

Report 0103. Policy Options for Addressing Declining Entrepreneurship in the United States

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Executive Summary. During the period 1978 to 2011, entrepreneurship (firm entry) declined in every state in the United States, and by 43% over all. This is troubling to both economists and policy makers alike because entrepreneurship is a key determinant of economic growth. To develop policies to mitigate this trend, policymakers need a basic understanding of its causes. Yet, the existing economics literature cannot fully provide this understanding. Using panel data for all fifty states for the period 1978 to 2011, this paper identifies several variables that decrease entrepreneurship--franchises, unions, state level business regulation, and federal taxation--and several that increase it--financialization, education, and lower longer term interest rates. The paper then proceeds by suggesting policy actions to exploit these mechanisms in order to increase entrepreneurship.

Introduction

Economic theory holds—and history demonstrates—that entrepreneurship is an important engine of economic growth. To establish their niche, entrepreneurs introduce new and innovative products, production methods, and organizational structures. These innovations drive the rate of technological advancement, which, in turn, raises labor productivity, generates economic growth, and ultimately increases living standards (Baumol, 1986; Wong, et al. 2005). In fact, economic historians contend that it was this very mechanism that stimulated American economic development in the years following the Second World War (Braunerhjelm, 2008).

It is unsurprising, then, that economic theory also holds that in the absence of sufficient levels of entrepreneurship, this process is likely to be substantially halted and economic stagnation is liable to occur (Liang, 2011). Given recent trends, this is quite troubling (see Figure 1). According to the Brookings Institute, in 1978, 14% of firms were less than one year old, but by 2011, only 8% of firms were less than one year old—a decrease of almost 50% (Hathaway and Litan, 2014). Similarly, the Kauffman Foundation notes that during the period 1996-2014, the share of non-business owning adults who started a business in a given month declined by almost 10% (Farlie, 2014).

To prevent economic stagnation, this trend must be reversed—or, at the very least, mitigated. Yet, if policy makers are to address this decline with appropriate policy, they must have an understanding of the forces driving it; unfortunately, the existing economic literature can offer no such understanding. The bulk of it is focused on cross-country differences, often lacks mechanisms for identifying causality, and is generally not specific to the United States. Therefore, more research is needed in order to better inform policy makers (Hathaway and Litan, 2014).

To that end, this paper, using national and state specific data for the period 1978-2011, identifies several variables that negatively and positively impact entrepreneurship. Ultimately, it finds that the addition of new establishments into a state by existing firms, an increase in the federal corporate income tax burden, unemployment, unions, and state regulation all play important roles in reducing entrepreneurship in subsequent years. In contrast, having more individuals with a college education, lower long-term interest rates, and a larger financial sector increases entrepreneurship in subsequent

years. It then proposes policy options to exploit these mechanisms. In all, franchises, federal taxation, state regulation, and the financial sector were the most important variables explaining changes in firm entry, and consequently they should be afforded the most attention.

Background

Much of the existing economic literature on new firm entry (entrepreneurship) focuses on the effect of taxes, regulation, and finance. Typically, these studies analyze data across countries rather than over an extended period of time and are generally not specific to the United States. For this reason, they are helpful—but not sufficient—for explaining variations in entrepreneurship; nevertheless, they provide a useful starting point for analysis.

Klapper et al. (2006) and Ardagna and Lusardi (2009), for instance, examined new firm formation across a series of countries to determine the effect of government regulation on firm entry. Both found that increased levels of entry regulation, such as those pertaining to entry standards, zoning, and labor, significantly reduce the rate of new business creation. The most likely cause of this relationship is that these regulations result in higher startup costs, which deter entrepreneurship.

Braunerhjelm and Eklund (2014) similarly found that complex tax codes and high tax burdens serve as a barrier to new firm formation. That is, not only do higher marginal tax rates decrease entrepreneurship as Hansson (2008) and Henrekson and Sanandaji (2001) had previously reported, but factors like the actual number of tax payments and the time allotted to pay them have a significant effect on reducing firm entry as well. The most likely cause for this relationship is an increased administrative cost burden—similar to that of regulatory requirements—from compliance with complex tax policies.

Other researchers have taken a different approach to the issue of entrepreneurship. Klapper and Love (2011), for example, attempted to identify the impact of the 2008 financial crisis, and ensuing recession, on new firm creation. They found that firm entry declined in most countries following the financial crisis, and in particular, countries with larger financial sectors (measured as a percentage of GDP) experienced a more significant decline. This is because in countries with larger financial sectors, finance is more important for the economy, so the spillovers (including the unemployment of financial workers) from negative shocks are greater. Interestingly, however, Fairlie (2014) reported that

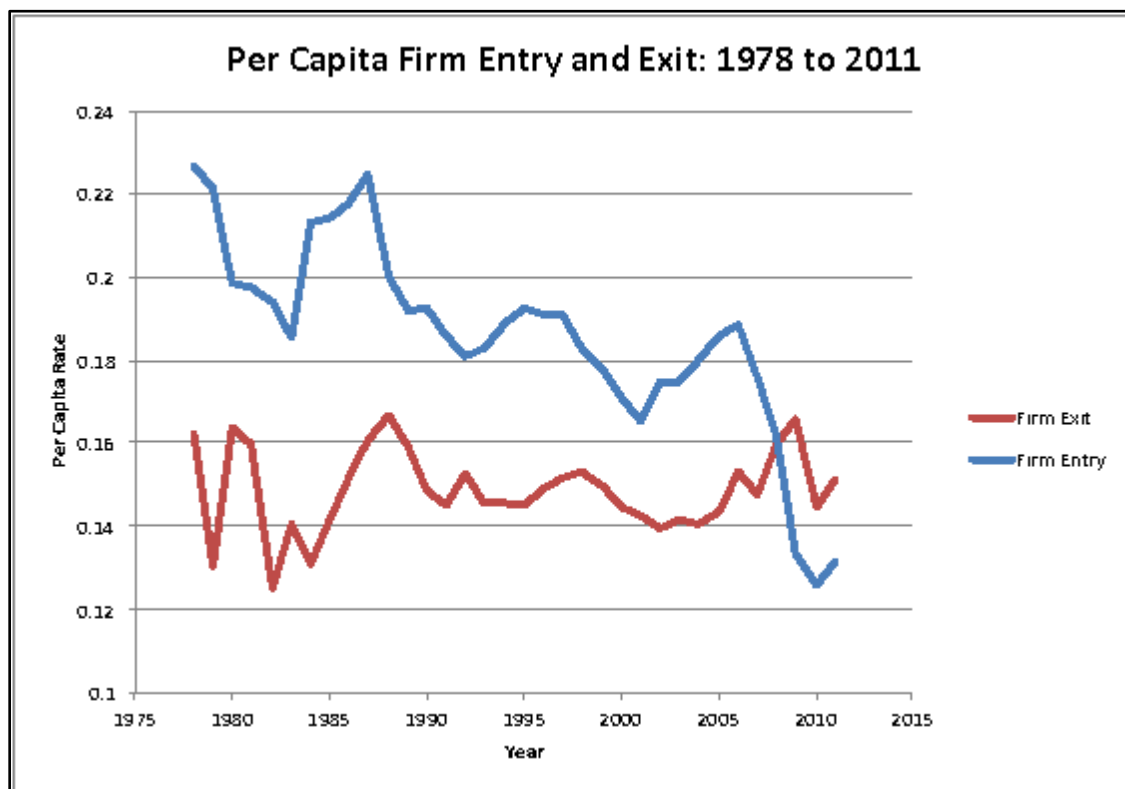


Figure 1. Trends in Per Capita Firm Entry and Exit.

in the United States, the rate of firm entry for 2012 picked up slightly due to necessity entrepreneurship (which is said to occur when those who are unable to find a job start a business as a means of subsistence) as a result of poor labor market conditions, before declining again in 2013 when labor market conditions improved. Taken together, these results suggest a more complex relationship between economic forces, namely those financial in nature and those having to do with employment, than either paper has supposed.

Moreover, the financial sector may have additional effects on firm entry. Kedrosky and Strangler (2011) argue that a sufficiently large financial sector reduces entrepreneurship because it bids resources, such as engineers and scientists, away from innovative activities like firm creation. Unfortunately, because this study offers no statistical tests to assess this hypothesis, and instead relies on the mere anecdotal analysis of trends (e.g., visually similar trends), it lacks the empirical rigor necessary to ascertain the veracity of these claims with any significant degree of confidence. Yet, both Palley (2007) and Orhangazi (2008) have suggested a similar relationship between increasing financial sector growth and overall economic performance.

While the differing nature of this analysis makes it insufficient to prove the existence of the relationship for entrepreneurship, it still adds some credence to it.

Whatever the case may be, loans from financial markets and banks are still necessary for firm creation as King and Levine (1993), Levine (2002), Wurgler (2000), and many others demonstrate. Indeed, Samilia and Sorenson, (2011) also show that increases in the supply of venture capital play an important role in new firm entry as well. They suggest that two mechanisms are responsible for this. First, would-be entrepreneurs are attracted by increases in the supply of venture capital. Second, newly funded firms transfer expertise to their employees, and this promotes spin-off business. In short, the literature suggests somewhat of a paradox. Financial capital, whether it is from banks or other private enterprises, provides the necessary initial funding for firms to begin operation, yet having an excessively large financial sector may actually work to counteract this.

In addition to financial factors and regulations, some previous work has also considered demographic variables, though to a much more limited degree. Liang (2011) used data from Japan, a

	Overall Mean	Standard Deviation	Observations	1978 Mean	2011 Mean
Firm Entry	0.203342	0.0579	1750	0.249976	0.136726
Firm Exit	0.153589	0.032316	1700	0.173052	0.15618
Large Firms	2.743148	0.978341	1750	2.383836	3.18331
Population19	29.38059	3.132123	1750	33.03738	26.18854
Population65	12.18063	2.273016	1750	10.71597	13.79492
Short IR	5.326	3.301634	33	7.19	0.05
Long IR	6.708	3.148152	33	8.32	1.52
Unemployment	5.998114	2.098501	1750	5.624	8.09
Finance	6.336857	0.891048	33	4.91	6.51
GSP per Capita	9962.61	13629.66	1750	27697.32	48851.76
Franchise	0.001836	0.001312	1700	0.001621	0.001104
State Tax Burden	1.253833	1.05721	1750	1.199006	1.243414
Federal Tax Burden	0.027691	0.014455	33	6.761293	1.129656
Union	16.87606	7.409085	1750	23.926	12.282
College	20.01109	5.183386	200	16.092	27.906
Federal Employment	0.824797	0.131675	33	1.0029	0.7149
State Employment	4.821251	0.666514	1700	4.622521	2.30223
Female Labor Participation	58.201	5.56507	1750	50.798	59.542

Table 1: Summary Statistics. Refer to Note Section of paper.

country well known for its ageing population, and found that an older population is positively linked with a lower rate of entrepreneurial activity and consequently weaker economic performance. He also found a positive correlation between the size of the youth cohort and the entrepreneurial rate (calculated as the percentage of new entrepreneurs in the adult population) for both OECD and non-OECD countries. Likewise, Levesque and Minniti (2011) proposed a similar relationship, positing that it may be a cause for the differing GDP growth rates of developing countries, which tend to have younger populations, and developed, countries, which tend to have older populations.

Findings

This section identifies those variables that affect entrepreneurship—positively and negatively—that, if manipulated correctly, might be of some use in promoting firm entry in the United States. These variables were identified using a regression procedure that measured the effect of changes in a number of variables (interest rates, unemployment, etc.) in given year on changes in firm entry in the subsequent year (see Table 1 for summary statistics and Table 2 for regression estimates). By looking at

changes instead of levels, and the observations in previous years instead of the current for dependent variables, this paper was able to avoid a host of possible statistical biases. Consequently, the results presented here can be interpreted with some confidence that there might be causality at work.

Long Term Interest Rate

While the short-term interest rate did not appear to significantly affect firm entry, the long-term interest rate did. At 99% level of confidence, the results show that a positive change in the long-term interest rate reduces entrepreneurship (firm entry) in the subsequent year, and a negative change in the long-term interest rate increases entrepreneurship in the subsequent year. This finding is generally consistent with economic theory, but the magnitude is rather modest. A one-percentage point increase in the long-term interest rate results in a 0.003 reduction in the firm entry rate. If we evaluate this change at the mean firm entry rate over the period, 0.203, then we find that this represents a 1.5% reduction in firm entry.

Unemployment

This study finds further that an increase in unemployment in a given year reduces

	1	2	3
Firm Exit	0.0487255 [0.0390259]	0.0487516 [0.0391403]	0.0486304 [0.0390985]
Large Firms	-0.0058795 [0.008463]	-0.0053281 [0.0085547]	-0.0052855 [0.0085583]
Population19	-0.0004506 [0.000466]	-0.000408 [0.0004422]	-0.0004021 [0.0004342]
Population65	0.0008685 [0.0009039]	0.0008997 [0.0008822]	0.0008821 [0.0008821]
Short IR	-0.0004698 [0.0005685]	-0.0004768 [0.0005682]	-0.0004733 [0.0005683]
Long IR	-0.0029635*** [0.0007578]	-0.0029782*** [0.0007565]	-0.0029853*** [0.0007541]
Unemployment	-0.0034861*** [0.0005966]	-0.0036401*** [0.0006049]	-0.0035993*** [0.0006081]
Finance	0.0218139*** [0.0016705]	0.0217083*** [0.0016688]	0.0216532*** [0.0016714]
GSP per Capita	0.00000003*** [0.000000006]	0.00000003*** [0.000000006]	0.00000003 [0.00000000565]
Franchise	-1.885547*** [0.3071966]	-1.889359*** [0.3070781]	-1.887423*** [0.3074661]
State Tax Burden	-0.0016752 [0.0014856]	-0.0017902 [0.001542]	-0.0017966 [0.0015408]
Federal Tax Burden	-0.003347** [0.0014025]	-0.0034138** [0.0013942]	-0.0033877** [0.001386]
Union	-0.0008341** [0.0003798]	-0.0008181** [0.0003798]	-0.000817** [0.0003804]
College	0.0007804** [0.0003668]	0.0006526* [0.000375]	0.0006718* [0.0003792]
Federal Employment	-0.0413238* [0.0229951]	-0.0373353 [0.0230408]	-0.0375013 [0.0229713]
State employment		-0.0079465** [0.0036636]	-0.0079368** [0.0036662]
Female Labor Participation			0.0001662 [0.0004275]
F	28.86	27.03	26.04
R-Squared	0.1973	0.1	0.1992

Table 2: Firm Entry Regression Results, 1978-2011. *Significant at the .01 level;
Significant at the .05 level; *Significant at the .1 level, two-tailed significance tests.

entrepreneurship in the subsequent year. Here we find that a one-percentage point increase in unemployment reduces firm entry by 0.003, and

represents a 1.5% reduction in firm entry over the period if evaluated at the mean firm entry rate, which is relatively small. However, like the effect of

the long-term interest rate, this result is significant (likely not the result of random sampling error) at the 99% level of confidence. Yet, we cannot be certain if unemployment is actually a casual mechanism, or just a proxy for another casual mechanism—say the state of the economy. If this is true, then the negative effect of unemployment suggests that the effect of necessity entrepreneurship (when those who are unable to find a job start a business as a means of subsistence) is likely not sufficient to boost firm entry above the levels it would be at if the economy were in a better state.

Finance

Mixed results are identified for financialization (when the financial sector grows in size). Lower levels of financial sector growth increase entrepreneurship in the subsequent year, but there is a diminishing effect at higher levels of growth. These findings are significant at the 99% level of confidence, and suggest that financial institutions still play an important role in new business creation. This is most likely by providing the initial startup capital in the form of loans, but perhaps to some extent, too, by removing resources from it.

Franchise

More interestingly, this paper finds, at the 99% level of confidence, that the introduction of an existing franchise (or of an establishment of an exiting firm based in another state) reduces firm entry in the subsequent year in that state. In other words, when a business expands into another state, entrepreneurship declines in that state due to a crowding out effect. For example, if an exiting restaurant expands into a state, then there is less need to open new restaurants in that state, so firm entry is lower. This effect is highly significant, as a one-percentage point increase in franchises results in a 1.83% reduction in firm entry. There are, however, some limitations to the specification of this variable—it only counts the first time an existing business expands into a state and it does not measure multiple units in that state owned by a single firm. As a result, the findings may actually understate the importance of this variable, and it may be even more deleterious to firm entry than is suggested in Table II.

Federal Tax Burden

Not surprisingly, this paper also finds that an increase in the federal corporate tax burden in a given year decreases firm entry in the following year. Significant at the 99% level, this suggests what

economic theory holds: taxes reduce incentives to start new business. Interestingly, state level taxes do not have a significant effect. Most likely, this is because these taxes tend to be much lower than federal taxes and may not be observed as closely by potential entrepreneurs as federal taxes are. The magnitude of this effect appears to be rather small, however, as a one percentage point increase in the tax burden reduced firm entry by 0.004 in the subsequent year. But, if evaluated at the mean level of firm entry over the period, 0.203, this represents a 2% reduction in firm entry, which is a bit more substantial.

Unions

At the 90% level of confidence, this paper finds evidence that an increase in the percent of the workforce that is in a union decreases firm entry the following year in that state by about 0.0007 per one percentage point increase. Evaluated at the mean firm entry rate for the period, this represents a 0.34% reduction in firm entry, but is a rather small effect. The existence of the effect, however, makes sense because larger unions imply higher wages for union workers (through increased bargaining power) as well as a smaller set of the workforce that is not in a union. This increases the expected costs of opening a business and consequently reduces entrepreneurship. As a caveat, because the share of the workforce that is in a union actually declined during the period 1978-2011, unions cannot explain the overall change, but they are still useful in explain year-to-year changes.

College

A positive change in the share of individuals in a given state with a college degree increases firm entry in the subsequent year. This result is significant at the 90% level of confidence. Given the discussion by Klapper et al. (2006), Ardagna and Lusardi (2009), and Braunerhjelm and Eklund (2014) this follows logically. If regulations and tax laws become more complex—and there is good reason, even if only by their sheer number, to suspect that they have—than a more educated population would help to counteract this effect. They would, after all, have more technical expertise with which to handle these issues. Indeed, the increasing prevalence of college education over the period 1978-2011 may have been a small mitigating factor in the decline of firm entry, however small. In particular, that is, the results show that a one percentage point increase in the share of individuals with a bachelors degree increase entrepreneurship by only 0.00065, which

evaluated at the mean level of firm entry for the period, 0.203, would result in a very modest 0.32% increase in firm entry.

State Regulation

A positive change in state government employment per capita—which is used a proxy for state regulation—decreases firm entry in the subsequent year in that state. This finding is significant at the 99% level of confidence and suggests that increases in regulation—occupational licensing, emission standards, etc.—are deleterious to firm entry. In this case, the fact that this variable does not increase over the period 1978-2011 does not suggest that it is not useful in explaining the decline. To the contrary, it is likely that the hiring of new workers signals increases in regulation and that the overall number is less important because, as technology increases, a task that once took dozens of regulators, could then be done by just a few. But, in the interim, as new regulations are imposed, new workers still may need to be added. The effect of this variable was rather significant, as a one-percentage point increase in the variable would decrease firm entry by 0.008 in the subsequent year, which would, if evaluated at the mean firm entry level, lead to by 3.94% reduction in firm entry over all. Federal Regulation was also tested, but proved to be non-significant once State Regulation was examined concurrently; consequently, some consideration should still be given to it.

Other Findings

To account for economic conditions, this paper controlled for Gross State Product (GSP) per Capita, and it was found to be positively associated with Firm Entry at the 99% level of confidence. This study also examined the impact of firm exit, age demographic changes, and female labor participation in addition to the variables already mentioned, but they did not stand up to statistical tests for significance. This suggests that they are not useful in explaining entrepreneurship in the United States.

Policy Recommendations

The preceding empirical results suggest a number of policies that may be useful in promoting new firm creation. Some of these policies are applicable at both the state and federal level, while others are applicable at only one of the two. Given the relative magnitudes of the effects of the variables discussed previously, policies that reduce franchises,

taxation, and regulation might be most useful. But protecting the financial sector is also important.

Lower Long Term Interest Rates and Promote the Financial Sector

First, the Federal Reserve Bank could target lower long-term interest rates in order to directly boost entrepreneurship by lowering the cost of starting a business. A secondary inflationary effect may also ensue, which, at least in the short run, would likely decrease unemployment. Since unemployment is negatively correlated with firm entry, this, too, makes the policy attractive. However, policymakers will need to weigh the costs and benefits of the strategy, including its long-term effects and the short-term effect of a higher nominal exchange rate. At the same time, policymakers may wish to promote the financial sector and work to ensure its stability. They would also be wise to avoid laws and regulations that would substantially hamper it. Of course, policymakers may want to avoid going too far in financial deregulation, as another financial crisis would be damaging to the firm entry as Klapper and Love (2011) demonstrate, and because there is evidence to suggest that a sufficiently large financial sector may be deleterious to firm entry.

Do Not Promote Franchises

Based on the evidence, it would also appear wise for policymakers to avoid policies that promote the expansion of franchises, and instead focus on new businesses, especially since this was the most important variable explaining declining firm entry. If prudent, after weighing the costs and benefits, a policymaker may also find it appropriate to actually discourage the expansion of franchises in order to clear way for new firms, which tend to be more innovative. One way to do this would be to place an additional tax burden on franchises, perhaps by making them ineligible for certain tax deductions.

Limit Taxes on Businesses

The results show that a higher federal corporate income tax burden is negatively associated with firm entry, and that this effect is relatively strong. This suggests that policymakers should be mindful not to increase that burden further, and perhaps should even considering lowering it. It would be especially helpful if such changes were targeted to benefit new and smaller business. This may entail special deductions or the like. While state tax burdens did not have a significant effect, state legislatures may still be wise to adopt similar policies. Based on

finding by Braunerhjelm and Eklund (2014) complexity should also be minimized.

Limit Regulation of Businesses

In a similar vein, policymakers at both the state and federal level (though statistical significance is more questionable here) should not adopt additional policies that make it costly and difficult for startups. Indeed, the effect of this is also relatively strong. Therefore, they may wish to reduce occupational and business licensing requirements or, at the very least, reduce their complexity (see: Klapper et al., 2006 and Ardagna and Lusardi, 2009).

Limit Unions

If the policymaker's foremost goal is to increase firm entry, then they may be wise to limit the power of unions, though this effect is rather small. They may do this either by restricting membership or by writing laws that limit the possible scope of their activities. Like the other proposed policies, this policy must also be weighed against competing interests and its feasibility is largely dependent on strong political forces. Also, given that unions have generally declined over the period (although they have increased size in some years thereby reducing

firm entry thereafter) unions may subside on their own with maintenance of current policy.

Promote Education

Lastly, policymakers may want to increase entrepreneurship by targeting education. A more educated population is necessary for a society and a business environment that is more complicated and more technologically advanced. Educated citizens are not only better suited to start a new business, given the complexity of regulation, but also to work in new ones, especially along the technological frontier. There are numerous ways in which to promote this end, including providing additional funding to state universities to reduce tuition and improving lower performing school districts thereby increasing the share of individuals who are likely to go to college. This list is endless, so no additional depth can be given here. Again, like the other recommendations, there are likely political obstacles to the policies under this category; there are also pitfalls. Indeed, only when the moment is right--when the policy window is open--may there be an opportunity to taken action of these issues. Yet, any such action should be sufficiently beneficial for firm entry that it is worth that trouble.

Notes

Because Short IR, Long IR, and Federal Employment are not measured at the state level, the mean value displayed for 1978 and 2011, is the actual value of the data point, not the state level average. There are only 200 observations for college, because data for this variable was only available for every ten years.

Firm Entry: Number of firms entering in state i and year t divided by population in state i and year t , multiplied by 100
Firm Exit: Number of firms exiting in state i and year t divided by population in state i and year t , multiplied by 100

Large Firms: Numbers of firms with 500 more employees in state i and year t divided by number of all firms in state i and year t , multiplied by 100

Population19: Population 19 years of age and younger in state i and year t divided by population in state i and year t , multiplied by 100

Population65: Population 65 years of age and younger in state i and year t divided by population in state i and year t , multiplied by 100

Short IR: Average interest rate of three-month treasury bill in year t

Long IR: Average interest rate of five-year treasury note in year t

Unemployment: Number of unemployed individuals in state i and year t divided by labor force in state i and year t , multiplied by 100

Finance: The value added by the financial sector in year t divided by the GDP in year t , multiplied by 100

GSP per Capita: Total value generated in state i and year t divided by population in state i and year t converted to current dollars using the GDP deflator

Franchise: Entry of new establishments of existing firms in state i and year t divided by population in state i and year t , multiplied by 100

State Tax Burden: State business tax revenue, including business licenses, in state i and year t divided by Gross State Product in state i year t , multiplied by 100

Federal Tax Burden: Federal corporate tax revenue in year t divided by GDP in year t , multiplied by 100

Union: Share of individuals in state i and year t that are in a union divided by population in state i and year t , multiplied by 100

College: Population 25 years of age and older in state i and year t with at least a bachelors degree divided by population in state i and year t , multiplied by 100

Federal Employment: Number of federal employees, excluding postal workers, in year t divided by population in year t , multiplied by 100

State Employment: Number of state employees in state i and year t divided by population in state i year t , multiplied by 100

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