



**PPIC**

PUBLIC POLICY  
INSTITUTE OF CALIFORNIA

# **Business Regulation and Business Starts in California**

## **Technical Appendix**

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# Appendix A. Data and Methods

## QuantGov

We use 2023 State RegData from QuantGov to compare regulations across U.S. states.<sup>1</sup> QuantGov downloads state regulation documents from state government websites and Casetext and generates a dataset of state regulations across 48 U.S. states and D.C. (excluding Arkansas and West Virginia), including data on document name, overseeing agency, word count, and restriction count, which counts the instances of “shall,” “must,” “may not,” “required,” and “prohibited.” We sum the number of regulation documents within a state to generate regulation counts and sum restriction counts across documents to generate a state-level regulatory constraint measure.

Additionally, QuantGov categorizes regulations into 13 groups based on the agency responsible for writing or enforcing the regulation within “Administration,” “Banking, Insurance, and Securities,” “College and University,” “Culture, Recreation, and the Arts,” “Environmental Protection, Public Utilities, and Natural Resources,” “Health Services,” “Industry, Commerce, and Development,” “Labor and Workforce Development,” “Primary and Secondary Education,” “Security, Justice, and Corrections,” “Social Assistance,” “Taxes and Public Finance,” and “Transportation.” We count regulations and restrictions by these categories to identify sources of variation across states.

Finally, QuantGov also assigns each regulation document a probability of applying to each of 89 3-digit NAICS industries, using machine-learning algorithms trained on federal regulation documents with explicitly named relevant industries.<sup>2</sup> The dataset identifies 4,361 state-industry combinations. We use the sum of these probabilities to generate regulation counts at the state-industry level and multiply these probabilities by document restriction count before summing to generate restriction counts at the state-industry level. We also generate regulation and restriction counts by state-industry-administering agency.

Table A1 shows the 3-digit NAICS industries in QuantGov (column 2) along with the 2-digit level sector. Table A2 provides regulation examples and details not cited in the report.

**TABLE A1**  
NAICS industry categorizations used in our analysis

2-digit NAICS sector	Included businesses in QuantGov
Agriculture, Forestry, Fishing and Hunting (11)	Crop Production Animal Production Forestry and Logging Fishing, Hunting and Trapping Support Activities for Agriculture and Forestry
Mining, Quarrying, and Oil and Gas Extraction (21)	Oil and Gas Extraction Mining (except Oil and Gas) Support Activities for Mining
Utilities (22)	Utilities
Construction (23)	Construction of Buildings Heavy and Civil Engineering Construction Specialty Trade Contractors
Manufacturing (31-33)	Food Manufacturing Beverage and Tobacco Product Manufacturing Textile Mills

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<sup>1</sup> See <https://www.QuantGov.org/csv-download>.

<sup>2</sup> See [https://QuantGov-documentation.s3.amazonaws.com/regdata\\_4\\_0\\_user\\_guide.pdf](https://QuantGov-documentation.s3.amazonaws.com/regdata_4_0_user_guide.pdf).

	<p>Textile Product Mills  Wood Product Manufacturing  Paper Manufacturing  Printing and Related Support Activities  Petroleum and Coal Products Manufacturing  Chemical Manufacturing  Plastics and Rubber Products Manufacturing  Nonmetallic Mineral Product Manufacturing  Primary Metal Manufacturing  Fabricated Metal Product Manufacturing  Machinery Manufacturing  Computer and Electronic Product Manufacturing  Electrical Equipment, Appliance, and Component Manufacturing  Transportation Equipment Manufacturing  Furniture and Related Product Manufacturing  Miscellaneous Manufacturing</p>
Wholesale Trade (42)	<p>Merchant Wholesalers, Durable Goods  Merchant Wholesalers, Nondurable Goods  Wholesale Electronic Markets and Brokers</p>
Retail Trade (44-45)	<p>Motor Vehicle and Parts Dealers  Electronics and Appliance Stores  Building Material and Garden Equipment and Supplies Dealers  Food and Beverage Stores  Health and Personal Care Stores  Gasoline Stations  Clothing and Clothing Accessories Stores  Sporting Goods, Hobby, Book, and Music Stores  General Merchandise Stores  Miscellaneous Store Retailers  Nonstore Retailers</p>
Transportation and Warehousing (48-49)	<p>Air Transportation  Rail Transportation  Water Transportation  Truck Transportation  Transit and Ground Passenger Transportation  Pipeline Transportation  Scenic and Sightseeing Transportation  Support Activities for Transportation  Warehousing and Storage</p>
Information (51)	<p>Publishing Industries (except Internet)  Motion Picture and Sound Recording Industries  Broadcasting (except Internet)  Telecommunications  Data Processing, Hosting, and Related Services  Other Information Services</p>
Finance and Insurance (52)	<p>Monetary Authorities - Central Bank  Credit Intermediation and Related Activities  Securities, Commodity Contracts, and Other Financial  Investments and Related Activities  Insurance Carriers and Related Activities  Funds, Trusts, and Other Financial Vehicles</p>
Real Estate and Rental and Leasing (53)	<p>Real Estate  Rental and Leasing Services</p>
Professional, Scientific, and Technical Services (54)	<p>Professional, Scientific, and Technical Services</p>
Management of Companies and Enterprises (55)	<p>Management of Companies and Enterprises</p>
Administrative, Support, Waste Management, and Remediation Services (56)	<p>Administrative and Support Services  Waste Management and Remediation Services</p>
Educational Services (61)	<p>Educational Services</p>
Health Care and Social Assistance (62)	<p>Ambulatory Health Care Services  Hospitals  Nursing and Residential Care Facilities  Social Assistance</p>
Arts, Entertainment, and Recreation (71)	<p>Performing Arts, Spectator Sports, and Related Industries  Museums, Historical Sites, and Similar Institutions  Amusement, Gambling, and Recreation Industries</p>
Accommodation and Food Services (72)	<p>Accommodation  Food Services and Drinking Places</p>

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Other Services (except Public Administration) (81)	Repair and Maintenance Personal and Laundry Services Religious, Grantmaking, Civic, Professional, and Similar Organizations Private Households
Public Administration (92)	Executive, Legislative, and Other General Government Support Justice, Public Order, and Safety Activities Administration of Environmental Quality Programs National Security and International Affairs

NOTES: Right column are industries provided in QuantGov; left column is our aggregation.

**TABLE A2**

Examples of regulation in California

Regulation Chapter	Regulation Name	Category (Agency)	Selected Text	Regulatory Constraint Count	Probability Regulation applies to Industry (by NAICS code)
Title 4, Division 6, Chapter 3	Measurements For Placing An Outdoor Advertising Display Along An Interstate Or A Primary Highway	Industry, Commerce, and Development	"The minimum distance between Displays is measured along the nearest edge of the pavement between points directly opposite the portion of each Display closest to the right of way. Where the copy panel is parallel to the right of way, measurement shall be made from the edge of the structure closest to the nearest Display."	2	314: 1.80% 445: 0.00% 811: 0.05%
Title 18, Division 2, Chapter 8	Hazardous Substances Tax	Taxes and Public Finance	"The provisions contained herein shall apply to the collection of the generator fee imposed pursuant to Health and Safety Code 25205.5...If more than one person is liable for the same generator fee for the same load of hazardous waste, that liability shall be joint and several...A taxpayer shall maintain and make available for examination on request by the board or its authorized representatives, records in the manner set forth at California Code of Regulations, Title 18, Section 4901."	13	314: 0.03% 445: 22.83% 811: 0.05%
Title 4, Division 9, Chapter 8	Motor Oil Fee	Industry, Commerce, and Development	"The first motor oil dealer that produces, sells or distributes motor oil in California, whether or not packaged in retail containers, shall pay the fee for all such motor oil sold in California...Motor oil exported for sale outside California is exempt from the motor oil fee...A person assigned a motor oil dealer permit number and not actively engaged in the business of producing, distributing, or selling motor oil is required to notify the Department in writing within the next reporting period upon ceasing operations dealing with motor oil."	26	314: 0.05% 445: 0.09% 811: 0.10%
Title 22, Division 4.5, Chapter 33	Best Management Practices For Perchlorate Materials	Environmental Protection, Public Utilities, and Natural Resources	"Persons who manufacture perchlorate materials, repackage perchlorate materials, distribute perchlorate materials for sale, receive perchlorate materials for resale or use in California, or generate a perchlorate containing waste shall ensure that the perchlorate materials are properly labeled. Labels shall be applied conspicuously on the exterior of all outer shipping packages and on consumer packages."	42	314: 0.06% 445: 10.00% 811: 0.05%
Title 22, Division 4.5, Chapter 31	Waste Minimization	Environmental Protection, Public Utilities, and Natural Resources	"On or before September 1, 1991 and every four years thereafter that hazardous or extremely hazardous waste generation exceeds the thresholds in section 67100.2(a) of these regulations, each generator shall conduct a source reduction evaluation review and plan pursuant to section 67100.5 of these regulations...At the time a review and plan is	46	314: 0.03% 445: 8.03% 811: 0.05%

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			submitted to the Department, the generator shall certify that the generator has implemented, is implementing, or will be implementing, the source reduction measures identified in the review and plan according to the implementation schedule contained in the review and plan.”		
Title 8, Division 1, Chapter 4, Subchapter 21	Telecommunication Safety Orders	Industry, Commerce, and Development	“Lighting in telecommunication centers shall be provided in an adequate amount such that continuing work operations, routine observations, and the passage of employees can be carried out in a safe and healthful manner. (See Section 3317 of the General Industry Safety Orders.) Additional lighting shall be provided as required for specific tasks...Field Work. Whenever natural light is inadequate, suitable artificial illumination shall be provided.”	212	314: 0.06% 445: 0.18% 811: 0.09%
Title 16, Division 27	Bureau Of Electronic And Appliance Repair	Industry, Commerce, and Development	“The “accepted trade standards for good and workmanlike repair” of electronic sets and appliances within the meaning of section 9841 of the Code shall include, but not be limited to, the following requirements: (a) Repair procedures shall be performed in accordance with O.E.M. service data specifications or the best available service data specifications where O.E.M. service data specifications are not readily available. (b) All components replaced in a repair which are indicated as being “safety related” shall be the equivalent of O.E.M. replacement parts. (c) All mounting hardware (screws, brackets, etc.) shall be reinstalled prior to returning the unit to the customer. If hardware is missing, the O.E.M. or suitable replacements should be made or the customer shall be notified and the notification shall be noted on the invoice...”	244	314: 0.04% 445: 0.12% 811: 0.05%
Title 4, Division 3	Bureau Of Household Goods And Services	Industry, Commerce, and Development	“All mattresses and mattress sets manufactured for sale in California shall meet the open-flame resistance and flammability labeling requirements of all regulations set forth in Part 1633 of Title 16 of the Code of Federal Regulations, titled “Standard for the Flammability (Open Flame) of Mattress Sets”, effective July 1, 2007...Failure to comply with subdivisions (a) and (b) shall constitute grounds for discipline”	276	314: 0.03% 445: 0.89% 811: 0.05%
Title 11, Division 6, Chapter 1	California Consumer Privacy Act Regulations	Administration	“Disclosures and communications to consumers shall be easy to read and understandable to consumers. For example, they shall use plain, straightforward language and avoid technical or legal jargon...Disclosures required under Article 2 shall also: (1) Use a format that makes the disclosure readable, including on smaller screens, if applicable. (2) Be available in the languages in which the business in its ordinary course provides contracts, disclaimers, sale announcements, and other information to consumers in California. (3) Be reasonably accessible to consumers with disabilities”	383	314: 0.06% 445: 23.36% 811: 0.05%
Title 18, Division 2, Chapter 4	Sales And Use Tax	Taxes and Public Finance	“Persons engaged in the business of rendering service are consumers, not retailers, of the tangible personal property which they use incidentally in rendering the service. Tax, accordingly, applies to the sale of the property to them. If in addition to (rendering service they regularly sell tangible personal property to consumers, they are retailers with respect to such sales and they must obtain permits, file returns and remit tax measured by such sales.”	1,470	314: 0.07% 445: 0.97% 811: 0.07%
Title 14, Division 2, Chapter 4	Development Regulation and Conservation of Oil And Gas Resources	Environmental Protection, Public Utilities, and	“The operator for a facility or group of related facilities shall develop a spill contingency plan. Spill contingency plans shall also be developed by the operator for those facilities within gas fields	1,666	314: 0.04% 445: 0.61% 811: 0.04%

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		Natural Resources	that produce condensate at an average rate of at least one barrel per day or where condensate storage volume exceeds 50 barrels. The plan(s) shall be filed with the appropriate Division district office within six months of the effective date of Section 1722.9 or within three months after initial production or acquisition of a facility."		
Title 8, Division 1, Chapter 4, Subchapter 6	Elevator Safety Orders	Industry, Commerce, and Development	"The person or firm who intends to install a new elevator, dumbwaiter, escalator, moving walk, or manlift, shall submit the erection plans to the Division for review. In lieu of complete erection drawings and plans, the division will accept notification from a recognized elevator company that they intend to install a device covered by these regulations of a certain type at a definite address, and subsequent notification to the division that the installation is complete and ready for inspection."	3,471	314: 0.06% 445: 0.27% 811: 0.06%
Title 25, Division 1, Chapter 7	Department Of Housing And Community Development Programs	Industry, Commerce, and Development	"To be eligible for assistance under sponsor development component, the applicant must be the Agency or a local finance entity and a project must be a rental housing development with a sponsor and financed with below-market interest rate financing. In the rental housing development, no less than thirty percent (30%) of the units will be assisted units and no less than twenty percent (20%) of the units shall be available on a priority basis to or occupied by very low- income households, including all households with income equal to or less than fifty percent (50%) of the area median income adjusted for family size."	4,729	314: 0.03% 445: 0.12% 811: 0.04%
Title 10, Chapter 5	Insurance Commissioner	Banking, Insurance, and Securities	"Every dealer who enters into a motor vehicle insurance transaction shall be licensed to transact insurance as an agent or broker, or both, unless the dealer receives no commission dealer's reserve or bonus dependent directly or indirectly upon insurance and the insurance is personally transacted by a dealer's subsidiary or other licensee...Dealers and dealers' subsidiaries who are licensed as agents only shall not transact insurance, directly or indirectly, which is placed with an insurer unless, at the time of the transaction, there is on file with the commissioner a document executed by the insurer or its authorized representative appointing them its agent in this State."	8,210	314: 0.03% 445: 4.95% 811: 0.18%
Title 17, Division 3, Chapter 1	Air Resources Board	Environmental Protection, Public Utilities, and Natural Resources	"The ARB shall specify each day of the year as a permissive burn day, or a no-burn day for each air basin or other specified area...Agricultural burning, including prescribed burning, is prohibited on no-burn days...No person shall knowingly set or allow agricultural or prescribed burning unless he or she has a valid permit from a district or designated agency. No burning shall be conducted pursuant to such permit without specific district approval consistent with these Guidelines."	10,339	314: 0.03% 445: 0.13% 811: 0.04%

NOTES: Based on QuantGov 2023; Regulation text is obtained from the California Code of Regulations at <https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations>. Industries shown are examples; probabilities are assigned to all 3-digit NAICS industries. We chose to show Textile Product Mills (NAICS 314, subsector of Manufacturing); Food and Beverage Retailers (NAICS 445, subsector of Retail Trade), Repair and Maintenance (NAICS 811, subsector of Other Services). Note that the regulation text is an excerpt, displaying some, but not all, instances of restrictions like "shall," "must," etc. as described above.

## CalGold

The California Governor's Office of Business and Economic Development (GO-Biz) California Government Online to Desktops (CalGold) website provides information on permitting requirements for businesses

operating in California, by business type and city or county. For each city-business combination, CalGold lists permits and information on overseeing agencies, including contact information and level of government.

We scrape data on regulations from the CalGold version 1 website for each city-business combination, consisting of 536 cities or county unincorporated areas and 149 business codes, and 79,864 combinations. The CalGold tool is in development and does not claim to have complete information for all localities or permit requirements.<sup>3</sup> We use these data to generate counts of local regulations for each city-business pair, classifying local regulations as those which CalGold identifies as existing at the city, county, or regional level (and excluding those on the state or federal level). To summarize businesses by sector, we assigned NAICS codes using ChatGPT (because CalGold does not use NAICS industry codes), shown in Table A3.<sup>4</sup>

**TABLE A3**

Industry categorization used for CalGold business data

2-digit NAICS sector	Included businesses in CalGold
Agriculture, Forestry, Fishing and Hunting (11)	Aquaculture Beef Cattle Feedlot Beef Cattle Ranching and Farming Broilers and Other Meat Type Chicken Production Crop Production Dairy Cattle and Milk Production Postharvest Crop Activities (except Cotton Ginning)
Construction (23)	Carpentry Contractor Concrete Contractor Drywall, Plastering, Acoustical, and Insulation Contractor Electrical Contractor Floor Laying and/or Other Floor Contractor Glass and Glazing Contractor Industrial Nonbuilding Construction Masonry and Stone Contractor Painting and Wall Covering Contractor Plumbing, Heating, and Air-Conditioning Contractor Roofing, Siding, and Sheet Metal Contractor Single Family Housing Construction Wrecking and Demolition Contractor
Manufacturing (31-33)	Aircraft Engine and Engine Parts Manufacture Bottled Water Brewery Chemical or Paint Formulation Coffee and Tea Manufacture Cottage Food Operation Distillery Dried and/or Dehydrated Food Manufacture Electronic and Other Electrical Equipment Manufacturing Fabricated Metal Products Flavoring Syrup and Concentrate Manufacture Fluid Milk Manufacture Food Manufacture Fruit and Vegetable Canning Furniture and Related Products Manufacture Garment Manufacture Ice Manufacture Irradiation Apparatus Manufacture

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<sup>3</sup> The CalGold website recently converted to version 2. See [here for version 1](#).

<sup>4</sup> We prompted ChatGPT to categorize the given CalGold business codes into 2-digit NAICS codes and verified that the sorting was reasonable. We also used “fuzzywuzzy” in Python for the same task, and to confirm ChatGPT assignment, but relied mostly on ChatGPT categorization. Where ChatGPT did not categorize a business type, we searched for the business type using [Census Bureau information](#).

	<p>Manufacture of Bags: Plastics, Foil, &amp; Coated</p> <p>Metal Cans and Shipping Containers Manufacture</p> <p>Metal Coating and Allied Services</p> <p>Navigational, Measuring, Electromedical, and Control Instruments</p> <p>Pesticide and Other Agricultural Chemical Manufacture</p> <p>Plumbing and Heating Equipment Manufacture, Except Electric</p> <p>Poultry Processing</p> <p>Print Shop</p> <p>Printed Circuit Boards Manufacture</p> <p>Semiconductors And Related Device Manufacture</p> <p>Soft Drink Manufacture</p> <p>Surgical and Medical Instruments Manufacture</p> <p>Surgical Appliance and Supplies Manufacture</p> <p>Winery</p> <p>Wood Kitchen Cabinet and Countertop Manufacture</p>
Wholesale Trade (42)	<p>Farm Supplies Wholesaler</p> <p>Flowers and Florists Supplies Distribution</p> <p>Import/Export</p>
Retail Trade (44-45)	<p>Art Dealer</p> <p>Automobile Dealer</p> <p>Automotive Parts and Accessories</p> <p>Building Material and Supplies Dealer</p> <p>Clothing and Clothing Accessories Store</p> <p>Cosmetics, Beauty Supplies, and Perfume Store</p> <p>Direct Selling Establishment</p> <p>Drug Store/Proprietary Store</p> <p>Electronic Shopping and Mail Order House</p> <p>Food (Health) Supplement Store</p> <p>Fruit and Vegetable Market</p> <p>Furniture and Home Furnishings Store</p> <p>Gasoline Service Station</p> <p>Gift, Novelty, and Souvenir Store</p> <p>Grocery Store</p> <p>Hobby, Toy and Game Store</p> <p>Miscellaneous Store Retailer</p> <p>Pet and Pet Supplies Store</p> <p>Retail Nursery/Garden Store</p> <p>Sidewalk and Street Vending</p> <p>Smog Test Shop</p> <p>Sporting Goods Store</p> <p>Used Merchandise Store</p> <p>Vending Machine Operator</p>
Transportation and Warehousing (48-49)	<p>Courier</p> <p>Limousine Service</p> <p>Local Trucking With Storage</p> <p>Local Trucking Without Storage</p> <p>Messenger Service</p> <p>Shuttle Bus Service</p> <p>Taxi Service</p>
Information (51)	<p>General Business Information</p> <p>Motion Picture and Sound Recording</p> <p>On-Line Information Services</p>
Finance and Insurance (52)	<p>Insurance Agency and Brokerage</p>
Real Estate and Rental and Leasing (53)	<p>Video Tape and Disc Rental</p>
Professional, Scientific, and Technical Services (54)	<p>Advertising Agency</p> <p>Advertising Material Distribution Services</p> <p>Attorney/Legal Services</p> <p>Commercial Physical and Biological Research</p> <p>Computer Maintenance and Repair</p> <p>Computer Programming Services</p> <p>Computer Systems Design and Related Services</p> <p>Direct Mail Advertising</p> <p>Engineering and Architectural Services</p>

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	Engineering and Management Services Environmental Consulting Services Graphic Design Services Investigation Services Marketing Consulting Services Notary Public Tax Exempt Status Tax Preparation Services Testing Laboratory
Administrative and Support and Waste Management and Remediation Services (56)	Collection Agency Exterminating and Pest Control Services Human Resources and Executive Search Consulting Services Incineration Operation for Refuse Janitorial Cleaning Maintenance Services Landscape Services Other Services to Buildings and Dwellings Recycling Center Repossession Services Security Guard and Patrol Services Travel Agency
Educational Services (61)	Vocational School
Health Care and Social Assistance (62)	Acupuncture Child Day Care Services Chiropractor Dentistry Nursing and Residential Care Facility Optometry Physician Veterinary Services
Arts, Entertainment, and Recreation (71)	Amusement and Recreation Services
Accommodation and Food Services (72)	Hotel (except Casino Hotels)/Motel Restaurant
Other Services (except Public Administration) (81)	Automotive Body Repair Automotive Glass Replacement Automotive Oil Change and Lubrication Automotive Service and Repair Beauty Salon Car Wash Carpet and Upholstery Cleaning Services Cemetery/ Crematory Commercial Laundry Dry-Cleaning Plant Hair, Nail, and Skin Care Services Other Direct Selling Establishment Photofinishing Laboratory (except One-Hour) Photographic Services Plating and Polishing Services Radio and Television Repair

NOTES: Categorized by ChatGPT, with list of business types provided and prompt to "categorize them into 2-digit NAICS code categories." We did not classify any business codes into Mining, Quarrying, and Oil and Gas Extraction (21), Utilities (22), Management of Companies and Enterprises (55), or Public Administration (92).

We then categorize the 167 unique local regulations into seven groups, to identify local variation by permit type. Table A4 lists the names of the permits included in each category. "Labor Standards" covers general business requirements, "Public Safety" covers regulations related to police and fire services, "Environmental" covers regulations including the phrase "environmental" and those related to hazardous materials or waste, "Identification/Incorporation" covers general business registration and licenses, "Building and Zoning" covers permits for building, land use, occupancy, and zoning, "Food" covers regulations related to food preparation and permits, and "Specialty Operation" covers regulations which often apply to particular industries, such as a notary public, tobacco retailer, or child care provider. We generate counts of permits in each group for each city-business pair.

**TABLE A4**

Permit types used for analyzing CalGold data

Group	Permit included in CalGold
Labor Standards	Minimum Wage Program Point-of-Sale and Device Registrations Restrooms & Drinking Fountains Weights and Measures
Public Safety	Burglar Alarm Burglar Alarm Permit Fire Department Permit Fire Prevention Information/Inspection Fire Protection Systems Fire Safety Regulations Police Permit Police Permits/Licenses Police Regulation/Public Safety Issues Police Regulations/Public Safety Issues Police Regulations/Public Safety Permit Public Safety Issues/Programs Public Safety Programs Sheriff Permit/Licenses
Environmental	Aboveground and Underground Storage Tank Permit California Accidental Release Prevention Program (CalARP) Certificate of Disclosure of Hazardous Substances Construction Activities Storm Water General Permit Environmental Health Permit -Water Wells Environmental Health Permits Environmental Health Permits - Food Program Environmental Health Services Permits Hazardous Material Storage/Waste Generating Permit Hazardous Materials / Waste Management Program Hazardous Materials Business Plan Hazardous Materials Disclosure Hazardous Materials License Hazardous Materials Management Permit - County Hazardous Materials/ Waste Generate Program Hazardous Materials/Underground Storage Tank Permit Hazardous Materials/Waste Generate Program Hazardous Materials/Waste Generation Program Hazardous Waste Generator Permit Hazardous Waste Management Program Hazardous Waste/Waste Generating Permit Industrial Waste Water Discharge Permit Industrial Wastewater Discharge Permit Industrial Wastewater Discharge Permits Industrial Wastewater Permit Medical Waste Generation and Treatment Permit Medical Waste Generation Permit Medical Waste Generator and Treatment Permit Medical Waste Management Program On-Site Hazardous Waste Treatment Permit Pesticide License Registration Pesticide Licensing and Registration Private Wells / Water Sampling Requirements Underground Storage Tank Permit Underground Storage Tank Permits (part of the Unified Program) Underground Storage Tank Permits (part of Unified Program) Unified Hazardous Waste & Materials Management Regulatory Program (Unified Program) Unified Hazardous Waste/Materials Management Regulatory Program (Unified Program) Waste Discharge Permits Wastewater Discharge Permit Water Quality Certification
Identification/Incorporation	Business License - Business Tax Certificate Business Personal Property Business Property Statement City Insurance and Bond Requirements Commercial Business Certificate/License Fictitious Business Name - Doing Business As Statement Home Occupation Permit Home Occupations Permit

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	<ul style="list-style-type: none"> <li>Notice of Intent to Solicit</li> <li>Notification to Assessor of Business Activity</li> <li>Regulatory Permit</li> <li>Special Permit to Operate a Business</li> </ul>
Building and Zoning	<ul style="list-style-type: none"> <li>Authority to Construct/Permit to Operate</li> <li>Building and Construction Permit</li> <li>Building and Construction Permits</li> <li>Building and Construction Permits - City</li> <li>Building and Safety Permit</li> <li>Building Inspection and Alteration Permits</li> <li>Building Permit</li> <li>Building Permits</li> <li>Certificate of Occupancy</li> <li>Certificate of Occupancy/Building Permit</li> <li>Encroachment &amp; Construction Permits</li> <li>Encroachment Permit</li> <li>Encroachment Permits</li> <li>Land Use Permit/Zoning</li> <li>Land Use Permit/Zoning Clearance</li> <li>Land Use, Zoning, &amp; Sign Permits</li> <li>Land Use/Plan Check/Zoning Permit</li> <li>Occupancy Permit</li> <li>Peddler's License</li> <li>Permit to Construct/Permit to Operate</li> <li>Planning and Building Permits</li> <li>Planning and Zoning Approvals</li> <li>Sidewalk Vending Permit</li> <li>Sign Permit</li> <li>Solicitors and Peddler License</li> <li>Solicitors Peddlers and misc. licenses</li> <li>Special Permit - Permit to Solicit</li> <li>Zoning and Planning</li> <li>Zoning Approval</li> <li>Zoning Clearance/ Building Permits</li> <li>Zoning Clearance/Building Permits</li> <li>Zoning, Property Zoning</li> </ul>
Food	<ul style="list-style-type: none"> <li>Consumer Protection Services Application</li> <li>Cottage Food Landlord Agreement</li> <li>Cottage Food Operation Authorization</li> <li>Cottage Food Operation Compliance Agreement</li> <li>Cottage Food Operation Food Production Description</li> <li>Cottage Food Operation Registration Permit</li> <li>Cottage Food Operation Self Certification Checklist</li> <li>Cottage Food Operator Permit</li> <li>Cottage Food Operator Permit (Class A Only)</li> <li>Cottage Food Operator Permit (Class B Only)</li> <li>Food Establishment Permit - Health Permit</li> <li>Food Facility / Cottage Food Operation Water System Permit</li> <li>Food Facility Check</li> <li>Food Facility Permit</li> <li>Health Card</li> <li>Health Permit</li> <li>Health Permit - County</li> <li>Health Permit - Food Sales</li> <li>Health Permit - Food Service</li> <li>Health Permit for Residential Cottage Food Operations</li> <li>Plan Check Program</li> <li>Public Health License</li> <li>Public Health Operating License</li> <li>Special Permit - Food Vendor Permit</li> <li>Special Permits to Operate a Business (Food Peddler Permit)</li> <li>Temporary Food Facility / Special Events Permit</li> <li>Wholesale Food Processing License</li> </ul>
Specialty Operation	<ul style="list-style-type: none"> <li>Agricultural Burn Permit</li> <li>Agricultural Commissioner Licenses/Certification</li> <li>Air Permit for Dry Cleaning Equipment</li> <li>Animal Licensing</li> <li>CFC Technician Certification</li> <li>CFC Technician Training</li> <li>Conditional Use Permit/Alcohol Sales</li> <li>Explosive Storage Inspection &amp; Permit</li> <li>Family Child Care Home &amp; Center Licensing Req'ments</li> </ul>

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	<p>Film Permit:  Garment Permit  Home Care License  Incidental Take Permit  Non-Exclusive Franchise Agreement for Solid Waste Collection  Non-Exclusive Franchise Agreement for Solid Waste Transport  Notary Public Registration  Notification of Intent to Perform Pest Control  Nursery and Seed Inspections  Organic Registration  Organic Registration Program  Public Park Activities Permit  Registration of Licenses  Registration to Perform Pest Control  Registration to Perform Pest Control:  Residential Facility License  Secondhand Dealer Permit  Sewer Connection Permit  Solid Waste Facilities Permit  Solid Waste Facility/Operations Permit  Solid Waste Permit  Special Event/Film Permit  Special Events Permit  Special Permit - Alcohol Sales  Special Permits/Licenses  Sprinkler Systems  Tobacco Retailers License  Vendor Packet - Community Event or Charitable Fundraiser</p>
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NOTES: This list includes the names of all permits extracted from the CalGold website and were categorized manually.

## YourEconomy Time Series

We use YourEconomy Time Series 2022–2024 data to identify 2023 and 2024 establishment births.<sup>5</sup>

YourEconomy Time Series is a project of the Universities of Wisconsin, Office of Business and Entrepreneurship. Data Axle is the provider of the Licensed Database used to create the YourEconomy Time Series. This research was authorized to use YourEconomy Time Series through the Universities of Wisconsin’s Office of Business and Entrepreneurship. The contents of this publication are solely the responsibility of the authors.<sup>6</sup>

YourEconomy Time Series includes information on the universe of U.S. establishments that are “in-business,” across all industries, including non-employer establishments.<sup>7</sup> Data Axle regularly updates its database of establishments using calls to businesses, government directories, press releases, and web research. YourEconomy Time Series data has been used in a range of research, including publications in prestigious economics and finance journals.<sup>8</sup>

YourEconomy Time Series data includes establishment and employment counts similar to those in government business datasets. Miller et al. (2025) compare restaurant establishment counts in Oregon 2000–2007 and find that YourEconomy Time Series establishment counts are closer to those in the QCEW and

<sup>5</sup> We use 2023 establishment births for comparison to the 2023 QuantGov data. We use 2024 births for comparison to the CalGold data. 2024 is the last full year of establishment information available. We use YourEconomy Time Series data instead of National Establishment Time Series (NETS) data due to the latter’s discontinuation in 2021. Additionally, we do not use the Mergent data underlying the NETS due to an observed substantial drop-off in establishment counts in 2022. The Mergent data reports 39 million U.S. establishments in 2021, 36 million in 2022, and 49 million in 2023; additionally, 25% of establishments present in Mergent in 2021 and 2023 are not in the 2022 data (in other years, only about 1% of establishments are missing in this way). We do not observe a corresponding drop in YourEconomy Time Series data or other data sources, including the Quarterly Census of Employment and Wages (QCEW) or Business Dynamics Statistics (BDS).

<sup>6</sup> See more information about YourEconomy Time Series data [here](#).

<sup>7</sup> “In-business” means that the establishment engages in commercial activities and/or has a physical location, as opposed to “paper companies” registered to hold title to real estate that are included in NETS data.

<sup>8</sup> A list of other publications that also use YourEconomy Time Series data can be found [here](#).

County Business Patterns (CBP) data than are NETS counts.<sup>9</sup> The median percentage difference (in absolute value) from the QCEW was 8.4% in the NETS and 4.0% in YourEconomy Time Series and from the CBP was 4.0% in the NETS and 3.3% in YourEconomy Time Series. The NETS reported higher counts of non-employer start-up establishments than YourEconomy Time Series data.<sup>10</sup> With respect to employment, YourEconomy Time Series data also reports similar counts to other sources. Excluding non-employer businesses, the mean employment count per establishment was 15.6 in YourEconomy Time Series data, 15.1 in the NETS, 16.0 in the QCEW, and 15.4 in the CBP. Kunkle (2018) additionally finds that 2017 YourEconomy Time Series data count 15 million more jobs than Current Employment Statistics data (which does not include farm employment) and nearly identical employment to that indicated by data from the Current Population Survey (with a difference of 0.58%).<sup>11</sup>

We define an establishment's birth year as the reported start year in the YourEconomy Time Series data. If, for example, an establishment does not have information recorded in one year of YourEconomy Time Series data, but is observed in the next year of YourEconomy Time Series data, we classify that establishment as beginning in the first year it is observed in the data.

We generate counts of establishment births by state and 2-digit NAICS code for comparison to regulation and restrictions data from QuantGov.

To obtain counts of establishment births by cities for comparison to CalGold data, we restrict to establishments in California in 2023 or 2024 and match CalGold city codes to establishments by county FIPS code and city name. For cities that are identified in YourEconomy Time Series data but not in CalGold data, we assign to the "unincorporated" area of the county.<sup>12</sup> We then count establishment births by CalGold city and 2-digit NAICS code.

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<sup>9</sup> Miller, Stephen Miller, Gary A. Wagner, and Alicia Plemmons. 2025. "Employment effects of minimum wage indexing: Establishment evidence from Oregon restaurants." *Economic Inquiry* 63: 681–714.

<sup>10</sup> YourEconomy Time Series and NETS data both include non-employer establishments and farms, which the QCEW and CBP data do not.

<sup>11</sup> See again more information [here](#). Also see: Kunkle, Gary. 2018. "Business Employment Data: YTS versus CES and CPS." Business Dynamics Research Consortium; Universities of Wisconsin.

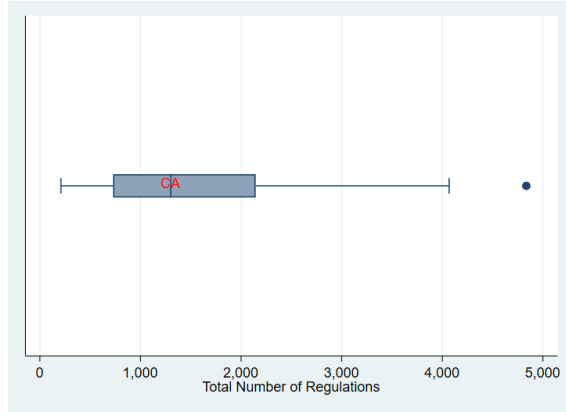
<sup>12</sup> We spot-checked that these areas, which are listed in YourEconomy Time Series data as cities, are indeed unincorporated. In several cases in Los Angeles, Orange, and San Diego Counties, "cities" identified were neighborhoods within a city. We assigned those establishments to the official city to match CalGold classifications.

# Appendix B. Supplementary Tables and Figures

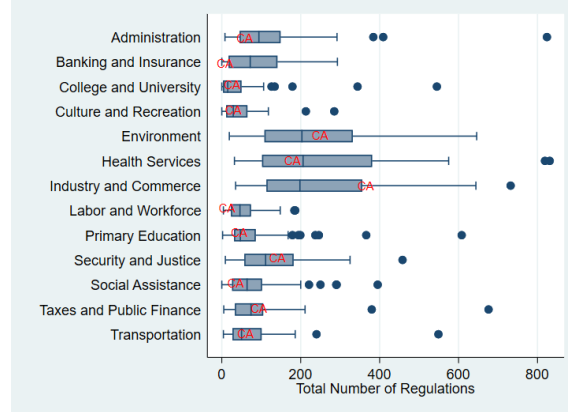
**FIGURE B1**

California is in the middle of the pack on regulations (see corresponding Figures 1 and 2 in report)

Panel A: Number of regulations



Panel B: Number of regulations, by type



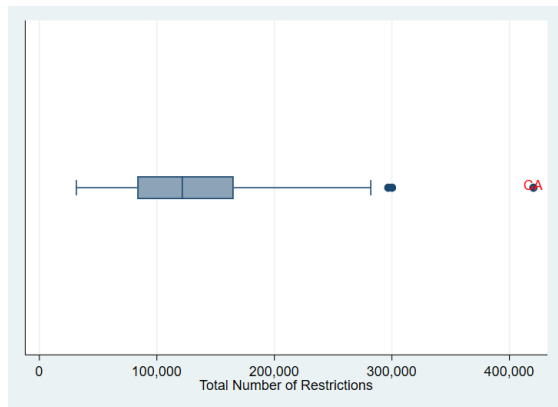
SOURCE: Author calculations from QuantGov.

NOTE: Box plots show the median (middle of the bar), 25th and 75th percentiles (ends of bar), the furthest data points within +/- 1.5X the interquartile range from the ends of the bar (ends of line), and outliers. The number of regulations are not weighted by the probability they apply to each industry, so the “count” of regulations is the total number of regulations on the books (compared to Figure 1 Panel A of the report). Panel B includes the same measures, but by type of regulation (compared to Figure 2 of the report).

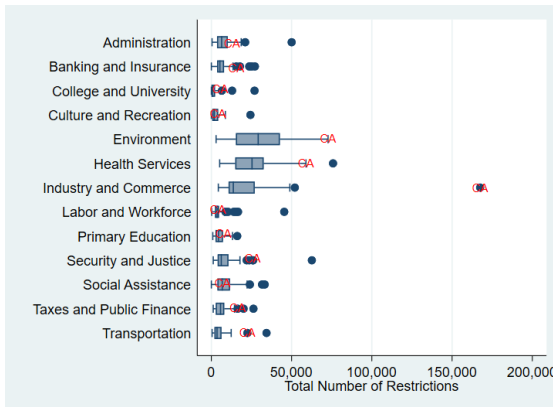
**FIGURE B2**

California has the highest number of regulatory restrictions across states (see corresponding Figure 2 in report)

Panel A: Number of restrictions



Panel B: Number of restrictions, by type

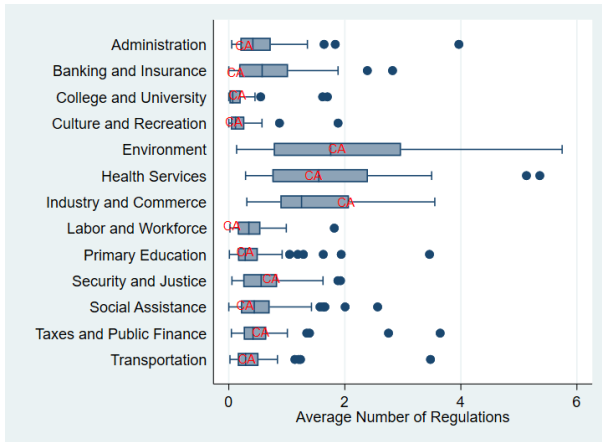


SOURCE: Author calculations from QuantGov.

NOTE: Box plots show the median (middle of the bar), 25th and 75th percentiles (ends of bar), the furthest data points within +/- 1.5X the interquartile range from the ends of the bar (ends of line), and outliers. The number of restrictions are not weighted by the probability they apply to each industry, so the “count” of regulations is the total number of regulations on the books (compared to Figure 1 Panel B of the report). Panel B includes the same measures, but by type of regulation.

**FIGURE B3**

Number of regulations, by agency

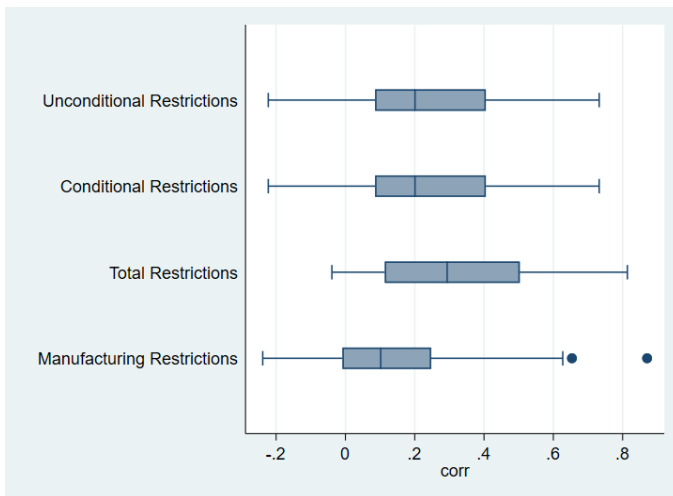


SOURCE: Author calculations from QuantGov.

NOTE: Box plots show the median (middle of the bar), 25th and 75th percentiles (ends of bar), the furthest data points within +/- 1.5X the interquartile range from the ends of the bar (ends of line), and outliers. The number of regulations are weighted by the probabilities they apply to each industry, so the “count” of regulations is far less than the number of regulations on the books. These are adjusted by first regressing the regulatory measures on 3-digit NAICS dummy variables to account for differences in industry composition across state.

**FIGURE B4**

Correlations between restrictions by type, across states



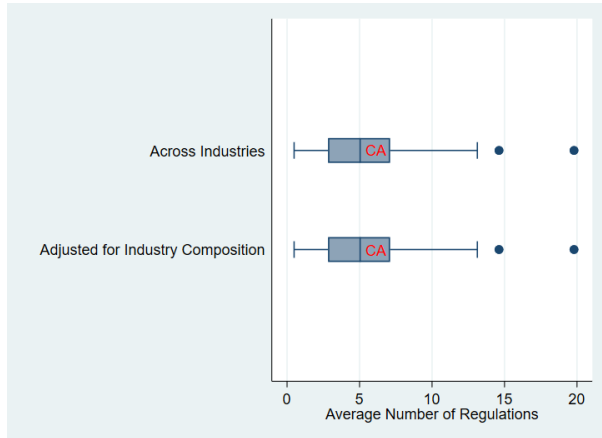
SOURCE: Author calculations from QuantGov.

NOTE: Box plot of correlation coefficients between restriction counts in 13 clusters, across states and 3-digit NAICS (unconditional and conditional on 3-digit NAICS), and across states and 3-digit NAICS within manufacturing.

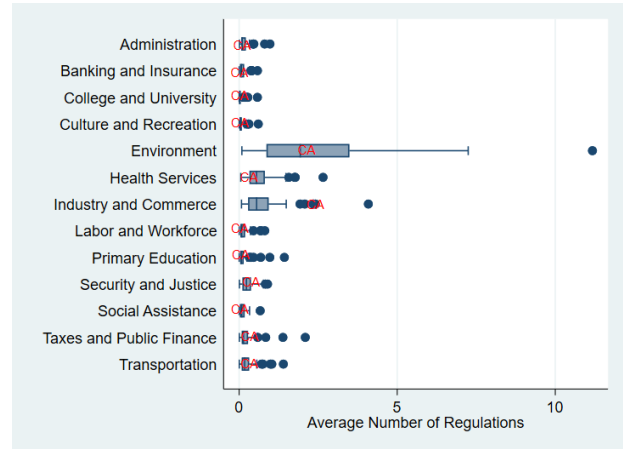
**FIGURE B5**

California is above the median across states in regulation that pertain to manufacturing

Panel A: Number of regulations for manufacturing businesses (average)



Panel B: Number of regulations for manufacturing businesses (average), based on administering agency



SOURCE: Author calculations from QuantGov.

NOTE: Box plots show the median (middle of the bar), 25th and 75th percentiles (ends of bar), the furthest data points within +/- 1.5X the interquartile range from the ends of the bar (ends of line), and outliers. The number of regulations that apply to the manufacturing sector (all relevant 3-digit NAICS codes, see Technical Appendix Table A1) are weighted by the probabilities they apply to each industry, so the "count" of regulations is far less than the number of regulations on the books. "Across industries" refers to the simple average across industries and "Adjusted for industry composition" refers to the average adjusted for industry composition (we residualize by first regressing the regulatory measures on 3-digit NAICS dummy variables to account for differences in industry composition across state). As in the main text, this procedure does not alter the distribution across states. Panel B includes the same measures (adjusted by 3-digit NAICS) but by type of regulation.



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