Many economic studies have attempted to capture the effect of regulation on economic growth. While Gross Domestic Product (GDP) is the widely-accepted measure of economic growth, no reliable measure of regulatory activity exists. Therefore, the economic literature[i] on this subject relies on several different proxies for measuring regulatory activity. The table below summarizes the most often cited measures of regulation, and their advantages and disadvantages as proxies for regulatory activity.

Table 1: Measures of Regulatory Activity

Data	Description	Advantages	Disadvantages
Code of Federal Regulations (CFR) pages[ii]	Comprehensive listing of all federal regulations in effect	- 1938 – present	-Page-length may not measure impact of regulations
Federal Register (FR) pages[iii]	Publication of daily notices of executive agencies, including notices, proposed rules, and final rules, as well as preambles	- 1936 – present	-Includes regulatory preambles and non-regulatory notices - Page-length may not measure impact of regulations
CFR "Constraints"[iv]	Count of "command" words, such as "must" or "shall"	-Captures constraints -Broken down by CFR section	-Only sixteen years of data -Some regulations contain no command words
Regulators' Budget[v]	The number of employees and budgetary outlays of federal regulatory agencies	- 1960 – present -Broken down to sub-agency level	-Correspondence with private sector impact unknown
Number of economically-significant[vi] **or major regulations**[vii]	Counts of the number of regulations issued with impacts of $100 million or more in a year	-Daily & by agency -Most significant regulations	-Available from 1981 (economically significant) or 1994 (major) -Economically significant rules exclude independent agencies
Number of final regulations[viii]	Counts of all regulations issued	-Daily & by agency - 1976 – present	-Significance of regulations vary

It is difficult to know how well each of these measures individually tracks regulatory impact, but we can examine how well they correlate with each other. In statistics, a correlation coefficient measures how related two phenomena are. The measure ranges between -1 and 1, where -1 is a perfect negative relationship and 1 signifies a perfect positive relationship. A correlation coefficient of 0 suggests no relationship exists between the two data measures.

To do a correlation analysis, we converted each measure into a growth rate by taking the first difference of the natural log. The table below shows the results of the correlation analysis, which are surprising. Not only do correlation coefficients between many of the measures reveal little correlation, but several of them are actually negative, suggesting an inverse correlation. The budgets of regulatory agencies, for example, are inversely correlated with the number of constraints (with a coefficient of -0.25) and CFR pages (with a coefficient of -0.30). Federal Register pages are correlated with the number of rules issued in the same year (with coefficients of 0.68 and 0.45), but not with CFR pages that year (a coefficient of -0.03.)

Table 2: Correlation Between Measures of Regulatory Activity

	Economically Significant Rules	CFR Pages	All Final Rules	Constraints	Federal Register Pages	Regulators Budget
Economically Significant Rules	1.000000	-0.254121	0.293517	-0.005216	0.682252	0.091109
CFR Pages	-0.254121	1.000000	-0.087144	0.515475	-0.029876	-0.300215
All Final Rules	0.293517	-0.087144	1.000000	-0.300359	0.448201	0.117881
Constraints	-0.005216	0.515475	-0.300359	1.000000	-0.281413	-0.249688
Federal Register Pages	0.682252	-0.029876	0.448201	-0.281413	1.000000	-0.039578
Regulators' Budget	0.091109	-0.300215	0.117881	-0.249688	-0.039578	1.000000

Without reliable measures of regulatory activity, attempts to understand regulations' effect on the economy will be hindered, so the lack of correlation between the variables currently being used in the economic literature is troubling. The fact that none of them are closely correlated perhaps suggests that each variable captures a different facet of regulation, or perhaps our simple correlations do not adequately capture relationships among them. For example, one might expect CFR pages or constraints to follow the Regulators' Budget or Federal Register pages with a lag (and our correlation measures include no lag). Nevertheless, these results suggest that further research is needed if we are to understand the effects of regulation on economic growth.

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[i] Several econometric studies have relied on these data to estimate the effect of regulation on GDP. Using CFR pages as an independent variable, Seater and Dawson (2011) estimate an accumulated reduction in GDP of about $38.8 trillion as of the end of 2011. Two other studies use the Regulators' Budget as their proxy variable. Beard et al (2011) argue that cutting one regulatory job in the federal government would cause an increase of 98 jobs in the private sector. Sinclair and White (2011) however find that no statistically significant correlation between regulatory agency budgets and staffing and economic growth.

[ii] http://www4.ncsu.edu/~jjseater/index_003.htm

[iii] https://www.federalregister.gov/blog/learn/tutorials

[iv] http://regdata.mercatus.org/data

[v] http://research.columbian.gwu.edu/regulatorystudies/sites/default/files/u41/2014_RegulatorsBudget.pdf

[vi] http://www.reginfo.gov

[vii] http://www.gao.gov/legal/congressact/congress.html

[viii] https://www.federalregister.gov/blog/learn/tutorials