawaii and Kentucky.

With the broad scholarly recognition that the legal systems and property rights play an essential role in economic development, from Hayek (1960) to North and Weingast (1989) to Acemoglu and Johnson (2005) to Gwartney (2009) and to Ogilvie and Carus (2014), it is hoped that the proposed changes will improve the usefulness of the *Economic Freedom of North America* index. However, the legal system and property rights subindex by itself may be useful as a subnational measure of institutional quality, as to this author's knowledge, it is a first of its kind in its focus and scope. The legal system and property rights area of *Economic Freedom of the World* is at times used on its own as well as a measure of institutional quality, for example in Baggio and Papyrakis (2010), Bjornskov et al. (2010), and Bennett and Nikolaev (2016). Going forward, evaluating various hypotheses concerning legal institutions through the lens of property rights may be a useful counterpart to the research of subnational institutions described by Stansel and Tuszynski (2018) on its own merits.

References

Acemoglu, D., Garcia-Jimeno, C., and Robinson, J. A. (2012). Finding Eldorado: Slavery and Long-Run Development in Colombia. *Journal of Comparative Economics*, 40(4):534–564.

Acemoglu, D. and Johnson, S. (2005). Unbundling Institutions. *Journal of Political Economy*, 113(5):949–995.

Alt, J. E. and Lassen, D. D. (2014). Enforcement and Public Corruption: Evidence from the American States. *Journal of Law, Economics and Organization*, 30(2):306–338.

Baggio, J. A. and Papyrakis, E. (2010). Ethnic Diversity, Property Rights, and Natural Resources. *The Developing Economies*, 48(4):473–495.

Bell, T. W. (2016). Special Economic Zones in the United States: From Colonial Charters to Foreign-Trade Zones, Toward USSEZs. *Buffalo Law Review*, 64(5):959–1016.

Bennett, D. and Nikolaev, B. (2016). Factor Endowments, the Rule of Law, and Structural Inequality. *Journal of Institutional Economics*, 12(4):773–795.

Berkowitz, D. and Clay, K. (2006). The Effect of Judicial Independence on Courts: Evidence from the American States. *Journal of Legal Studies*, 35(2):399–440.

Better Governance Association (2013). *BGA-Alper Services Integrity Index*. Better Governance Association, Chicago.

Bjornskov, C., Dreher, A., and Fischer, J. A. V. (2010). Formal Institutions and Subjective Well-Being: Revisiting the Cross-Country Evidence. *European Journal of Political Economy*, 26(4):419–430.

Bodine, L. (2012). Exposing the Lie of Tort Reform. *The Huffington Post*, 18 October.

Bologna, J. and Ross, A. (2015). Corruption and Entrepreneurship: Evidence from Brazilian Municipalities. *Public Choice*, 165(1):59–77.

Borjas, G. (1980). The Relationship between Wages and Weekly Hours of Work: The Role of Division Bias. *Journal of Human Resources*, 15(3):409–423.

Boylan, R. T. and Long, C. K. (2003). Measuring Public Corruption in the American States: A Survey of State House Reporters. *State Politics & Policy Quarterly*, 3(4):420–438.

Broughel, J. and McLaughlin, P. A. (2019). Ranking the States by Regulation. *National Review*, 17 October.

Carpenter II, D. M., Knepper, L., Erickson, A. C., and McDonald, J. (2015). *Policing for Profit: The Abuse of Civil Asset Forfeiture*. Institute for Justice, Arlington, 2nd edition.

Carpenter II, D. M., Knepper, L., Sweetland, K., and McDonald, J. (2017). *License to Work: A National Study of Burdens from Occupational Licensing*. Institute for Justice, Arlington, 2nd edition.

Castle Coalition (2007). *50 State Report Card: Tracking Eminent Domain Reform Legislation since Kelo*. Institute for Justice, Arlington.

Choi, S. J., Gulati, M., and Posner, E. A. (2009). Judicial Evaluations and Information Forcing: Ranking State High Courts and Their Judges. *Duke Law Journal*, 58:1313–1392.

Choi, S. J., Gulati, M., and Posner, E. A. (2010). Professionals or Politicians: The Uncertain Empirical Case for Elected Rather than Appointed Judiciary. *Journal of Law, Economics, and Organization*, 26(2):290–336.

Cordis, A. S. and Milyo, J. (2016). Measuring Public Corruption in the United States: Evidence from Administrative Records of Federal Prosecutions. *Public Integrity*, 18:127–148.

Daniels, S. and Martin, J. (2015). *Tort Reform, Plantiffs' Lawyers, and Access to Justice*. University of Kansas Press, Lawrence.

Dell, M. (2010). The Persistent Effects of Peru's Mining Mita. *Econometrica*, 78(6):1863–1903.

Dincer, O. and Johnston, M. (2015). *Measuring Illegal and Legal Corruption in American States: Some Results from the Edmond J. Safra Center for Ethics Corruption in America Survey*. Edmond J. Saffra Center for Ethics, Cambridge.

Djankov, S., La Porta, R., Lopez-de Silanes, F., and Shleifer, A. (2002). The Regulation of Entry. *The Quarterly Journal of Economics*, 117(1):1–37. Publisher: Oxford Academic.

Doing Business (2018). Doing Business 2019. Library Catalog: www.doingbusiness.org.

Dove, J. A. (2015). The effect of judicial independence on entrepreneurship in the US states. *Economic Systems*, 39(1):72–96.

Enten, H. (2015). Ranking The States From Most To Least Corrupt. Library Catalog: fivethirtyeight.com.

Glaeser, E. (2011). *The Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier*. Penguin Books, New York.

Gwartney, J. (2009). Institutions, Economic Freedom, and Cross-Country Differences in Performance. *Southern Economic Journal*, 75(4):937–956.

Gwartney, J., Lawson, R., Hall, J., and Murphy, R. H. (2019). *Economic Freedom of the World: 2019 Annual Report*. Fraser Institute, Vancouver.

Gyourko, J., Hartley, J., and Krimmel, J. (2019). The Local Residential Land Use Regulatory Environment Across U.S. Housing Markets: Evidence from a New Wharton Index. Working Paper 26573, National Bureau of Economic Research.

Gyourko, J., Saiz, A., and Summers, A. (2008). A New Measure of the Local Regulatory Environment for Housing Markets: The Wharton Residential Land Use Regulatory Index:. *Urban Studies*, 45(3):693–729.

Hall, J., Levendis, J., and Scarcioffolo, A. R. (2019). The Efficient Corruption Hypothesis and the Dynamics Between Economic Freedom, Corruption, and National Income. *The Journal of Developing Areas*, 54(3).

Hayek, F. (1960). *The Constitution of Liberty*. University of Chicago Press, Chicago.

Heckleman, J. C. and Powell, B. (2010). Corruption and the Institutional Environment for Growth. *Comparative Economic Studies*, 52(3):351–378.

Helland, E. and Tabarrok, A. (2002). The Effect of Electoral Institutions on Tort Awards. *American Law and Economics Review*, 4(2):341–370.

Hubbard, F. P. (2006). The Nature and Impact of the 'Tort Reform' Movement. *Hofstra Law Review*, 35:437–538.

Iyengar, R. (2011). Who's the Fairest in the Land? Analysis of Judge and Jury Death Penalty Decisions. *Journal of Law and Economics*, 54(3):693–722.

Karabegovic, A., McMahon, F., and Samida, D. (2002). *Economic Freedom of North America*. Fraser Institute, Vancouver.

Khan, J. (2018). Property Rights Get Their Day in Court. *National Review*, 18 July.

Kleiner, M. M. and Kreuger, A. B. (2013). Analyzing the Extent and Influence of Occupational Licensing

on the Labor Market. *Journal of Labor Economics*, 31(2, Part 2):S173–S202.

Knack, S. and Keefer, P. (1997). Does Social Capital Have an Economic Payoff? A Cross-Country Investigation. *Quarterly Journal of Economics*, 112(4):1251–1288.

Krane, D., Chew, A., Gosney, M., and Mulvey, A. (2017). *2017 Lawsuit Climate Survey: Ranking the States.* Harris Poll, Rochester.

Leff, N. W. (1964). Economic Development through Bureaucratic Corruption. *American Behavioural Scientist*, 8(3):8–14.

Mendez, F. and Sepulveda, F. (2006). Corruption, Growth, and Political Regimes: Cross Country Evidence. *European Journal of Political Economy*, 22(1):82–98.

NAIC Title Insurance Task Force (2015). *Survey of State Insurance Laws Regarding Title Data and Title Matters.* National Association of Insurance Commissioners, Kansas City.

Nolan, V. E. and Ursin, E. (1994). *Understanding Enterprise Liability: Rethinking Tort Reform for the Twenty-First Century.* Temple University Press, Philadelphia.

North, D. C. and Weingast, B. R. (1989). Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England. *Journal of Economic History*, 49(4):803–832.

Ogilvie, S. and Carus, A. (2014). Institutions and Economic Growth in Historical Perspective. In *Handbook of Economic Growth*, volume 2, pages 403–513. Elsevier. Philippe Aghion and Steven N. Durlaugh, eds.

Olson, W. (1992). *The Litgation Explosion: What Happened When America Unleashed the Lawyers.* Truman Talley Books, New York.

Olson, W. (2003). *Rule of Lawyers: How the New Litigation Elite Threatens America's Rule of Law.* Truman Talley Books, New York.

Olsson, O. (2005). Geography and Institutions: Plausible and Implausible Linkages. *Journal of Economics*, 86(Supplement 1):167–194.

O'Reilly, C. (2015). Firm Investment Decisions in the Post-Conflict Context. *Economics of Transition and Institutional Change*, 23(4):717–751.

Ott, J. (2018). Measureing Economic Freedom: Better Without Size of Government. *Social Indicators Research*, 135(2):479–498.

Peacock, B. (2016). *Texas' Title Insurance Tax: Texas One of the Most Expensive Insurance Markets in the U.S.* Texas Public Foundation Policy, Austin.

Ruger, W. P. and Sorens, J. (2018). *Freedom in the 50 States: An Index of Personal and Economic Freedom.* Cato Institute, Washington, D.C., 5th edition.

Sandefur, C. and Sandefur, T. (2016). *Protecting Property RIghts: The Property Ownership Fairness Act.* Goldwater Institute, Phoenix.

Schwartz, V. E., Behrens, M. A., and Lorber, L. (2000). Tort Reform Past, Present and Future: Solving Old Problems and Dealing with 'New Style' Litigation. *William Mitchell Law Review*, 27:237–269.

Shepherd, J. M. (2009). The Influence of Retention Politics on Judges' Voting. *Journal of Legal Studies*, 38:169–203.

Shleifer, A. and Vishny, R. (1993). Corruption. *Quarterly Journal of Economics*, 108(3):599–617.

Slivinski, S. (2019). *Doing Business North America.* ASU Center for the Study of Economic Liberty, Tempe.

Sobel, R. and Hall, J. (2007). The Effect of Judicial Selection Processes on Judicial Quality: the Role of Partisan Politics. *Cato Journal*, 27(1):69–82.

Soltas, E. (2014). Occupational Licensing is Replacing Labor Unions and Exacerbating Inequality. *Vox*, April 18.

Stansel, D., Torra, J., and McMahon, F. (2018). *Economic Freedom of North America.* Fraser Institute, Vancouver.

Stansel, D. and Tuszynski, M. (2018). Sub-National Economic Freedom: A Review and Analysis of the Literature. *Journal of Regional Analysis & Policy*, 48(1):61–71.

Stringham, E. P. and Levendis, J. (2010). The Relationship between Economic Freedom and Homicide. In *Economic Freedom of the World*, pages 203–217. Fraser Institute, Vancouver, 2010 edition. James Gwartney, Robert Lawson, and Joshua Hall.

Tabarrok, A. and Helland, E. (1999). Court Politics: The Political Economy of Tort Awards. *Journal of Law and Economics*, 42(1):157–188.

Taylor, J. (2015). Pipelines or Property Rights?

White House (2015). *Occupational Licensing: A Framework for Policymakers.* Treasury Office of Economy

Policy, the Council of Economic Advisers, and the Department of Labor, Washington DC.

6   Appendix

Detailed Explanation of Limited Liability, Eminent Domain, Civil Forfeiture, and Occupational Licensure Data

State liability systems

Data on the character of each state's liability system originates with the U.S. Chamber of Commerce Institute for Legal Reform, using surveys of attorneys and business executives in the United States Krane et al. (2017). Those surveys responded to questions concerning ten characteristics of the state liability system, such as "enforcing meaningful venue requirements" and "trial judges' impartiality," with grades from F to A. Scores may range from zero to one hundred, with the 2017 data ranging from a low of 56.6 in Louisiana to a high of 75.3 in South Dakota. To transform this into a ranking on the zero to ten scale, scores were simply divided by ten. Updates to this data source have appeared intermittently since 2002.

Civil asset forfeiture

Data on reforms to civil asset forfeiture can be found in Carpenter II et al. (2015), with an earlier grading also performed in 2010. States were scored by substantive reforms preventing police departments from seizing property (and profiting from it) at low evidentiary standards without the need to secure convictions of those said to be suspected of crimes. Each state is graded from "F" to "A," with eleven increments in total, including half grades. For each higher increment, the state gains an additional $\frac{10}{11}$ of a point, with a maximum of ten points in total if the state is scored as an "A." It is not clear whether the gradings will continue on an ongoing basis. However, Freedom of the 50 States buttresses this data with the moving average of equitable sharing revenue, which is a means of maintaining or extending the time series element to the data, should a time series element be desired.

Eminent domain

Data on the rules that were put in place to limit abuse of eminent domain laws following the *Kelo* decision can be found in Castle Coalition (2007). Each state is graded from "F" to "A," with eleven increments in total, including half grades. For each higher increment, the state gains an additional $\frac{10}{11}$ of a point, with a maximum of ten points in total if the state is scored as an "A." Eminent domain is not as topical as it once was and it is not clear that this dataset will be updated, although certain groups remain active relatively recently in promoting reform (e.g., Sandefur and Sandefur, 2016), and has arisen as a topic in the fight over the Keystone Pipeline (Taylor, 2015).

Occupational licensure

Occupational licensure data originates with the Institute for Justice's License to Work project (Carpenter II et al., 2017) , which has seen separate editions in 2012 and 2017. Occupational licensure remains a topical issue, with bipartisan support for reform (White House, 2015). The report focuses on occupational licenses for lower income professions where it is unclear how stringent requirements improve public health or safety, not occupational licenses for professions such as medical doctors. Data for 102 professions are reported by state, with the count of the occupations licensed, the average fee per license, the average calendar days

lost (e.g., for required degrees and coursework), the average number of exams required, the minimum grade required, and age minimums. To create a single summary statistic, the occupation count, the average fees, and the calendar days lost were collected

The three components were assigned minimum values and maximum values, which were then set to the zero-to-ten scale. States which surpassed the maximum values are assigned a zero. For occupation count, this was set to zero and 102; in order to get a perfect "10," a state must have no low income occupational licenses. For average fees, these numbers were set to zero and $500. Finally, for average days lost, these were set to zero and 1,000. The three figures are then averaged together to produce the final score, which is also on a zero-to-ten scale.

Other Data Sources

In this section, I will briefly discuss other data sources that were considered but not utilized in the final scorings. Reasons for eliminating these data sources vary and include incomplete data coverage, questions over methodology, and concerns with results.

Data on title insurance regulations (NAIC Title Insurance Task Force, 2015) is surprisingly dense, and has a close analogue in *Economic Freedom of the World* (i.e., "regulatory restrictions of the sale of real property"). It is possible to derive counts of separate title insurance regulations, and importantly, whether an attorney is required to close on a real estate deal. But it is unclear what differences across states are actually measuring, unlike its analogue in EFW. Secondly, Iowa is "unregulated" because it nationalized title insurance. While this author found trying to make sense of this data to be somewhat exasperating, it is possible that it may be useful in the future.[10]

Choi et al. (2009) was also considered as a measure of judicial evaluation, with rankings and methodology that directly challenges the rankings from the U.S. Chamber of Commerce. The authors admit their data is "coarse." Their rubrics are the total number of opinions issued by a judge, how much their opinions are cited by outsiders, and judicial independence, the last of which is measured by whether judges are likely to vote with the opposing political party. The rankings place California, Arkansas, North Dakota, Montana, and Ohio at the top and Oklahoma (criminal side only), Missouri, North Carolina, Wisconsin, and Hawaii at the bottom. The weakness of the indicators used by Choi et al. (2009) is why it was not used in this project, noting also that if this were to be extended to a panel, Choi et al. (2009) only offer a single cross-section, unlike the U.S. Chamber of Commerce data.

The Wharton Residential Land Use Regulation Index (Gyourko et al., 2008) addresses a topical issue related to property rights, and is used in *Freedom in the 50 States*. However, I have chosen not to use the index here, as the scorings of many states are extrapolated from very small sample sizes, which makes the cross-section of data seem much less reliable than, for example, the metropolitan area subsample where the authors censor any data point with under ten observations. If the Wharton index ought to be included, it could either enter as its own component or within the "Legal Reform" component. Very recently, an additional cross section of the data was published as a working paper (Gyourko et al., 2019).

As discussed in a footnote in Section 2, data on registering property is present in the new *Doing Business North America* report (Slivinski, 2019). However, the cleanest measure pertaining to the quality of the legal system and property rights, the time it takes to process a deed, has very weak data coverage. Additional measures found here are the number of forms needed and the processing cost for a deed. These three measures together may be sufficient to include as a measure of the legal system eventually, but without the time to process a deed, the data that is available is a very incomplete measure. There are other variables in the registering property area of *Doing Business North America*, but they are still more indirect and generally pertain to issues such as transparency.

A widespread finding has been that elected judges lead to lower quality of legal institutions than appointed judges, and this is one way that legal systems differ subnationally in the United States (Tabarrok and Helland (1999); Helland and Tabarrok (2002); Sobel and Hall (2007); Shepherd (2009); for a contrary finding, see Choi et al. (2010)). I am hesitant towards incorporating this data for two reasons. One is that, while certain

---

[10]See also Peacock (2016)

additional gradations can be made, it is essentially a binary indicator. Since binary indicators are binary, they are given more implicit weight in how an index will vary, especially when an index is only composed of a handful of variables. On the conceptual side of things, including whether judges are elected is to include a measure which is a cause of the quality of the legal system. It is unclear that we would want to include what appears to be a cause of the quality of legal systems rather than the quality of legal systems themselves. Analogously, there is no indicator of British legal origins in the Economic Freedom of the World index, even though one may argue that it is an important cause of institutional quality.

Finally, the BGA-Alper Integrity Index Better Governance Association (2013) (Better Government Association 2013) provides a measure of good governance. However, it is primarily a measure of formal legal rules, including anti-corruption laws, that appear to suffer from the reverse causality that was described in the main text of the article regarding corruption. As such, scores from BGA-Alper were not used.

Potential Causes of Subnational Legal Systems and Property Rights

While we will not be making a serious attempt to convincingly identify the causes of differences in the quality of the legal system and property rights by state, this brief appendix will consider certain variables that appear to be obvious potential correlates. The variables we have chosen are logged gross state product per capita (from Bureau of Economic Analysis; 2018 data), the percentage of the population living in an urban area (Census Bureau; 2010 data), the percentage of adults 25 and older holding at least a bachelor's degree (2013-2017 estimates from the Census Bureau), and whether the state is part of the American South. Because there are different definitions of what constitutes being located in the South, two definitions were employed. The first is only the Deep South: Alabama, Georgia, Louisiana, Mississippi, and South Carolina. The second is the Census definition of the South, which includes sixteen states. Each of the "South" variables are dummies.

Four specifications appear in Appendix Table A1. The first two includes all variables, with the difference between them being which definition of the American South is used. In both specifications, education (positive), percentage urban (negative), and South (negative) enter significantly in explaining the quality of the legal system and property rights. Surprisingly, gross state product per capita is the variable which has no statistical relationship with the quality of the legal system and property rights. Whatever the index variable is measuring, it does not appear to be something states are able to "buy" more of by simply being wealthier.

Table A1: Potential causes of the quality of legal system - cursory analysis

Variable	(1)	(2)	(3)	(4)
Education	0.077**(0.030)	0.070**(0.030)	0.087**(0.025)	0.078**(0.029)
Logged GSP Per Capita	0.504(1.021)	0.441(1.003)		
Percent Urban	-0.030***(0.008)	-0.029***(0.009)	-0.029***(0.007)	-0.028***(0.008)
Deep SouthDummy	-1.103***(0.256)		-1.152***(0.237)	
South (Census)Dummy		-0.816***(0.246)		-0.844***(0.255)
Constant	-0.065(10.237)	0.911(9.980)	5.021***(0.906)	5.378(0.809)
n	50	50	50	50
R^2	0.425	0.452	0.420	0.448

* denotes confidence at 10% level. ** denotes confidence at 5% level. *** denotes confidence at 1% level. Standard errors are robust.

The subsequent specifications remove gross state product per capita. The three variables alone explain 45% of the variation observed across states. Whether or not these effects are causal, whatever we are measuring with the index is almost half explained statistically with education, percentage urban, and whether the state is in the South.