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Can Freedom and Knowledge Economy Indexes Explain Go-Getter Migration Patterns?

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Abstract. The study of domestic and international migration within and to the United States is deep and wide, but as yet no one has developed and tested models that focus on the use of knowledge economy, economic freedom, and personal freedom indexes. Using statistical regression models and following the lead of Cebula-Alexander, we build models for people Daniel Boorstin called "Go-Getters." We model migration patterns across the 50 states for domestic and international movers in the 25-39-year age group for the years 2004-2008. We find dramatic differences in the determinants of migration for the two groups. All else equal, international movers are driven more by state knowledge economy developments and personal freedom. Domestic movers are not attracted by stronger knowledge economies but are driven by higher levels of state creativity and economic freedom.

1. Introduction

What explains the migration decisions of young adults in the prime years of their working lives, people 25-39 years old, the builders of future economies, those people historian Daniel Boorstin (1974) called the Go-Getters? Are they driven to find emerging knowledge economies where returns to their investment in human capital may be highest? Or are they more oriented toward avoiding high taxes and onerous regulation and finding greater personal freedom? Do people migrating within the United States behave like foreigners migrating to the United States? Does protection of personal freedom matter? Does economic freedom matter? In short, what are the determinants of migration?

The study of the economic determinants of domestic migration patterns across the 50 U.S. states is deep and broad. Our review of literature will show that regional scientists building statistical migration models have used arguments that include income, employment, job growth, cost of living, amenities, disamenities, and public sector services and citizen costs. But while many orthodox economic variables have been included as arguments in statistical migration models, as yet no one has included an index that accounts for variations in knowledge economy development along with indexes that measure economic freedom and personal freedom. Nor has anyone used this treatment to explain the domestic movement of people from both domestic and foreign locations.

In this article we focus on one age group for domestic migration within the United States and foreign migration to the United States.[1] Our project concentrates on the movements of people 25-39 years old. We see this prime work-age group as forming critical human capital bedrock for building future economic

[1] The definition of foreign migrant used by the U.S. Bureau of Census in the American Community Survey, which relates to the data we use, is as follows: Anyone who was not a U.S. citizen or U.S. national at birth. This includes those who have become U.S. citizens through naturalization and those who are not U.S. citizens. The American Community Survey questionnaires do not ask about immigrant status. People who are not U.S. citizens may be legal permanent residents (immigrants), temporary migrants (e.g., foreign students), humanitarian migrants (e.g., refugees), and unauthorized migrants (people present in the United States without legal documentation) (U.S. Bureau of Census (2010).

growth, and we borrow from Boorstin (1974) to call these individuals the Go-Getters. Within this age group we compare the domestic and foreign migration patterns. We use a knowledge economy index we developed (Watkins, 2008) and a freedom index developed at George Mason University's Mercatus Center (Ruger and Surens, 2009). The Mercatus freedom index has components that address economic freedom, personal freedom, and overall freedom. We include other variables to explain statistically migration patterns across the fifty U.S. states.

Our statistical results enable us to: 1) determine how knowledge and freedom indexes perform as arguments in statistical models for explaining migration patterns; 2) compare the results for statistical models applied to foreign and domestic migration across the fifty states, which enables us to make inferences as to how the two index arguments may be important in determining the different migration patterns; and 3) to assess the relative importance of limited government as measured by personal freedom in determining migration decisions. At the outset, we advise the reader that there are striking differences between the apparent determinants of domestic and international migration for Go-Getters as revealed by the indexes we use in our analysis.

Our article is organized as follows. The next section provides a review of related literature that foreshadows the model we are using. This is followed by a section on the indexes we use in place of separate economic and quality of life variables. We pay special attention to the knowledge economy index and how it was constructed, since this is the first report on the use of the index. We also provide detail on the Mercatus freedom index we selected for the project. The following section presents our statistical models and results. The last section provides brief final comments.

2. A review of related migration literature

Charles Tiebout's (1956) seminal article on migration described citizen mobility as a constraint on the frequency of adverse policies that might be implemented by state and local politicians. Tiebout portrayed citizens as consumers of public goods who, by migrating, choose among a large number of public sector providers. Once located, the ability to implement the exit option was seen as inducing governments to provide an efficient bundle of consumer-preferred services. In 1971 Gordon Tullock (1971) enriched Tiebout's public choice model by focusing on political policies as public goods that all local citizens would pay for, whether they agreed with a policy taken or consumed the resulting services or not. Tullock further strengthened the Tiebout model by calling attention to the tax/cost component of a decision to locate to a particular government jurisdiction. He described an individual's migration situation this way (p. 917):

> Local governments in the area around major cities frequently are in competition with each other for residents. The individual deciding where to live will take into account the private effects upon him of the bundle of government services and taxes in each suburb. In this case, the decision is a private decision, the bulk of the cost of which falls upon the person making it.

The citizen/consumer acted as if competing governments were bundlers of public goods. All else equal, the low-cost bundler attracted the larger number of citizens.

The resulting Tiebout-Tullock hypothesis has yielded a large amount of empirical research addressing migration patterns. Cebula and Alexander (2006) provide an extensive survey of this literature on their way to reporting an examination of net U.S. interstate migration patterns across 2000-2004. In addition to variables associated with income, taxes and the level of public services provided locally, which are critical to the Tiebout-Tullock argument, their 2006 paper included variables describing environmental conditions. Cebula and Alexander found, among other things, that in-migration was positively associated with the level of state/local per pupil expenditures on primary/secondary education schools and negatively associated with the level state income taxes. They also found their indicators for quality of life matter, with measures of pollution entering the decision to migrate with negative signs. In an analysis of U.S. interstate net migration for 2000-2005, Cebula (2009) statistically examined the effects of overall cost of living, property and income taxes as well as expenditures on schools. Cebula found that migration was an increasing function of school expenditures and a decreasing function of taxes and cost of living.

Clark and Hunter (1992) added to our growing understanding of migration by examining differences in interstate migration patterns for adults in different age groups across the years 1970-1980, which relates to our focus on young adults. They found that working age adults are attracted to income producing opportunities but repelled by higher taxes, whereas individuals in retirement years avoid locations with higher estate taxes. In research that included a focus on amenities, Cebula (2005) found a strong positive association with domestic 1999-2002 migration and the acreage of state parks as well as milder temperatures.

The effects of the number of hazardous waste sites and crime levels were strongly negative.

In a rare focus on the migration patterns of international movers, which relates to our work, Ostrovsky, Hou and Picot (2008) investigated the movement of new immigrants relative to the more settled population to rapidly expanding Alberta during 2001-2005. Their analysis found *de novo* migrants were far more likely to relocate to Alberta than immigrants who had been settled for five or 10 years. Immigrant populations located in large cities were less likely to respond to sudden increases in labor demand than newer immigrants.

Davies, Greenwood and Li (2001) tightened the focus on the deciding individual who considers all locations as options, including her current one. Treating repeated cross sections of annual IRS area-to-area migration flow data, they used a conditional logit model to analyze domestic migration patterns across the 11-year period 1986-1987 to 1996-1997. Their model took into account traditional economic variables such as relative unemployment, income, and population but also included distance as a proxy for the cost of moving. In their final test, the researchers examined 26 state groups; they found strongly significant negative effects associated with unemployment, positive effects for income and population, and, of interest to us in our work, negative effects associated with distance.

Turning to the use of economic freedom indexes, we note that Clark and Pearson (2007) include an economic freedom index along with economic and entrepreneurship variables in their empirical examination of U.S. domestic migration for the years 1993-2002. Their results show that economic freedom is a statistically important positive determinant of migration and support the notion that entrepreneurial locations will attract more migration.

Finally, we call attention to a recent paper by Cebula (2010) that models net migration as a share of a state's population among the fifty U.S. states for the period July 2000 to July 2007. Along with economic and quality life variables, Cebula included the Mercatus Economic Freedom Index and Personal Freedom Index, which we use in our empirical model. Cebula finds both indexes to be statistically significant and positive in explaining net migration. While Cebula's finding supports our work, our project focuses on a different time period, a different migrating population, and gross, rather than net, migration.

The evolving migration literature tells us that individuals confronting a migration decision will steer away from locations with higher costs of living, lower income, weaker public services, higher crime levels and lower levels of environmental quality. We have also learned that adults in different age groups respond differently to the same economic variables. We know that in some cases international migrants are more mobile than a more settled population when responding to large increases in labor demand and that the distance involved when moving dampens the tendency to move. There is also evidence that higher levels of economic freedom and personal freedom attract migrating populations.

As we focus on explaining migration in the evolving U.S. knowledge economy, we take this learning into account by using indexes that contain economic, environmental, and other quality of life information along with information on economic and personal freedom. The use of information-packed indexes brings the advantage of conserving scarce degrees of freedom while still accounting for a large number of variables. There is the disadvantage that comes from the opaque index and the related inability to focus one-by-one on a small handful of critically important variables. However, prior research informs us on the effects of individual variables. Our research illustrates how use of a small number of indexes may advance our understanding of human migration patterns.

3. Using knowledge and freedom indexes to explain migration

In recent years much has been said about the rise of a new knowledge economy that may provide a strong engine for economic growth across the U.S. and the world (Atkinson and Correa, 2007; Carlino, 2001; Nakamura, 2000; Cox and Alm, 2006; The Information, Technology, and Innovation Foundation, 2008; World Bank, 2007). Along with analyses and forecasts have come a series of indicators for ranking cities and states, as well as countries, as to how they stand as evolving knowledge economies (Florida, 2002; Hall, 2009; Milken Institute, 2001; Koutout, 2009; Suete, 2005; Watkins, 2008). Almost simultaneously, though having started earlier, the economic study of freedom and building of freedom indexes for cities, states, and nations has become a burgeoning enterprise (Berggren, 2003; Gwartney, 2009; Gwartney and Lawson, 2009; Hanke and Walters, 1998; Holmes, Feulner and O'Grady, 2008; McQuillan, Daniels, Maloney, and Eastwood, 2008; Ruger and Surens, 2009).[2]

[2] Hall (2009) surveyed and evaluated various economic freedom indicators. There is now empirical work that shows a significant positive relationship between economic freedom and entrepreneurial and other kinds of economic activity across regions (Ashby, 2007; Campbell and Rogers, 2007; Clark and Lee, 2006; Heckleman and Stroup, 2000; Kreft and Sobel, 2005). There is also published research that uses knowledge economy variables, such as Richard

In work that blends freedom with knowledge indicators, Eastwood's (2009) empirical research focuses on the relationship between economic freedom, Florida's (2002) creativity index, a social capital index and employment and income growth across 242 U.S. cities and the 48 contiguous U.S. states. Eastwood finds that economic freedom and Florida's indexes are strong predictors of economic growth; however, the social capital index does not perform as well. Examination of how people vote with their feet forms another category of research that indirectly speaks to economic growth and change. The work generally dates to Tiebout (1962). Ashby (2007) examined net migration among the fifty U.S. states, including both domestic and international migration components for the years 2001 through 2005 using a multivariable gravity flow model that included the Fraser Institute economic freedom index. Economic freedom was found to be a significant and positive determinant of migration when income and employment growth were not included in the model.

Like Cebula and Alexander (2006) we assume that migrating individuals weigh the relative merits of alternate state locations and compare the expected net benefits against their current position. Migrating individuals seek to improve their wellbeing. This includes narrow economic benefits, such as income, as well as more nuanced benefits, such as access to the performing arts, vibrant cities and entertainment and cultural activities. In making their movement calculations, individuals also weigh living costs, taxes and the cost of making errors.

We note that the calculations made by foreign movers contain considerations not required of domestic movers, partly because they face legal constraints not faced by domestic movers. These can include visa requirements and other filters that limit movement. We argue that international migrants face a higher cost of error and are therefore likely to be more focused when making a migration decision; they also face a more severe knowledge problem and higher costs in gaining information. In general, we argue it is much easier for a domestic migrant to make a return to Atlanta if things in Dallas do not turn out well than for an international mover to Dallas to recover to Istanbul, Cairo or Monterrey. And since, as suggested by the findings of Ostrovsky, Hou and Picot (2008), the foreign migrant's "ticket price" for movement to a state is higher on average than that of a domestic mover, the foreign migrant is less sensitive to cost of living differences once in the domestic market. Those costs are a smaller share of the relative total cost of choosing one location versus another and can be offset by the relative gain in income and other benefits, which we argue are larger comparatively for foreign than domestic movers. Foreign movers also may face more restrictive cultural constraints than domestic movers. First, the foreign immigrant is more "on his own" than the domestic mover when arriving in a new location. Language and culture also force the immigrant to make his own way and to be less influenced in making a location decision by the presence of American music, food and local performing arts. In this sense, the foreign mover is more footloose.

We use two indexes and other variables to explain migration patterns. The indexes are the Knowledge Economy Index (KEI), which we developed (Watkins, 2008) and the Mercatus Overall Freedom Index (OFI) and Mercatus Personal Freedom Index (PFI) (Ruger and Sorens, 2009).[3] The KEI assesses the relative effectiveness of each state's knowledge economy, the sector of the economy in which value lies increasingly in ideas, services, information, technological innovation and relationships. Included in the index are information on educational attainment, research and development, and entrepreneurship. The OFI has two underlying components. These are economic freedom, which measures items such as government size and spending, regulation, and tax burden, and personal freedom, which is based on state paternalism that restricts activities like alcohol consumption and Sunday retail sales. The personal freedom component forms the basis for the PFI we use at the end of our analysis. We explain each index in further detail before examining migration patterns with statistical models.

The KEI was developed as a low-cost vehicle to compare the performances of the states' knowledge economies. By low-cost we mean that our model can be replicated with a small amount of information relative to other indexes that rely on a large number of variables and tables to calculate rankings.[4] The KEI is based on three components of the knowledge economy: knowledge, innovation, and entrepreneurship. A

Florida's (2002) creativity index, in explaining economic growth and change (Donegan et al., 2008). That research indicates the relative superiority of traditional economic variables over the new economy indicators for explaining regional growth.

[3] We also examined an economic freedom index produced by the Pacific Research Institute (McQuillan et al., 2008). Tests results using their economic freedom data were fundamentally the same as the results from the Mercatus economic freedom tests. We ultimately chose to use the Mercatus index because it includes a personal freedom component.

[4] The KEI comprises three knowledge economy variables and one control variable. Similar indexes include 26 variables (Atkinson and Correa, 2007), 12 variables (Milken Institute, 2001), and 20 variables (Barkley and Henry, 2005). The KEI closely replicates the state rankings generated by Atkinson and Correa (2007).

robust knowledge base, generally measured quantitatively as educational attainment, leads to valuable innovation and invention. Furthermore, the bridge between innovation and commercialization must be traversed in order to deliver value to consumers, provide producers with revenue, and render innovation productive. This bridge is commonly referred to as entrepreneurship. Our selection of KEI components was based on regression analysis that used per capita income as the dependent variable. We assumed income improvement to be the implicit, if not explicit, goal of the knowledge economy. Median age was included as a highly significant control variable in order to account for differences in incomes resulting solely from age differences.

The first of three indicators selected was the weighted educational attainment of a state's workforce. The share of a state's workforce with education levels below a bachelor's degree are weighted less than those with bachelor's degrees and even less than the share with advanced and professional degrees. The share with bachelor's degrees affects the educational attainment measure most, which is consistent with traditional economic study of the topic. We used the relative weights for different levels of attainment applied in the State New Economy Index (SNEI) (Atkinson and Correa, 2007). We found the logic used to determine the weights appealing, and we also wanted to test the ability of our four-variable KEI to replicate the state ranking generated by the 26-variable SNEI.[5]

The second component of the KEI is dollar expenditures on industry research and development weighted by states' total worker earnings. The entrepreneurial component is the relative number of fast-growth firms based on Inc. 500 (2008) and Deloitte Technology Fast 500 (2008) reports. This indicator is a "marker species" of the knowledge economy that signals productive growth within the knowledge sector. These three drivers were selected through statistical testing of over twenty indicators, which survived the original pool of approximately 150 variables that were considered on a theoretical basis. The resulting 2008 KEI complete rankings are shown in Table, and the quintiles are mapped in Figure A1 of the appendix.

The OFI measures freedom across the 50 states using variables in separate indexes for economic freedom and personal freedom. Ruger and Sorens (2009) broadly define their notion of freedom as follows: "We explicitly ground our conception of freedom on an individual rights framework. In our view, individuals should be allowed to dispose of their lives, liberties, and property as they see fit, so long as they do not infringe on the rights of others" (Ruger and Sorens, 2009, p. 5). In other words, their work is based on constitutional bedrock that celebrates classical liberal values.

Table 1. Knowledge Economy Index (KEI).

State	2008 KEI Rank	State	2008 KEI Rank
Massachusetts	1	Maine	26
Connecticut	2	Alaska	27
Maryland	3	North Dakota	28
Colorado	4	Texas	29
Virginia	5	Montana	30
New Jersey	6	Wisconsin	31
Washington	7	Florida	32
Vermont	8	Idaho	33
New Hampshire	9	New Mexico	34
California	10	Missouri	35
Minnesota	11	Iowa	36
New York	12	Ohio	37
Utah	13	South Dakota	38
Rhode Island	14	Wyoming	39
Oregon	15	South Carolina	40
Illinois	16	Indiana	41
Delaware	17	Nevada	42
Kansas	18	Oklahoma	43
Hawaii	19	Alabama	44
Michigan	20	Tennessee	45
Georgia	21	Kentucky	46
Nebraska	22	Mississippi	47
Arizona	23	Louisiana	48
Pennsylvania	24	Arkansas	49
North Carolina	25	West Virginia	50

The underlying study used twenty indicators grouped into three policy sectors: fiscal, regulatory, and paternalism. Example indicators for the three sectors are state and local taxes as a share of gross state product and personal income, state spending, land-use regulations, right-to-work laws, access to internet gambling, laws restricting the consumption of alcohol, campaign finance laws, rules requiring certain kinds of insurance, and motorcycle helmet laws. Within each indicator, the authors developed weights and statistical treatments to arrive at a final score for the indicator. The authors tested the indicators statistically and weighted them finally on the basis of size of the population affected by them. They then developed three indexes, one for economic freedom, a second for

[5] See "Building a Knowledge Economy Index for Fifty States with a Focus on South Carolina" (Watkins, 2008) for more detail on the construction of the educational attainment measure and the entire KEI.

personal freedom, which is based on the paternalism sector, and an overall freedom index, OFI. Rankings for the 2008 OFI are displayed below in Table 2, and quintiles are mapped in Figure A2.

Table 2. Mercatus Overall Freedom Index (OFI).

State	2008 OFI Rank	State	2008 OFI Rank
New Hampshire	1	Delaware	26
Colorado	2	Oregon	27
South Dakota	3	Nebraska	28
Idaho	4	Arkansas	29
Texas	5	South Carolina	30
Missouri	6	Alaska	31
Tennessee	7	Kentucky	32
Arizona	8	West Virginia	33
Virginia	9	Louisiana	34
North Dakota	10	Minnesota	35
Utah	11	New Mexico	36
Kansas	12	Wisconsin	37
Indiana	13	Ohio	38
Michigan	14	Maine	39
Wyoming	15	Vermont	40
Iowa	16	Connecticut	41
Georgia	17	Illinois	42
Oklahoma	18	Massachusetts	43
Montana	19	Washington	44
Pennsylvania	20	Hawaii	45
Alabama	21	Maryland	46
Florida	22	California	47
North Carolina	23	Rhode Island	48
Nevada	24	New Jersey	49
Mississippi	25	New York	50

A scatter plot of rankings for the KEI and OFI is shown in the accompanying chart, Figure 1, which is divided into four quadrants. The southwest quadrant is the most interesting of the four for economic development purposes. The states in this quadrant have the highest freedom and knowledge economy rankings. On the basis of the rankings, these states are predicted to rank higher in future economic growth. We call attention to the fact that Michigan, a state currently in deep industrial decline, is in the southwest quadrant. The northeastern quadrant contains states with weaker growth prospects. These are the states with low knowledge and freedom rankings.

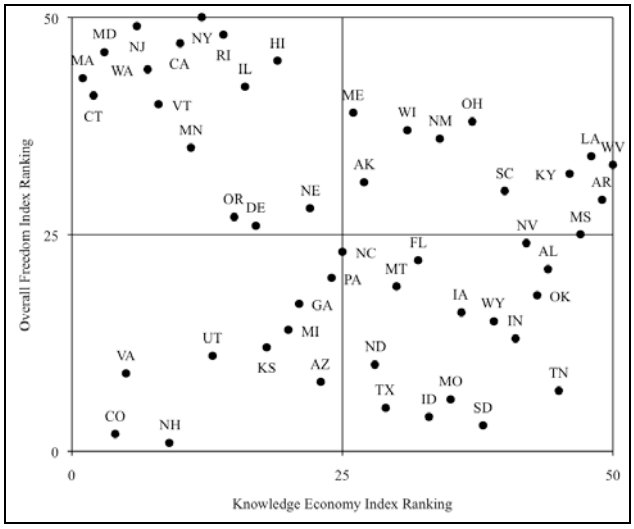

Figure 3. Knowledge Economy and Overall Freedom Indexes.

4. Statistical models

We used regression models to estimate the count of average domestic immigration for people 25-39 years old and for immigration of the same age group to the fifty states from foreign locations for the years 2004-2008. (We recognize that the years chosen for analysis contain a severe economic recession. To test for the reliability of final estimated models, we performed separate one-year estimates for migration for each of the years. The results were basically the same as for the average migration across the years.) We examine positive flows (immigration) only in our attempt to estimate drivers of migration and factors that attract movers. Our migration and population data are from the U.S. Census Bureau American Community Survey. The data are displayed in Table 3.

Table 3. United States movers aged 25-39, 2004-2008

	Domestic (state to state)	International (from abroad)
2004	2,078,258	599,001
2005	2,192,652	612,777
2006	2,332,171	646,430
2007	2,236,069	605,407
2008	2,152,314	615,452
Total	10,991,464	3,079,067
2004-2008 Average	2,198,293	615,813

Many foreign movers, and a portion of the movers measured in this study, come into the U.S. under non-immigrant (i.e., temporary) visa programs, of which the most publicized and polarizing is the H-1B visa. The H-1B visa allows highly-skilled internationals to work in science and technology sectors in the U.S. for up to six years. There is an annual cap on the number of laborers allowed to enter the U.S. under the program. The H-1B quota was 140,000 in the 1990s and increased to 195,000 for 2001-2003 (Matthews, 2008). The cap then fell to 65,000 in 2004 and remains at that level. Notably, workers sponsored by or employed at academic institutions, non-profit research organizations or government research organizations do not count against the cap (U. S. Citizenship and Immigration Services, 2010).

Domestic labor interests seeking to protect American workers from additional competition and those concerned that the restrictions encourage highly skilled foreign workers to seek employment outside the U.S have widely and fiercely debated the H-1B program. There is the additional concern that the best and brightest international students will come to the U.S. to study at top research universities only to return home upon graduation, a so-called "reverse brain drain" (Wadhwa, 2009). Our analysis of international immigration to the 50 states may reveal which states are most successful at stemming or countering this phenomenon.

We turn now to discuss the independent variables used in our estimates. Our models included the KEI, OFI, and PFI, with an updated version of Richard Florida's State Creativity Index (CRI), per capita income (PCI), and a Council for Community and Economic Research cost of living index (COL) published in 2009 by the Missouri Economic Research and Information Center (2009), along with 2004-2008 average population (POP) (We note that we are not aware of a regularly published, publicly available state cost of living index). The per capita income data are from the Bureau of Economic Analysis. The creativity index is based on data from four categories: creative class concentration; high-tech industry concentration; patents per capita data and a diversity index based on the percentage of a population that is gay. Descriptive statistics for all variables are found in Table 4.

The general form of our regression model is written:

$$MIGRATION = f(KEI, OFI, CRI, COL, PCI, POP) \quad (1)$$

We expected the KEI and OFI to have a positive impact on migration for both domestic and foreign migrants.[6] (We later substitute personal freedom, PFI, for OFI in the model. The forecasted effect is the same.) We argue that both groups will be attracted to communities with higher educational attainment, more vibrant entrepreneurial economies and more freedom. We predicted that the CRI is positively associated with domestic migration but that foreign migrants are less sensitive to cultural elements of the CRI since these, we believe, are less relevant to them. We expected migration to be negatively associated with COL but that the association might be insignificant for foreign migrants because of the relatively small share of COL to the total "ticket price" and since higher income and other benefits relative to their point of origin could be offsetting. POP was included in the model to adjust for scale. We expected the coefficient to be positive. When evaluating coefficients, it should be noted that a higher index score for the KEI, OFI, and Creativity Indexes indicates a higher performance and index ranking; therefore, a positive sign in the regression models indicates a positive relationship between the indexes and migration.

4.1. Regression results for domestic migration

The regression results for domestic in-migration are found in Table 5. In each of the three estimates the model explains a large amount of the variance in Go-Getter migration. We now call attention to the data in the first column. The coefficient on KEI is not significant at conventional levels and is negative (a coefficient is significant when t-statistics show at least a 10% level of significance). CRI seems closely related to domestic in-migration; the coefficient is highly significant and positive. According to the coefficient on CRI a one-unit increase leads to 262 additional migrants. A one-unit increase in KEI is associated with a 273 fewer migrants. The two effects are offsetting. The coefficient on OFI is significant and positive, suggesting that higher freedom attracts more migrants. Neither COL nor PCI are significant. We infer that the effects of COL and PCI are captured in the three index variables. POP, as expected, is positive and significant in association with migration.

We delete the insignificant variables and report a second estimation in the second column of Table 5. Here we see significant coefficients on all variables. The coefficient on KEI is still negative and is smaller. A one-point OFI score improvement is estimated to

[6] We recognize that KEI was built using regression analysis with per capita income as the dependent variable for the purpose of producing weights to be assigned to the variables included in KEI. We note that all of the regression coefficients were not used in the KEI, but that there is still some collinearity between KEI and per capita income. We will let the data speak for itself in the next section.

increase domestic migration of Go-Getters by 25,120. Overall freedom seems clearly to be an important determinant of Go-Getter movement across states. Similarly, according to the model, a Creativity Index score increase of one point will attract 267 Go-Getters from other states, possibly reinforcing Richard Florida's (2002) argument that young people weigh factors like cultural environment and diversity rather highly. The negative relationship between the KEI and domestic migration is interesting in that high KEI states with larger knowledge economy sectors are thought to be most attractive to young, highly educated workers. But some, such as California, New York and Massachusetts, are also generally losing population to newly emerging knowledge economy states. The model implies that, all else equal, an increase of one point on the KEI will result in 302 *fewer* Go-Getters entering a state. We note that KEI is negative and highly significant with CRI in the model. Population is again significant as a control variable.

Table 5. Domestic in-migration, 2004-2008 average.

Regressor	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)
KEI	-273.44	-302.43	123.88
	(-1.25)	(-1.70)*	-1.52
OFI	23739.7	25120.29	25794.73
	(2.30)**	(3.03)**	(3.11)**
CRI	262.61	267.1	
	(2.75)**	(2.88)**	
COL	-43.746		
	(-0.20)		
PCI	-0.038001		
	(-0.09)		
POP	0.00451	0.00451	0.005287
	(6.75)**	(6.86)**	(8.26)**
Constant	27837.83	24719.46	-1808.29
	-1.35	(1.71)*	(-0.20)
Summary Statistics			
R^2	0.87	0.8698	0.8461
F-statistic	28.28	44.2	26.0
n	50	50	50
**5% significance			
*10% significance			

Finally, we reduce the model to three foundation variables, the KEI, OFI and POP and report our results in the table's third column. We see that KEI without CRI in the model is no longer significant. OFI and POP are highly significant and with the same signs and about the same size coefficients as in column 2.

4.2. Regression results for international migration

We now turn to examine the results for international migration. The dependent variable of this model is the count of international in-migration of 25-39 year olds, defined in the American Community Survey as those who moved to a given state from abroad. We note that results are strikingly different from the domestic migration estimate. The results for the international in-migration model are provided in Table 6.

Table 6. International in-migration, 2004-08 average.

Regressor	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)
KEI	33.04	95.2	88.16
	-0.56	(2.00)**	(4.34)**
OFI	5122.6	1088.87	1077.72
	(1.69)*	-0.53	-0.52
CRI	6.994	-4.415	
	-0.28	(-0.16)	
COL	153.24		
	(2.74)**		
PCI	-0.03687		
	(-0.28)		
POP	0.002577	0.00258	0.002572
	(14.98)**	(12.48)**	(15.94)**
Constant	-22050.38	-13609.67	-13171.11
	(-4.05)**	(-3.47)**	(-5.13)**
Summary Statistics			
R^2	0.9504	0.9424	0.9424
F-statistic	87.04	97.68	103.20
n	50	50	50
**5% significance			
*10% significance			

We note that the coefficient of determination indicates that the three models explain 94 percent or more of the variation in migration. The estimate for the full model reported in column one indicates that OFI, COL

and POP are the three significant variables, the coefficient on OFI barely so. The coefficients on OFI and POP carry the expected signs; the coefficient on COL is positive. As suggested earlier, cost of living is not a deterrent to international movers. Recall that CRI was highly significant and positive in the domestic model. Apparently the cultural elements that move domestic migrants have no effect on their international counterparts. To make a head-to-head comparison, we report results for a reduced model in column two that is identical to the second domestic model reported in Table 5. Here we see that KEI is significant and with the predicted sign. Where OFI is the magnet for domestic migration, KEI is the main attractor for international movers. Creativity continues to be insignificant and POP continues be significant. When the coefficients on KEI, OFI and POP are compared for the domestic and international estimates, one finds the coefficients to be much smaller for the international movers. This is likely to be due to the fact that total number of people moving is much smaller for the international set.

Table 6's column three shows the fundamental, three-variable model. Here we see the highly significant KEI coefficient with the expected sign. The results are dramatically different from the same model for domestic migration. Apparently, the variables contained in the KEI matter far more for international migrants than domestic movers. The overall ability of the reduced models to predict migration is about the same as the larger models.[7]

Probing deeper into what might explain the apparent differences in migration determinants for domestic versus foreign migration decisions, we replaced the Mercatus OFI with the Mercatus Personal Freedom Index (PFI) and re-estimated the three models.[8] The PFI accounts for half of the OFI. The results for international migration were strikingly different from those for domestic movers, but in a different way. We report the final three variable estimates in Table 7.

Table 7. Migration, 2004-2008 average.

Regressor	Domestic Coefficient (t-stat)	International Coefficient (t-stat)
KEI	66.53	98.62
	-0.71	(4.65)**
PFI	20811.55	11349.27
	-0.92	(2.31)**
POP	0.00515	0.0026
	(6.85)**	(17.54)**
Constant	5615.07	-14558.27
	-0.51	(-5.37)**
Summary Statistics		
R^2	0.8199	0.9465
F-statistic	17.61	124.17
n	50	50
**5% significance		
*10% significance		

These results seem to explain another major difference in domestic versus international migration. The statistics in column one tell us that domestic movers assign little importance to cross-state differences in personal freedom restrictions. The data in column two tell us that international movers assign great importance to avoiding such restrictions; they opt for higher personal freedom. Once again, we see the strong KEI results. We note that the international estimate has very strong overall statistical characteristics. Apparently, the United States can still beckon as a land of opportunity for foreign immigrants, both in terms of

[7] In our diagnostic work, we examined residuals for the final three-variable model, which is written: MIGRATION = f(KEI, OFI, POP). California is an outlier by more than two standard deviations for both the domestic and international models but with differing signs, negative for the domestic model, which means the model over-predicts, and positive for the international one, which indicates the model under-predicts. This reinforces what we believe is true about recent net migration trends for the state – domestic residents are fleeing due to the high cost of living and tax burden, while internationals are flocking to the state because of the growth of its valuable high-tech sectors. North Carolina and Florida are positive outliers in the domestic model; the model under-predicts migration to those two states. Additionally, the residuals data point to the insulation of the Midwest from foreign immigration as Ohio, Pennsylvania, and Michigan appear as negative outliers in the international model. The region's economy is struggling to survive as declining old-line industries, high taxes and low economic freedom continue to drive away human capital, and assets continue to depreciate. In additional tests, we made a complete set of estimates using the Pacific Research Institute's state economic freedom index in place of the Mercatus OFI. The results were much the same for the domestic models, but the alternate economic freedom index was significant in the international mover estimates. The outlier states for this estimate were about the same as those discussed above.

[8] We also made an estimate using the Mercatus Economic Freedom Index (EFI) in place of the OFI. The results for the three variable model for international movers found the KEI to be highly significant and the EFI not significant, which was the same as in the OFI model. The results for domestic movers indicated the EFI as significant and the KEI as insignificant, which also was the same as the OFI models. These estimates will be provided to readers upon request of the authors.

the new knowledge economy and high personal freedom, at least as indicated by the indexes in our model.

5. Final thoughts

Our research on the determinants of domestic and international migration for people 25-39 years old has focused on the use of two state indexes based on large amounts of information as a way of testing again the Tiebout-Tullock and other hypothesis. We have described in detail the development of our knowledge economy index and reviewed the construction of the freedom indexes chosen for this project. The freedom indexes contain some of the information traditionally considered in Tiebout-Tullock tests. We included these indexes in regression models that also contained variables for creativity, cost of living, income and population. The indexes claim to capture important information on the emerging knowledge economy and economic and personal freedom.

We find the focal point indexes behave in predictable ways for the international set; they respond positively to the knowledge index and to overall freedom. Domestic movers are unaffected by the knowledge index but are attracted to higher overall freedom. Unlike international movers, the domestic set seems to be strongly affected by the creativity index. We attribute this difference to dissimilar cultural preferences of the two groups. As we probed deeper into the determination of migration decisions, we focused on personal freedom, which is a component of the overall freedom index used in our main estimates. Here we found that international movers seem to be sensitive to personal freedom whereas domestic movers are not. Apparently domestic movers are sensitive to the other components of the overall freedom index: economic and regulatory freedom. Our work suggests that composite indexes can be useful in predicting migration patterns for work-age adults but that their strongest performance will be related to explaining international migration.

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Appendix. Knowledge economy and freedom index maps

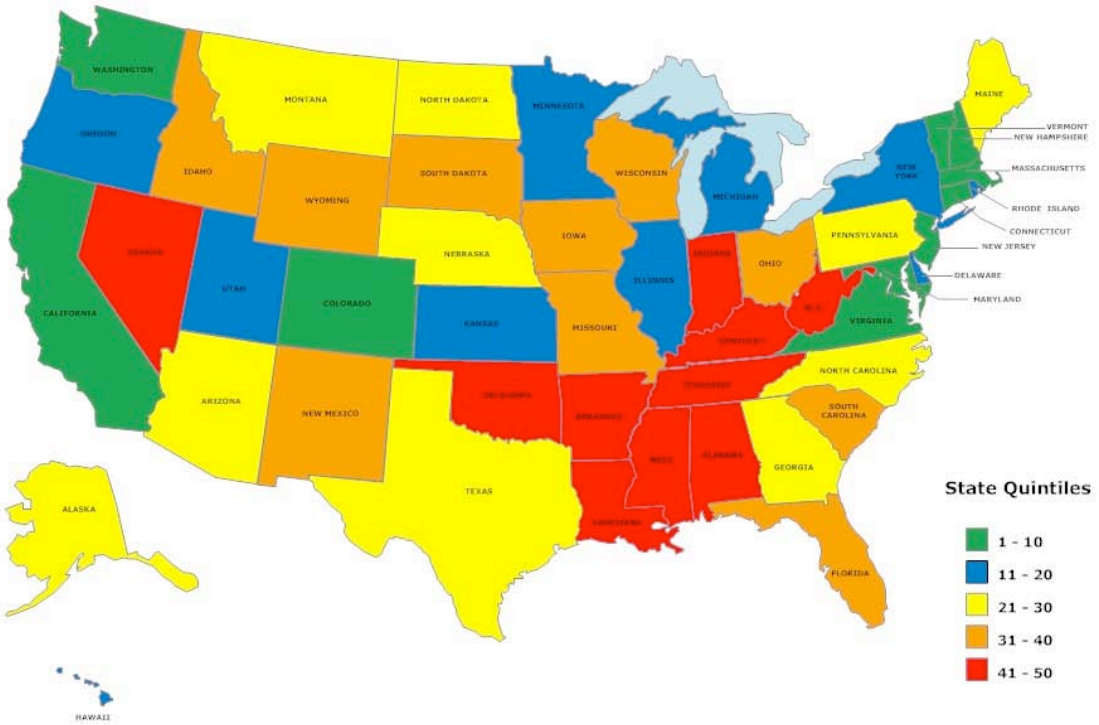

Figure A1. 2008 Knowledge Economy Index.

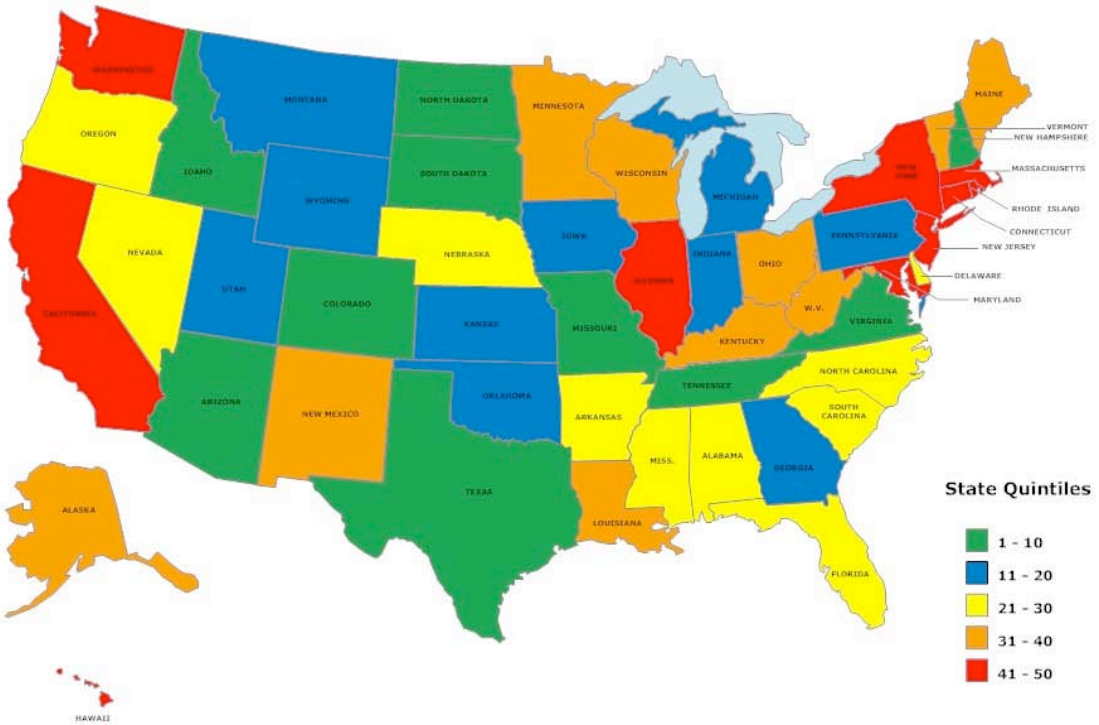

Figure A2. Mercatus Overall Freedom Index.