New Mexico's Industrial Diversity

Richard V. Adkisson and Sajid Al Noor

New Mexico State University

Department of Economics, Applied Statistics, and International Business

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Richard V. Adkisson - Professor and Garrey E. and Katherine T. Carruthers Endowed Chair in Economic Development (radkisso@nmsu.edu)
Sajid Al Noor - Doctoral Candidate, Doctor of Economic Development (sanoor@nmsu.edu)

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Introduction

Economic diversity "refers to the variety of economic activity which reflects differences in economic structure. Diversity is measured at a specific time" (Malizia and Ke 1993, p. 222). As in many states, New Mexico's economic development community and public policy makers would like to increase the state's economic diversity. State policies and actions attest to this interest. Some state policies and actions aim at diversifying by expanding into specific industries while others aim at more general diversification goals.

The purpose of this report is to provide information on New Mexico's economic diversification through time. Diversification will be measured by the distribution of employment across industries. The report provides no specific recommendations. Nor is the intent to test or validate the effectiveness or ineffectiveness of any particular policy. Rather, the hope is to provide a solid, fact-based, foundation of knowledge that might be useful to economic developers, policymakers, and anyone who wants a better understanding of New Mexico's economic circumstances. The report begins with a brief discussion of economic diversity. Secondly, the report reviews current New Mexican policies/programs aimed, at least in part, at increasing economic diversity. Finally, available data are consulted to gain insight on several questions. The first two questions are rather general. One question is, "how diversified is New Mexico's economy in relation to other states?" A second question is, over time, has New Mexico become

more or less economically diverse compared to itself? A third question is to ask, "in what specific ways has New Mexico's economy become more, or less, diverse through time?"

Why Economic Diversity?

Every economy has a structure. A characteristic pattern of industries that operate in the economy. To say that a state's economic structure is diverse implies that its economy includes enough industries that the state's employment, incomes, and growth are not overly dependent on conditions specific to one or a few industries[1]. There are at least four reasons that states might want to diversify their economies: to reduce macroeconomic instability; to shield the state from volatility in particular industries; to stabilize public revenue streams; and to increase the size of regional economic multipliers.

Macroeconomic instability, the business cycle, is a reality that all market economies face. There are times when economic activity is high, jobs are plentiful, incomes and output are growing, and tax collections are sufficient to meet public needs. There are other times when things do not go as well, recessionary times when incomes and production decrease, jobs are lost, and so on. Discussions of the business cycle typically focus on national conditions yet, across states (or more generally, regions), the timing and intensity of business cycles can vary substantially. Business cycles affect industries differently and industries are distributed unequally across states. Thus, state business cycles can be more intense, less intense, or differently timed than the

[1] In this report, the term "industry" is used when sometimes it might be more appropriate to use the term "sector." In reality, a sector is a broader term than industry. For example, the agricultural sector might encompass the livestock industry, grain industry, fertilizer industry, etc…

national business cycle -- depending on how a state's economic structure compares to the nation's economic structure.

Independent of business cycles, some industries are simply more volatile than others. Consider as examples agriculture, mining, petroleum, and some manufacturing. Conditions in these industries are driven by world markets, changing technologies, politics and other non-local factors. Conditions in these and similar industries can vary substantially for reasons well beyond the control of individual businesses, workers, or the policies of the jurisdictions in which they are located. Local businesses, workers, governments, etc. can be doing everything right and still suffer (or benefit) from forces and events far outside their control. Economic diversification provides a potential hedge to soften the impacts of these external shocks, positive and negative.

Opinions as to the size and proper role of government in the economy vary substantially. Yet, government plays an important role in determining the conditions of life for both businesses and individuals within a jurisdiction. Security and safety, infrastructure, education, health, and well-functioning institutions of justice are critical to the creation of a healthy economic and social existence. Typically, the public sector plays a major role in providing these things and providing them requires that the public sector gain some command over resources. Gaining command over resources requires revenue and raising public revenue implies taxation.

Governments apply tax rates to tax bases and the resulting revenue finances the provision of important, perhaps critical, public goods and services. Typical tax bases include sales of goods and services, incomes of individuals and corporations, production of commodities, real property,

estates, and personal property. While tax rates are important (and receive a lot of attention), stability in public revenue generation requires a stable tax base. States with less diversified economies have fewer tax base options and their public finance can become closely tied to conditions in one, or a few, industries. Economic diversity can help to stabilize public finances by providing a broader and perhaps larger tax base.

Finally, strategies to increase economic activity in a state or region typically involve efforts to increase injections of spending and/or reduce leakages of spending from the region's economy. Injections of new spending are subject to a multiplier effect when the new spending is re-spent, at least in part, within the region. Leakages occur when spending leaves the region to pay for goods and services produced elsewhere. Increasing the economic diversity of an area increases the multiplier effect both by inviting new spending into the area and by slowing leakages as businesses and individuals find it easier to source needed goods and services locally.

An Overview of Selected New Mexico Policies and Programs[2]

Corporate Tax Reform

Over the 2014 to 2018 period, New Mexico's top corporate income tax rates were steadily reduced. Beginning in 2017, the state combined the $500,000 to $1,000,000 and the $1,000,000-plus brackets, reducing the corporate tax brackets from three to two. The rate for the $500,000 net income and below remained steady at 4.8%. The top rate dropped from 7.8% to 5.9%

[2] Unless otherwise mentioned, information provide in this section comes from the New Mexico Economic Development Department website, https://gonm.biz/.

beginning in 2018.[3] The corporate tax reduction was part of an ongoing effort by Governor Susana Martinez to reform New Mexico's tax structure and make the state more attractive to business. The targeted industry summaries below also detail industry specific tax incentives. In her 2018 State of the State address, Governor Martinez cited tax reform as a major factor leading to Facebook's decision to invest more than one billion dollars in New Mexico.[4]

Incentives and Targeted Industries[5]

Beyond tax reform, New Mexico has implemented several incentive programs to target specific industries and to promote industrial diversity. The current incentive programs focus primarily on industries such as advanced manufacturing, aerospace & aviation, back office & technical support, emerging & digital media, energy & natural resources, logistics, distribution & transportation, and value-added agriculture (New Mexico True Economic Development 2018). The specifics are outlined below.

Advanced Manufacturing

The incentives offered to manufacturing firms depend on the firm's size, level of employment, wages, and export percentage. An investor who is also a New Mexico taxpayer may qualify for angel tax credit of up to $62,500 by engaging in a research related job for manufacturing industries. Manufacturing employers can apply for tax credits of up to 10% of wages paid for each new high-wage economic base job created. The cost of tangible property used in the

[3] New Mexico Taxation and Revenue Department, http://www.tax.newmexico.gov/corporate-income-tax-historic-rates.aspx.
[4] KOB4, Transcript of Gov. Susana Martinez's State of the State address https://www.kob.com/politics-news/governor-susana-martinez-state-of-the-state-address-transcript-2018/4745938/
[5] These are just brief summaries of selected programs. For more detail on New Mexico's incentives, please visit the state's Economic Development Department incentive site, https://gonm.biz/why-new-mexico/competitive-business-climate/incentives /.

production of a product manufactured in New Mexico can be deducted from gross receipts. Additionally, a manufacturing company is eligible to receive tax credits of 12.5% to 25% toward state gross receipts, corporate income, or personal income tax if it locates its operation in a rural region of New Mexico. New Mexico also enacted a single sales factor apportionment option for manufacturing firms to use when allocating income for corporate income taxes. Firms using this option will be able to lower their corporate income tax liability if they sell a substantial share of their production outside of New Mexico.[6]

Aerospace & Aviation

Aerospace & aviation companies have special incentives to operate in New Mexico. Aircraft companies can deduct receipts generated from selling aircraft parts, maintenance services, aircraft flight support, pilot training services, refurbishing services, and remodeling services from their gross receipts. Companies that provide research and development support and energy and satellite related inputs to the Department of Defense also qualify for gross receipts tax deductions. Subject to certain conditions, aerospace and aviation companies are eligible to receive tax credits equal to 10% of wages they paid for each high-wage economic base job created. Several spaceport related tax incentives are also available. (New Mexico True Economic Development 2018).

Back Office & Technical Support

Back office and technical support activities typically involve operations where the workers are not dealing face-to-face with clients. Examples are "customer service, technical support, order

[6] Albuquerque Innovation Central, http://innovationcentralabq.com/wp-content/uploads/2017/05/NM_Tax_Incentives_Summary.pdf

taking, claims processing, bilingual customer support, accounts payable, and mail processing."[7] , Incentives for businesses in this category include financial management, high-wage jobs, and rural jobs tax incentives.

Emerging & Digital Media

Digital media industries are eligible for tax incentives when doing business in New Mexico. For example, film industries can apply for 25% tax credit for the post-production services they have provided to produce a commercial film or audiovisual product. Software firms are eligible for gross receipt deductions for the sale of software development services produced in a rural area of New Mexico. Any technology-based businesses conducting qualified research and expenditure of no more than $5 million, can apply for 5% of total expenditure as tax credits against the taxpayer's compensating tax, withholding tax or gross receipts tax, excluding local option gross receipts tax. However, the same company can claim double tax credits by operating in rural New Mexico. Companies hosting World Wide Web sites in New Mexico can deduct related receipts from gross receipts (New Mexico True Economic Development 2018).

Similar incentives are available to companies in the energy & natural resources, logistics, distribution & transportation, and value-added agriculture industries.

New Mexico's Economic Diversity Relative to the Nation

Measuring economic diversity is not a perfect science. Therefore, this report uses three alternative measures of economic diversity and conclusions will be based on the combined

[7] https://gonm.biz/why-new-mexico/key-industries/employment-business-operations-centers/

evidence. The first index calculated is the Hachman Index, the second is the Hirfendahl-Hirshman Index and the third is the Entropy Index. Each is explained in detail below.

The Hachman Index

Typically, a large economy will be more economically diverse than will a small economy. The national economy of the U.S. includes the production and employment of all industries in all 50 states. For this reason, no individual state can be more economically diverse than the nation. Given this, one way to look at relative economic diversity is to use the Hachman Index (explained below) to compare each state's economic diversity to the nation's economic diversity and then to rank the states accordingly.

Shaleen (2017) previously estimated the Hachman Index of Diversity to make this comparison for multiple years. Shaleen's estimates are based on North American Industry Classification System (NAICS) non-farm private sector employment at the two-digit industry level. The data used in Shaleen's calculations come from the Bureau of Labor Statistics (BLS). Based on Shaleen's calculations, New Mexico ranked 45th least diverse among the states in 2016. Given the relative size of New Mexico's economy as compared to many other states, this outcome is not a surprise. This report also uses the Hachman Index to find New Mexico's diversity position but uses a different data source and covers all the years from 2006-2016.

The Hachman Index, developed and used by Frank Hachman, was first published by the University of Utah's Bureau of Business and Economic Research in 1994. The index measures the extent to which a region's employment distribution resembles that of a reference area. This report calculates the Hachman Index for all 50 states for 11 years, 2006-2016, to identify the extent to which New Mexico's employment distribution deviates from that of other states and the nation (the reference area). State index values fall in the range of something greater than zero to one. A state with an index value of one means the state has exactly the same industry employment distribution as the US. The lower the index value, the more the state's industry employment distribution differs from the nation's distribution. A value of zero would only be possible if a state had no employment in any industry. Low values indicate that the state's employment is concentrated in relatively few industries. In 2016, Hachman Index values fell in the range of 0.602 to .980. The formula for calculating the Hachman Index as follows.

Hachman Index for a State[8] $= \frac{1}{\sum_{i=1}^{N}[(E_i^{State}/E_i^{Nation}) \times E_i^{S}}} = \frac{1}{\sum_{i=1}^{N}[LQ \times E_i^{State}]}$

E_i^{State} is the share of employment in the i[th] industry in a US state and E_i^{Nation} is the share of employment in the i[th] industry in the nation. The ratio of employment share in the i[th] industry in a region and reference area (E_i^{State}/E_i^{Nation}) is known as the location quotient (LQ) for industry i. Multiplying the location quotient of i[th] industry with its share of employment in a state, summing up the weighted location quotients, and taking the reciprocal, results in the Hachman

[8] The formula for the Hachman Index is collected from the technical paper published by the Framework Convention on Climate Change, United Nations.

index for that state. Note that changes in other states and changes at the national level can change a state's Hachman index even if nothing in the state has changed.

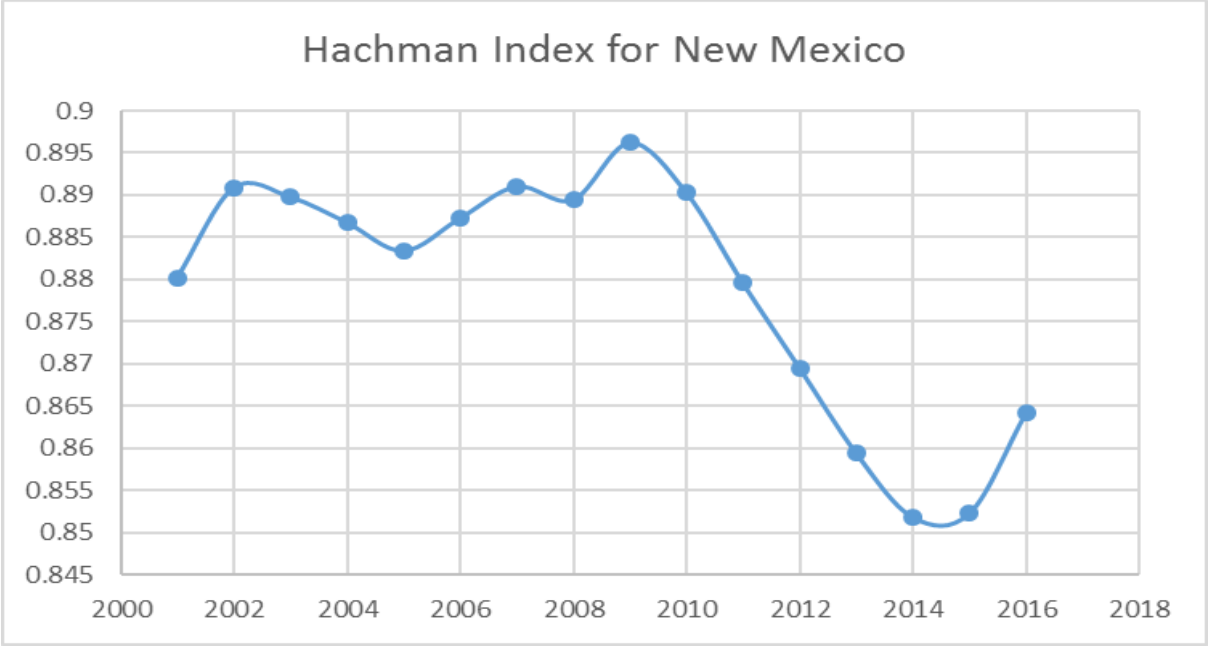
This report uses Bureau of Economic Analysis (BEA) employment data for two-digit NAICS sectors to calculate the Hachman Indices. A few small states, Delaware, Maine, and Rhode Island, have only small levels of employment in the Forestry, fishing, and related activities and Mining, oil and gas industries so the BEA does not disclose employment data for these two industries. However, the missing data are included in the total employment number making it possible to determine the sum of the actual employment in these two industries, although the allocation of employment across the two undisclosed industries is unknown. To have complete data for all states and years, employment in the two industries was allocated using the national allocation values. Because employment in these two industries constitutes a very small proportion of employment in the three states, this should not introduce any significant bias. The other alternatives were either to omit the states altogether or base the indices for the missing states on a limited set of industries.

The Hachman Indices are based on employment in the 21 industrial sectors reported by the BEA. New Mexico's Hachman index[9] has varied through time. From 2006 to 2012 New Mexico ranked 41st. Over 2013, 2014, and 2015 New Mexico's ranking decreased to 42nd, 43rd, and 44th indicating that the state gradually became relatively less economically diverse during these years. The ranking increased slightly in 2016 from 44nd to 42nd. States with the highest rankings are Georgia, Illinois, North Carolina, California, and Utah. These states have had consistently

[9] It was possible to calculate New Mexico's Hachman Index for 2001 onward but, because of missing data for other states, the rankings cannot be calculated until 2006

diverse industrial structures over the 2006-2016 period. States consistently ranked near New Mexico during this period are Arkansas, Iowa, Hawaii, and Montana. Figure 1 shows New Mexico's Hachman Index values for the 2001-2016 period. The recent downward trend shown in Figure 1 suggests that New Mexico's economy has become slightly more concentrated (less diverse) over recent years as compared to the nation.

Figure 1



The Herfindahl-Hirschman Index

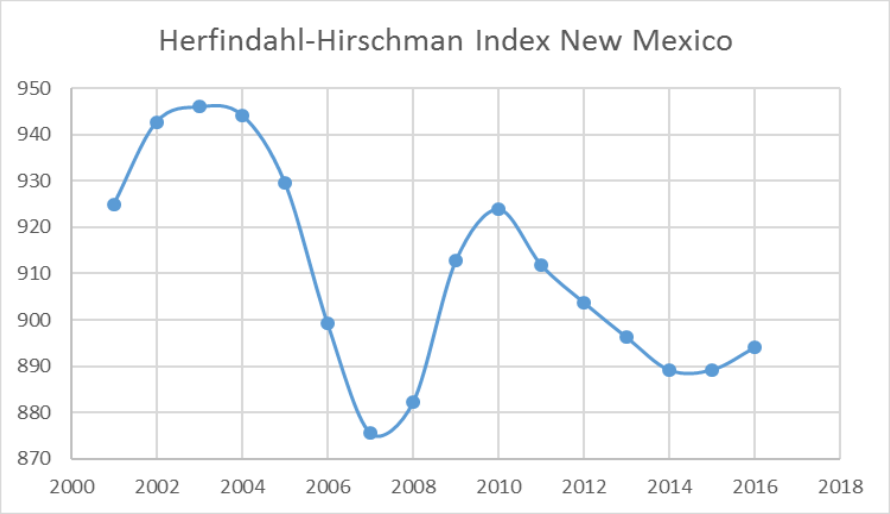
The Herfindahl-Hirschman (HH) Index was jointly developed by Albert O. Hirschman and Orris C. Herfindahl in the late 1940s (Naldi and Flamini, 2014). It was originally used to measure within-industry concentration but can also be used in other ways, in this case to measure industrial concentration in states. The index has a possible range of near-0 to 1 or near-0 to

10,000 depending on whether industry shares are presented as fractions or percentages. For this report the range is near-0 to 10,000. Higher index values indicate that a region is highly concentrated on a specific industry and a value of 10,000 indicates that all employment in a state relies on a single industry. Lower values indicate greater diversity in industrial employment. The HH Index is calculated as follows.

$$\text{HH Index} = \sum_{i=1}^{n} S_i^2$$

S_i is the employment share of i^{th} industry in a region. A high value of S_i indicates that a relatively large share of a state's employees works in that industry. Because typically concentration is seen as a greater potential economic problem than competition, the industry shares (S_i) are squared to give more weight to industries with large shares of employment (Jacquemin and Berry, 1979). Unlike the Hachman Index, values of the HH Index are only influenced by values within each state so a positive or negative change in the HH Index indicates that something has happened within the state to change its industrial diversity. A growing HH index indicates growing concentration and vice versa. Figure 1 shows New Mexico's HH Index values for the 2001-2016 period. While the HH index varies from year to year there seems to be a slight downward trend indicating that New Mexico's economy has become slightly more diverse over the 2001-2016 period.

Figure 2



The Entropy Index

The Entropy Index was first introduced by Shannon, (1948). However, he uses this index to measure the uncertainty associated with predicting something that is taken randomly from a dataset. Later many researchers develop this index for other purposes. In this report, the entropy index is used to measure industrial diversity as proposed by Jacquemin and Berry (1979). The Entropy Index is similar to the Herfindahl-Hirschman index except that it uses the natural log of the reciprocal of industry share to weight industries. Jacquemin and Berry suggest that the HH Index is effective for two-digit industries while the Entropy index is better for examining more refined (higher digit) industry definitions. The Entropy Index is calculated as follows.

$$\text{Entropy} = \sum_{i=1}^{n} S_i \, ln \frac{1}{S_i}$$

As with the HH index, S_i is share of employment in the i^{th} industry in a region. An Entropy Index value of zero means there is only one industry in a region employs all workers. Higher values of the Entropy Index indicate greater industrial diversity. Figure 3 shows New Mexico's Entropy Index values for 2001-2016. As with the HH Index, the Entropy Index values vary from year to year but show a slightly upward trend over time indicating that New Mexico's Economy has become somewhat less concentrated over the 2001-2016 period.

Figure 3

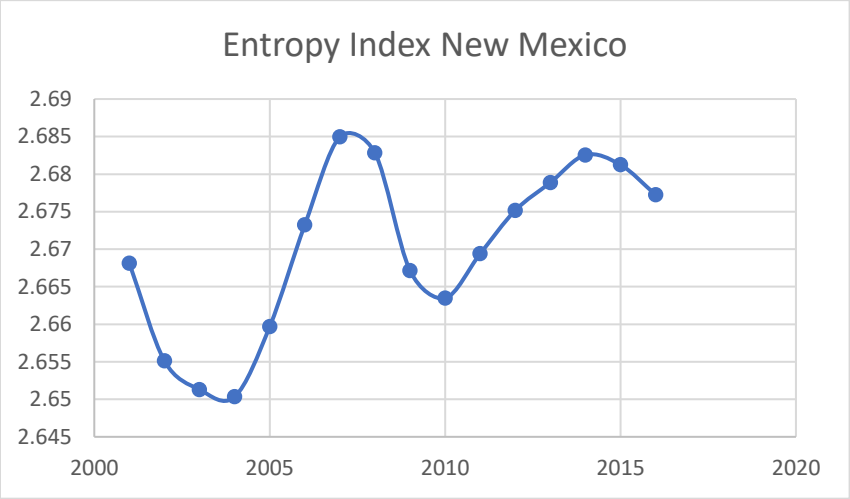


Table 1 provides 2016 ranking of states in the US based on industrial diversity using the three different techniques, Hachman, Herfindahl-Hirschman, and Entropy. New Mexico's economic diversity ranking varies depending on the method used to measure diversity. For 2016, New Mexico is ranked 42^{nd} using the Hachman index, 47^{th} using Herfindahl-Hirschman, and 45^{th} using the Entropy Index. While the differences are not large one can reasonably ask why the results differ by index. Recall that the Hachman index basically measures how a state's industry employment shares compare to national shares. Both state and national employment shares

Table 1						
Rank	**State***	**Herfindahl-Hirschman**	**State***	**Hachman**	**State***	**Entropy**
1	**Texas**	**689.39**	**Illinois**	**0.979**	**Oregon**	**2.830**
2	**Illinois**	**690.99**	**Missouri**	**0.977**	**Texas**	**2.824**
3	**Oregon**	**693.80**	**North Carolina**	**0.977**	**Kansas**	**2.823**
4	**Utah**	**694.66**	**California**	**0.975**	**Minnesota**	**2.822**
5	**California**	**695.45**	**Utah**	**0.975**	**Nebraska**	**2.819**
6	**Tennessee**	**701.17**	**Georgia**	**0.974**	**California**	**2.817**
7	**Minnesota**	**702.53**	**Arizona**	**0.974**	**Utah**	**2.816**
8	**Nebraska**	**702.98**	**Pennsylvania**	**0.968**	**Iowa**	**2.814**
9	**Wisconsin**	**702.99**	**Tennessee**	**0.967**	**Arkansas**	**2.813**
10	**Iowa**	**704.54**	**Minnesota**	**0.967**	**Wisconsin**	**2.812**
11	**Georgia**	**706.36**	**Ohio**	**0.964**	**Idaho**	**2.809**
12	**Missouri**	**713.49**	**Washington**	**0.961**	**Pennsylvania**	**2.808**
13	**Colorado**	**714.12**	**Oregon**	**0.960**	**Missouri**	**2.808**
14	**Pennsylvania**	**715.28**	**Colorado**	**0.960**	**Illinois**	**2.807**
15	**Ohio**	**716.82**	**New Hampshire**	**0.958**	**Colorado**	**2.803**
16	**Idaho**	**718.80**	**New Jersey**	**0.955**	**Georgia**	**2.799**
17	**Kansas**	**722.50**	**South Carolina**	**0.954**	**Ohio**	**2.798**
18	**Michigan**	**725.82**	**Florida**	**0.952**	**Kentucky**	**2.797**
19	**New Jersey**	**726.13**	**Michigan**	**0.949**	**Tennessee**	**2.797**
20	**Arkansas**	**726.66**	**Alabama**	**0.949**	**North Dakota**	**2.797**
21	**Kentucky**	**727.98**	**Virginia**	**0.948**	**Oklahoma**	**2.795**
22	**Indiana**	**728.03**	**Maryland**	**0.943**	**Louisiana**	**2.792**
23	**Florida**	**734.33**	**Connecticut**	**0.941**	**Washington**	**2.788**
24	**North Carolina**	**737.21**	**New York**	**0.939**	**North Carolina**	**2.783**
25	**Connecticut**	**737.21**	**Maine**	**0.935**	**Michigan**	**2.780**
26	**New Hampshire**	**739.97**	**Vermont**	**0.934**	**South Dakota**	**2.779**
27	**Louisiana**	**741.09**	**Kentucky**	**0.932**	**Indiana**	**2.779**
28	**Washington**	**742.68**	**Louisiana**	**0.932**	**Montana**	**2.774**
29	**Arizona**	**742.88**	**Texas**	**0.925**	**New Hampshire**	**2.767**
30	**New York**	**748.20**	**Idaho**	**0.920**	**Arizona**	**2.766**
31	**Massachusetts**	**749.21**	**Massachusetts**	**0.918**	**New Jersey**	**2.765**
32	**Oklahoma**	**751.94**	**Mississippi**	**0.918**	**Alabama**	**2.764**
33	**North Dakota**	**753.54**	**Wisconsin**	**0.916**	**Vermont**	**2.764**
34	**South Dakota**	**756.75**	**Kansas**	**0.915**	**Maine**	**2.762**
35	**Alabama**	**763.06**	**Nebraska**	**0.908**	**Connecticut**	**2.760**
36	**South Carolina**	**764.81**	**Arkansas**	**0.907**	**New York**	**2.757**
37	**Montana**	**766.08**	**Indiana**	**0.900**	**Florida**	**2.756**
38	**Vermont**	**770.19**	**Iowa**	**0.888**	**Massachusetts**	**2.756**
39	**Maine**	**781.43**	**Hawaii**	**0.876**	**South Carolina**	**2.754**
40	**Mississippi**	**811.17**	**New Mexico**	**0.864**	**Mississippi**	**2.750**
41	**Maryland**	**824.65**	**Montana**	**0.861**	**Wyoming**	**2.730**
42	**Virginia**	**826.48**	**South Dakota**	**0.856**	**Virginia**	**2.715**
43	**Wyoming**	**845.00**	**West Virginia**	**0.823**	**West Virginia**	**2.709**
44	**Nevada**	**874.26**	**Nevada**	**0.793**	**New Mexico**	**2.698**
45	**West Virginia**	**880.81**	**North Dakota**	**0.754**	**Maryland**	**2.689**
46	**New Mexico**	**889.72**	**Alaska**	**0.726**	**Nevada**	**2.676**
47	**Hawaii**	**938.11**	**Oklahoma**	**0.719**	**Alaska**	**2.658**
48	**Alaska**	**981.00**	**Wyoming**	**0.601**	**Hawaii**	**2.640**
Source: Bureau of Economic Analysis, Regional Accounts and Author Calculations ***Delaware and Rhode Island are not reported because of missing data**						

determine the Hachman index. Meanwhile, both the Herfindahl-Hirshman and Entropy indices use only state data, so the index values are not directly impacted by national employment shares.

New Mexico's Relative Economic Diversity through Time

Figure 1 shows New Mexico's Hachman Indices from 2001 to 2016. The Hachman Index was the highest in 2009 meaning that the employment distribution among industries in New Mexico was most like the United States' distribution during that year. After the 2007-2009 Great Recession, New Mexico's Hachman Index fell, indicating less relative diversity, until 2015 when in turned upward again. Despite these changes, New Mexico's ranking among states did not change significantly.

Because the Herfindahl-Hirschman and Entropy Indices compares a state only to itself, it may be more useful to examine these indices to see if New Mexico's economic diversity has changed over time. Figure 2 shows New Mexico's Herfindahl-Hirschman indices and Figure 3 shows New Mexico's Entropy Indices for 2001 to 2016. Both graphs suggest the same interpretation. Judged against itself, New Mexico has become slightly more economically diverse over the period. Care must be taken in interpreting the figures as the seemingly sharp changes from year to year are an artifact of the way the graphs are constructed. If horizontal axes for these graphs were set to zero, as is typical practice, the changes in index values over the period would seem much smaller although they would still show a slight diversification trend over the 2001-2016 period.

In Which Specific Ways Has New Mexico Become More (or less) Diversified?

Although the trend toward the diversification of New Mexico's economy is not strong, there have been some notable changes. This section looks for specific changes that are not obvious when overall economic diversity is measured. To identify specific industry changes, employment shares of New Mexico's top 25 industries are estimated 2001, 2008, and 2016 using the following formula.

$$Employment\ Share_i = \frac{Employment\ in\ industry\ i\ at\ New\ Mexico}{New\ Mexico\ total\ employment}$$

The objective is to identify notable changes in employment shares over time, but the focus will be on only the top 25 industries in terms of employment. This is because the top 25 accounts for nearly 90 percent of total employment in all three years.

Table 3 shows New Mexico's the top 25 NAICS 3-digit industries for 2001, 2008, and 2016, based on their employment share. In 2001, 2008, and 2016 these top 25 sectors account for 89.37, 89.40, and 88.68 percent of total employment, respectively. The reduction of less than one percentage point of the top 25 industry share is consistent with the finding above of slightly less concentration in New Mexico's economy. Similar results arise when looking at the top 10 industries. New Mexico's employment top-10 share of total employment was 64.83 percent in 2001, 64.21 percent, in 2008, and 63.92% in 2016. Thus, the top-10 share had a slightly stronger decrease in industry concentration than did the top-25 industries.

There are several notable positive changes in employment share over the period. Although it remained second in the employment share rankings, real estate grew from 10.07 to 12.42 percent

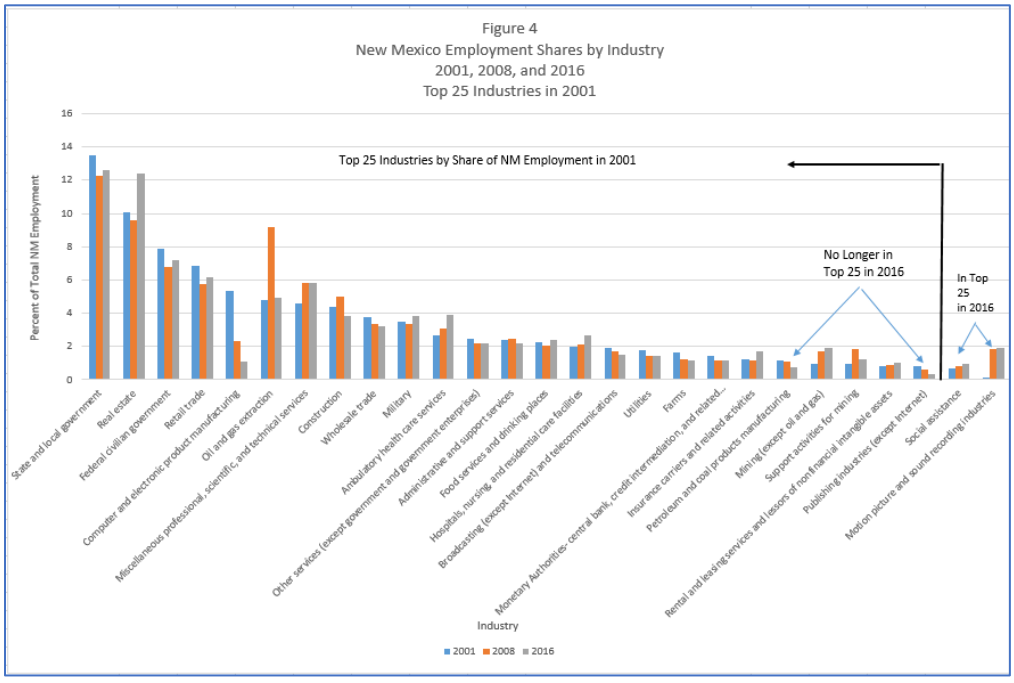
Table 3
Employment Shares of New Mexico's Top 25 Employing Industries, 2001, 2008, and 2016

Rank	Industry	Pct. of NM Employment, 2001	Cum. Pct. of NM Employment, 2001	Industry	Pct. of NM Employment, 2008	Cum. Pct. of NM Employment, 2008	Industry	Pct. of NM Employment, 2016	Cum. Pct. of NM Employment, 2016
1	State and local government	13.52	13.52	State and local government	12.25	12.25	State and local government	12.61	12.61
2	Real estate	10.07	23.59	Real estate	9.60	21.84	Real estate	12.42	25.03
3	Federal civilian government	7.91	31.50	Oil and gas extraction	9.20	31.05	Federal civilian government	7.17	32.20
4	Retail trade	6.86	38.36	Federal civilian government	6.78	37.83	Retail trade	6.19	38.39
5	Computer and electronic product manufacturing	5.36	43.72	Miscellaneous professional, scientific, and technical services	5.82	43.65	Miscellaneous professional, scientific, and technical services	5.82	44.22
6	Oil and gas extraction	4.83	48.54	Retail trade	5.74	49.39	Oil and gas extraction	4.93	49.15
7	Miscellaneous professional, scientific, and technical services	4.62	53.17	Construction	5.02	54.41	Ambulatory health care services	3.90	53.05
8	Construction	4.39	57.56	Military	3.38	57.79	Military	3.81	56.86
9	Wholesale trade	3.80	61.35	Wholesale trade	3.33	61.12	Construction	3.80	60.67
10	Military	3.48	64.83	Ambulatory health care services	3.09	64.21	Wholesale trade	3.25	63.92
11	Ambulatory health care services	2.70	67.53	Administrative and support services	2.44	66.65	Hospitals, nursing, and residential care facilities	2.70	66.61
12	Other services (except government and government enterprises)	2.47	70.00	Computer and electronic product manufacturing	2.35	69.00	Food services and drinking places	2.42	69.03
13	Administrative and support services	2.39	72.40	Other services (except government and government enterprises)	2.20	71.20	Administrative and support services	2.20	71.24
14	Food services and drinking places	2.25	74.65	Hospitals, nursing, and residential care facilities	2.14	73.34	Other services (except government and government enterprises)	2.17	73.41
15	Hospitals, nursing, and residential care facilities	2.01	76.66	Food services and drinking places	2.05	75.38	Motion picture and sound recording industries	1.93	75.34

Table 3 Continued									
Rank	Industry	Pct. of NM Employment, 2001	Cum. Pct. of NM Employment, 2001	Industry	Pct. of NM Employment, 2008	Cum. Pct. of NM Employment, 2008	Industry	Pct. of NM Employment, 2016	Cum. Pct. of NM Employment, 2016
16	Broadcasting (except Internet) and telecommunications	1.90	78.56	Support activities for mining	1.87	77.25	Mining (except oil and gas)	1.91	77.25
17	Utilities	1.77	80.33	Motion picture and sound recording industries	1.84	79.09	Insurance carriers and related activities	1.74	78.99
18	Farms	1.65	81.98	Broadcasting (except Internet) and telecommunications	1.70	80.79	Broadcasting (except Internet) and telecommunications	1.48	80.47
19	Monetary Authorities-central bank, credit intermediation, and related services	1.41	83.39	Mining (except oil and gas)	1.68	82.47	Utilities	1.46	81.94
20	Insurance carriers and related activities	1.23	84.62	Utilities	1.46	83.92	Support activities for mining	1.23	83.16
21	Petroleum and coal products manufacturing	1.14	85.77	Farms	1.20	85.12	Farms	1.18	84.35
22	Mining (except oil and gas)	0.97	86.74	Monetary Authorities-central bank, credit intermediation, and related services	1.19	86.31	Monetary Authorities-central bank, credit intermediation, and related services	1.16	85.51
23	Support activities for mining	0.97	87.70	Insurance carriers and related activities	1.14	87.45	Computer and electronic product manufacturing	1.12	86.63
24	Rental and leasing services and lessors of nonfinancial intangible assets	0.85	88.56	Petroleum and coal products manufacturing	1.06	88.51	Rental and leasing services and lessors of nonfinancial intangible assets	1.06	87.69
25	Publishing industries (except Internet)	0.81	89.37	Rental and leasing services and lessors of nonfinancial intangible assets	0.89	89.40	Social assistance	0.99	88.68
Source: Bureau of Economic Analysis, Regional Accounts and author calculations									

of total employment between 2001 and 2016. Ambulatory health care services' share grew from 2.70 to 3.90 percent of total employment. Hospitals, nursing, and residential care facilities grew in share from 2.01 to 2.70 percent. Mining (except oil and gas) nearly doubled its share from 0.97 to 1.91 percent. Finally, two industries were in the top 25 group in 2016 that were not there in 2001, social assistance and motion picture and sound recording industries, the latter reaching nearly two percent of state employment in 2016.

Among industries that decreased in their share, the most precipitous decline was in computer and electronic product manufacturing which dropped from fifth to twenty-third in ranking and 5.36 percent to 1.12 percent in employment share. Wholesale trade and broadcasting and telecommunications had more modest declines in employment share. The petroleum and coal products manufacturing and publishing industries dropped out of the top 25 industries by 2016. Figure 4 shows the shows the industry shares for all three years side by side in a bar graph sorted according to the 2001 rankings.



Conclusions

By its choice of economic incentives and other policies it seems that New Mexico is actively seeking to diversify its economy. Looking at the overall level of diversification as measured by the Hachman, Hirfendahl-Hirshman, and Entropy indices, it appears that New Mexico has become only slightly more economically diverse over the 2001-2016 period. In terms of ranking, New Mexico's economic diversification has remained in the low to mid-forties range. While progress has been made, other states have progressed too making it difficult to move up in the diversity rankings.

In terms of employment shares there have been a few notable changes within the state with decreases in some industries being offset by increased shares in other industries. Realistically, New Mexico, as any other state, has its own unique characteristics that shape its economy. While the pursuit of economic diversity is worthwhile in many ways, it may be unreasonable to expect New Mexico, or any other state, to change its diversity ranking significantly in a short amount of time.

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