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Joshua Hall, Dean Stansel, and Danko Tarabar

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Joshua C. Hall

Associate Professor of Economics
College of Business and Economics
West Virginia University
Morgantown, WV 26505-6025
joshua.hall@mail.wvu.edu

Dean Stansel

Associate Professor of Economics
Lutgert College of Business
Florida Gulf Coast University
Fort Myers, FL 33965
dstansel@fgcu.edu

Danko Tarabar

Doctoral Candidate
College of Business and Economics
West Virginia University
Morgantown, WV 26505-6025
datarabar@mix.wvu.edu

Abstract

This chapter synthesizes and elaborates on much of the existing research using the Economic Freedom of North America (EFNA) index. Our consensus after reading this literature is that the EFNA index, similarly to the Economic Freedom of the World (EFW) index, is largely positively related with “good” outcomes, and negatively related with “bad” ones, although there are a few exceptions. The literature using the EFNA is growing rapidly and can provide a useful guide towards future policy changes and economic outcomes.

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1 Introduction

This chapter provides an overview of the empirical literature using or citing the Economic Freedom of North America (EFNA) index (Stansel, Torra, and McMahon, 2014). The index, originally developed in 2002, was the first attempt towards gauging the economic freedom in US states and Canadian provinces. It has since become an integral part of a growing literature in diverse fields, from economic growth and entrepreneurship, to public choice and welfare. Recently, Hall and Lawson (2014) provided an extensive accounting of the literature citing the Economic Freedom of the World (EFW) index, which measures economic freedom for countries. They find that the EFW index is robustly and positively associated with a host of good outcomes such as growth, living standards and happiness. In this chapter, we investigate whether similar themes emerge in the literature employing the EFNA.

Although still young, the literature using the EFNA is expanding rapidly. A Google Scholar citation search yields over 100 papers citing the EFNA published in peer-reviewed journals (Stansel, 2013). In this survey we primarily focus on papers that use the EFNA index as an explanatory variable. Rather than discuss all of the papers, we focus on important areas of focus and the prominent papers within those areas in Section 2 of our paper. In Section 3, we discuss papers that investigate the index itself. For example, Hall and Yu (2012) investigate the effect of how different variable weightings might change the ranking of US states and provinces. Similarly, Campbell et al. (2010) recommend including state government spending on regulation to the EFNA. Section 4 provides some concluding thoughts.

2 EFNA as an independent variable

Migration

Hall and Lawson's (2014) accounting of the EFW literature highlights that migrants flow towards countries where economic freedom flourishes. Our findings are in close concordance with theirs: people "vote with their feet" by moving to states with higher levels of economic freedom.

Ashby (2007) estimates a gravity model to study how free market institutions, proxied by the EFNA index, affect migration behavior in US states. To do so, he looks at the Census Bureau data on state-to-state estimates of total number of migrants for five of the most recent years of a given decade. Ashby considers both the EFNA index and its constituent components, employing them as explanatory variables in a spatial autoregressive model. He finds that individuals are more likely to migrate to states with higher government expenditures and transfers, fewer labor market impediments, and lower taxes.

Clark and Pearson (2007) consider two hypotheses. First, economic growth is highly dependent on the level of economic freedom and entrepreneurship. Second, migration inflows are increasing in the levels of economic freedom and entrepreneurship. They find that that economic freedom and entrepreneurship are positively correlated with economic growth. Furthermore, the subnational EFNA index and patents have a positive and statistically significant effect on net migration.

Mulholland and Hernández-Julian (2013) segment migrants by their level of education and estimate a spatial Durbin model to study how differences in state economic freedom affect migratory response by education levels. Using a modified gravity model,

they test the hypothesis that states with higher economic freedom levels will experience higher in-migration and find that high school and college-educated individuals migrate to more economically free states. They also find that people with only elementary education flock to states with higher government employment, while states with greater union density lose more residents to other states than they gain.

The relationship between international migration and economic freedom has also been considered. Ashby, Bueno and Martinez Villarreal (2013a) model undocumented migration between Mexico and US states as a function of geographic and socioeconomic factors that may attract migrants. To correct for potential endogeneity between independent variables, they use the EFNA index as an instrumental variable and find that migration choice is robustly determined by the distance between population centers of Mexican and US states and immigrant networks.

Inequality

Hall and Lawson (2014) find mixed results of EFW on income inequality, suggesting that inequality increases in economic freedom, or that there is a trade-off between growth—strongly associated with economic freedom—and inequality. We, in turn, find the consensus that increased growth, resulting from higher levels of economic freedom, helps stem income inequality in North America and that the relationship may also be nonlinear.

Ashby and Sobel (2008) examined how variation in economic freedom affects income inequality across US states. Regressing measures of absolute income and income inequality onto a vector of demographic and economic control variables, they find that economic freedom levels are associated with higher levels of income and greater income

growth. They also find evidence of lower income inequality, although this variable was frequently insignificant in their regressions. Looking at specific policies, they found that reducing the minimum wage and tax burden would promote higher incomes, growth rates, and shares of income for those in the lowest quintile.

Webster (2013) also looks into the relationship between economic freedom and income inequality across states. He regresses, in multiple specifications, the absolute value, absolute change and geometric mean of the Gini index onto the measures of economic freedom and other variables. His results indicate that the levels and changes in economic freedom are negatively associated with income inequality, implying that as economic freedom increases, income inequality falls. These results, however, are sensitive to different measures of income and income distributions.

Bennett and Vedder (2013) perform a dynamic analysis of economic freedom and income inequality. They regress income inequality, proxied by Gini index, on 10-year changes in economic freedom and other demographic and economic controls across states. They then estimate two fixed effect distributed lag models to gauge the relationship between changes in inequality and economic freedom. They find that increases in economic freedom reduce income inequality, but with a significant lag. Accounting for the possibility that this relationship may not be linear, the authors estimate a static fixed effects model and find evidence of an inverted U-shaped relationship over time between economic freedom and income inequality. This means that at low levels of economic freedom, marginal enhancements benefit the upper parts of income distribution more than the lower. For the 21 states above the inflection point in

this relationship, additional increases in economic freedom will contribute to reductions in inequality.

Apergis, Dincer and Payne (2014) examine the causal relationship between inequality and economic freedom across US states. They estimate a panel error correction model in order to employ Granger causality tests. Controlling for education, population and state income, they uncover that economic freedom has a negative effect on inequality, and that a bidirectional causal link exists in both the short and long run. The results suggest that states may be “caught in a vicious cycle,” whereby redistributive policies that aim to reduce inequality may reduce economic freedom, which in turn raises income inequality even further.

Income, growth and development

That higher levels of economic freedom are positively and robustly associated with different measures of development is well documented by Hall and Lawson (2014). Our reading of the EFNA literature finds similar results. For example, Compton et al. (2011) employ panel fixed effects and system GMM dynamic panel methodology to study the relationship between economic freedom and economic growth for US states. Controlling for education and state demographic composition, as well as the aggregate and disaggregated EFNA index, the authors find a significant positive relationship between economic freedom and growth in the OLS model, but no significant correlation using system GMM. However, both models show a significant positive relationship between changes in economic freedom and growth. They provide policy recommendations to

constrain excessive government spending and minimize tax burden in order to unleash growth.

Gohmann et al. (2008) investigate how economic freedom affects the creation of new business that produce goods and services and the level of employment in those industries. They regress the number of firms with 500 or fewer employees and log level of state employment on economic freedom (both overall and disaggregated by government, labor and tax freedom) and other controls. Overall, their results indicate that business and personal services grow in economic freedom, while health, social, legal services and membership organization decline with increase in economic freedom.

Garrett and Rhine (2011) also explore the effects of economic freedom on employment growth across states. They find that greater economic freedom is associated with higher state employment growth. Specifically, they find that a one standard deviation increase in economic freedom increases employment growth by between 1 and 4 percent. Similarly, Goetz and Rupasingha (2009) identify the determinants of the growth in non-farm proprietorships at the US county-level using components of economic freedom as explanatory variables and find that smaller government, higher taxes and greater labor market freedoms are associated with higher growth of the number of proprietorships.

Corey (2009) examines the relationship between state-level economic freedom and the resource curse—the inverse relationship between economic development and resource abundance. Using the EFNA index as a proxy for institutional quality, which is essential for economic development, Corey looks at the annual growth in state product controlling for economic freedom, resource dependence, and other relevant factors. His results indicate that the resource curse is especially prominent in states with low levels of

institutional quality (economic freedom). He concludes that by promoting policies consistent with economic freedom, states that are rich in resources “can turn the resource curse into a blessing.”

Pearson et al. (2012) employ a random effects model to examine the relationship between economic freedom, economic growth and foreign direct investment (FDI) in US states. They find that economic freedom and growth are positively related to FDI inflows, while unemployment rate and income levels exhibit negative correlation. High unemployment may lead to increased crime and thus discourage FDI, while states with high incomes and wages are likely to also have high taxes and discourage entrepreneurial activities. To foster growth, policymakers should enact policies to mitigate unemployment and promote business environments consistent with economic freedom.

In addition to these papers, a large number of other papers fall in this general category. In a study of the relationship between bilateral trade and business cycle comovements in the US, Lee (2010) employs the EFNA index as an indicator of different tax policies and labor market rigidities in both IV and OLS models. Inclusion of EFNA as either an instrument or explanatory variables does not change the original results that business cycles between two economies are more synchronized with increased trade. Hafer (2013) examines the effects of entrepreneurship on gross state product, personal income and two measures of employment growth in US states using the state-level economic freedom as a proxy for government activity, but does not obtain a significant positive coefficient for the EFNA index. Other papers that have likewise found a positive link between economic freedom and favorable development-related outcomes include Basher and Lagerlof (2008), Karabegovic et al (2003), and Ashby et al. (2013b).

Entrepreneurship

Economic freedom, by giving individuals the opportunity and incentive to arbitrage, take ideas to market, and create value for others, has a positive impact on measures of entrepreneurship across countries (Hall and Lawson, 2014). Our reading of the US state-level literature also finds positive linkages between economic freedom and various measures of entrepreneurial activity. For example, Sobel et al. (2010) gauge the effects of cultural diversity on five different measures of entrepreneurial activity across US states. To isolate the marginal impact of diversity, the authors control for economic freedom and state demographic characteristics and find that states with higher diversity experience higher rates of start-up, business creation, venture capital, patents and productive entrepreneurship in an environment supportive of economic freedom. Economic freedom is positively associated with entrepreneurship in their regressions but is statistically insignificant.

In a cross section of US states, Sobel (2008) measures the effects of institutional quality—proxied by the EFNA index—on productive, unproductive and net state entrepreneurial activity. He finds that states with good institutional quality experience greater venture capital investments, patents, sole proprietorship growth rates, large and total firm establishment birthrates, and lower rates of unproductive political and legal entrepreneurship. On net, state entrepreneurial activity is strongly and positively associated with economic freedom. Similarly, Hall and Sobel (2008) find that differences in economic freedom explain differences in entrepreneurship across the US states as measured by the Kauffman Index of Entrepreneurial Activity.

Cumming and Li (2013) study the effects of state public policy on new firm births, net births, venture capital and patents. They estimate 18 empirical models using, among other explanatory variables, the disaggregated EFNA components as policy instruments. They find that smaller government size promotes firm creation and that labor market freedom is positively associated with firm creation, net births and venture capital, but is unrelated to patents. These results are robust to different controls, state fixed effects and model specifications.

Wiseman and Young (2013) find a positive relationship between US state-level net entrepreneurial activity (productive minus unproductive) and per capita income levels but not growth. They then ask whether entrepreneurship is the main channel through which economic freedom affects income. They find that economic freedom is a strong and valid instrument for entrepreneurship, suggesting that higher institutional quality may provide incentives around which productive activities may be organized. Other empirical literature on entrepreneurship generally finds overwhelming evidence that economic freedom is significantly and positively associated with various measures of entrepreneurial activity, such as net business creation and attraction (Campbell and Rogers, 2007; Campbell et al., 2008; Campbell et al., 2012; Capehart and Yakovlev, 2007), growth rate of sole proprietorships (Kreft and Sobel, 2005), growth rate of businesses (Campbell, et al., 2011; Lowe and Islam, 2009), and employment growth in the service sector (Gohmann et al., 2013). In a recent robustness check of the effects of economic freedom using five different spatial measures of entrepreneurial activity, however, Campbell et al. (2013) find that economic freedom is not a consistently significant predictor of entrepreneurship in US states.

Political Economy

A number of papers use the EFNA index to better understand political or policy outcomes at the state level. Kerekes (2011) empirically analyses the determinants of state governments' use of eminent domain as measured by the number of properties used to benefit private parties. The use of eminent domain is more predominant in states with higher corruption, appointed Supreme Court Justices, less fiscal decentralization and lower economic freedom. She finds that states with high economic freedom restrict government activity from engaging in redistributive activities, including property seizure. Lopez et al. (2009) study the likelihood of states updating eminent domain laws in response to *Kelo v. City of New London*. They show using limited dependent variable and duration analysis that the probability of enacting new and stronger laws against development takings increases in economic freedom, value of housing construction and income and racial equality.

Apergis et al. (2012) look into the causal link between economic freedom and corruption across US states. Employing a panel error correction model, they find that the number of government officials convicted for corruption per 100,000 people increases in income inequality and decreases in long-run economic freedom, per capita income and education. The causal relationship between economic freedom and corruption runs in both directions in both the short and the long run.

Calcagno and Lopez (2012) look at what determines divided government, which is when government institutions are controlled by opposing parties. If voters prefer divided government as a limiting mechanism, then we should observe greater demand for

it in the absence of strong alternative checks on government size, such as economic freedom. They find, however, that economic freedom does not explain divided government. Randolph and Tasto (2012) employ spatial econometric techniques to explain the number of registered special interest groups across states. They find that special interest groups look to the economically similar neighbors rather than geographic neighbors when deciding to form a group in their own state. Gross state product, state general expenditures, union membership and the percentage of manufacturing employment have significant relationships with the number of special interest groups, while the relationship with institutional quality—proxied by economic freedom—is unclear.

Miscellaneous

Hall and Lawson (2014) show that if there is an important outcome studied by scholars, chances are someone has examined the relationship between economic freedom and that outcome, whether it is happiness or acres of forestry. We find the same is true of the scholarly literature on the EFNA, although to a much smaller extent. For example, Belasen and Hafer (2013) examine the relationship between state-level changes in economic freedom and well-being across US state. They use a subjective measure for well-being that draws from physical and general intelligence personal characteristics. The authors find that overall changes in economic freedom exert a strong and positive influence on well-being even after expanding the models with more economic variables and regional dummies. Government and labor market components likewise affect well-being positively, but their significance erodes after accounting for regional variation. In a

related paper, Belasen and Hafer (2012) obtain similar results, although this relationship varies across regions.

Snarr (2013) uses the share of government employment EFNA sub-component as an explanatory variable in a state-level panel study between implementation of welfare reform and TANF outcomes such as welfare caseload, employment and out-of-wedlock births. A significant positive correlation is found between this variable and the change in state average monthly caseloads, and negative with under-30 unmarried women birth rate. Mukamel et al. (2012) study the effects of regulations on the quality of nursing home care in US states. They explain nursing home quality measures using a regulatory stringency index and other controls and use the takings and discriminatory taxation component of the EFNA index as an IV for regulatory stringency. They find that economic freedom is strongly associated with less stringent regulation and that less stringent regulation is associated with lower quality nursing home care.

Heller and Stephenson (2014) test the relationship between economic freedom (in both the aggregate and sub-category form) and state labor market conditions. Controlling for state economic and demographic characteristics, they find that economic freedom (measured by the aggregate and sub-category form of the EFNA index) is negatively related to unemployment and positively to employment-population ratio and labor force participation. State government size is the most influential factor affecting labor market outcomes. In a host of other fields, papers have identified significant linkage between EFNA as an explanatory variable, and favorable economic outcomes: lower software piracy (Bezmen and Depken, 2006), diminished municipal bond closed-fund mispricing (Jones and Stroup, 2011), housing price appreciation (Campbell et al., 2008), and higher

firm stock market returns and state bond ratings (Lawson and Roychoudhury, 2008; Calcagno and Benefield, 2013).

3 EFNA as a dependent variable

If economic freedom is important to a wide variety of outcomes, it only serves to reason that individuals will want to better understand economic freedom and how it changes. A growing number of papers have used EFNA index and its components as dependent variables. For example, in a simple bivariate regression, the average state-based free market think tank spending was found to be modestly but positively affecting economic freedom in US state on average (Leeson, Ryan and Williamson, 2012).

Bjornskov and Potrafke (2012) look at how government and parliamentary ideology (left-right scale) influenced economic freedom in Canadian provinces. They find that pro-market governments significantly promote the growth rate of labor market freedom, but that parliament ideology does not. There is no significant impact on other components of the EFNA index nor the overall economic liberalization. On average, under leftwing governments, the provinces have experienced greater government employment and union density. Bjornskov and Potrafke (2013) similarly ask how party ideology influenced size and scope of government in US states during the period 1993-2009. They found that Republican governors have more actively worked toward deregulation of labor markets and that “ideology-induced policies were counteracted under overall divided government and proposal division.”

In a cross-sectional study, Nattinger and Hall (2012) examine the role of historical institutions in determining economic freedom in U.S states. After controlling for initial

population, climate, percent slave population and Confederacy membership, the authors find that states with civil legal origins experience lower levels of economic freedom today compared to states that descended from common law legal tradition. Campbell and Mitchell (2011) study how various political party power measures, for example percent Democrats in state legislatures, influence US state government activity proxied by subnational EFNA index. Using a panel IV approach, they find that the party effects are negligible, but economic freedom is increasing as either party consolidates power, a finding consistent with the median voter model.

4 Conclusion

This chapter has synthesized and elaborated on much of the existing research concerning the role of the EFNA index in the empirical literature. Our consensus after reading this literature is that the EFNA index, similarly to the EFW index, is largely positively related with “good” outcomes, and negatively related with “bad” ones, although there are a few exceptions. The literature considers both EFW and EFNA indices as good proxies for institutional quality, regulatory environment, and business-related policies across North American states and provinces and the world. In addition, a significant number of studies take interest in the EFNA as a variable to be explained by factors such as ideology, legal origins, and pro-market think tank spending. The literature on EFNA is still in its relative nascence, but is growing rapidly, and can provide a useful guide towards future policy changes leading into positive institutional transformations and hence better economic outcomes.

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