

Economic Impact of Compliance Burden Faced by SMEs in Northwest USA and the Role of AI in Reducing It

Dr. Badri Narayanan Gopalakrishnan

Kathiravan Thangavelu



Outline

Compliance Burden on SMBs

Methodology

Results and Analysis

Role of AI

Conclusion

Compliance Burden on SMBs

Economic Backbone

Small and medium-sized businesses are the backbone of the Pacific Northwest's economy

Fueling innovation, job creation, and community development across Washington State and neighboring regions

Rising Compliance Challenges

Ever-expanding web of regulations has become a growing challenge.

Tax laws, labor rules, environmental permits, or cybersecurity mandates

Administrative demands are increasing and the cost of doing business increase

Disproportionate Impact

SMBs lack dedicated compliance teams.

Rely on general staff or external consultants.

Spend up to 36% more per employee on compliance than large firms.

In Washington, compliance can consume up to 12% of an SMB's annual budget in certain sectors.

Methodology

Approach: Computable General Equilibrium (CGE) Model for Washington State

- Simulates interactions between households, businesses, and government
- Tracks how changes in productivity or costs ripple across the economy

Baseline Scenario – Compliance Burden Without AI

- Compliance = 7.5% negative productivity shock to capital
- Reflects direct (e.g., consultants) and indirect (e.g., delays) costs
- Based on real-world data and regional surveys

AI-Enabled Scenario – Simulating Tech Adoption

- AI tools: NLP for legal docs, automation for filings, ML for risk prediction
- Assumes 30–40% reduction in compliance burden
- Modeled as partial recovery of productivity loss

Outcome

- Compare baseline vs AI-scenario to estimate economic drag and potential AI-driven gains

Modeling Compliance Burden Using GTAP-Static



A policy shock was introduced in the **GTAP-Static model** to simulate the economic effects of regulatory compliance difficulties faced by SMEs in Washington State.



The shock results in a **7.5% reduction in capital productivity**, reflecting a negative shift in technological efficiency (afereg variable).



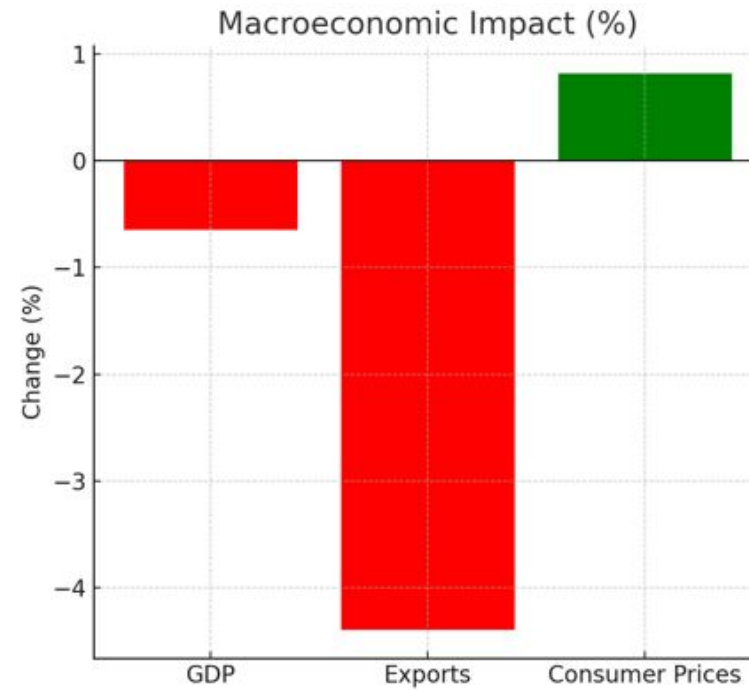
SMEs, lacking tech and financial resources, are disproportionately impacted by rising compliance costs, particularly in **legal, environmental, and reporting processes**.



This shock models the economic drag of **regulatory complexity on innovation, operational efficiency, and business scalability**.

Macroeconomic Effects on Washington State

- Compliance constraints led to a \$51 billion drop in GDP.
- Exports declined due to reduced global competitiveness.
- Consumer prices rose by 3.1%, driven by cost-push inflation from higher compliance costs.



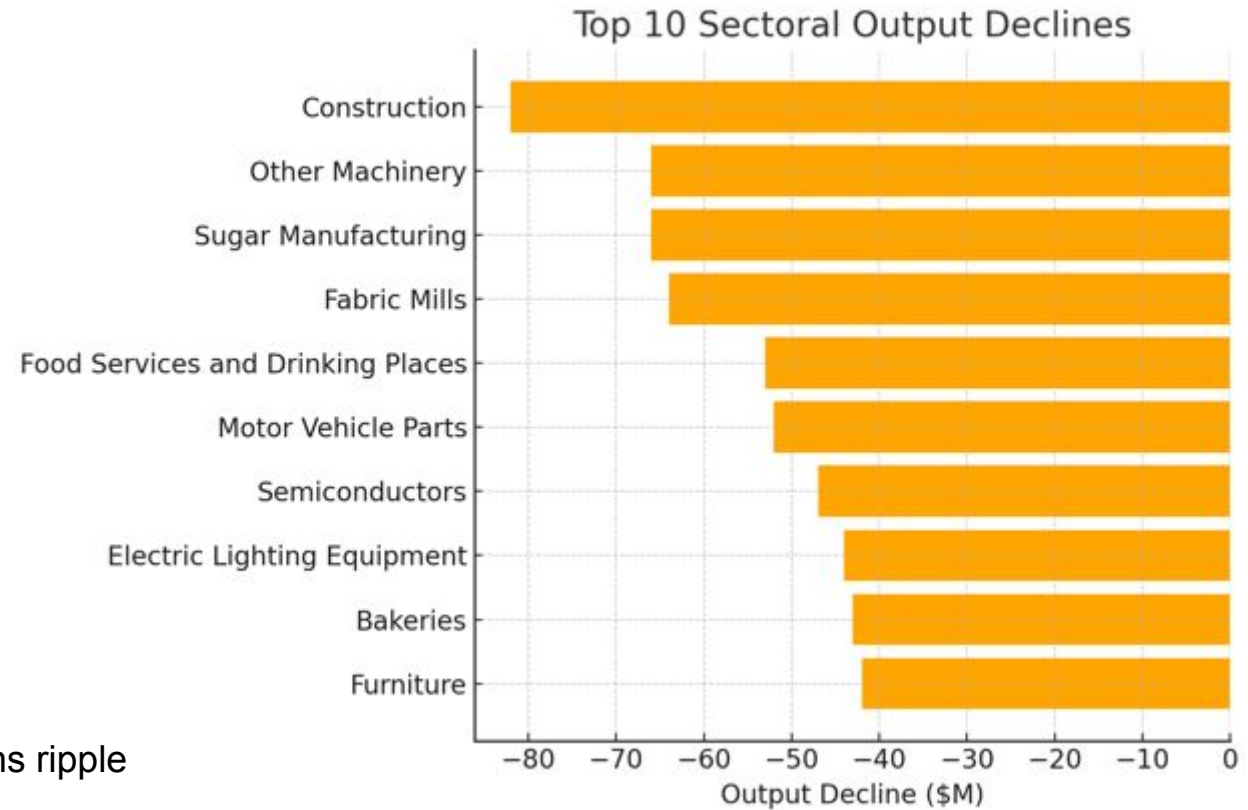
Indicator	Percentage Change	Absolute change (in \$)
GDP	-7.32	-51168
Exports	-1.11	-169
Consumer prices	3.09	

Sectoral Output Declines

- Severe output contractions observed in:

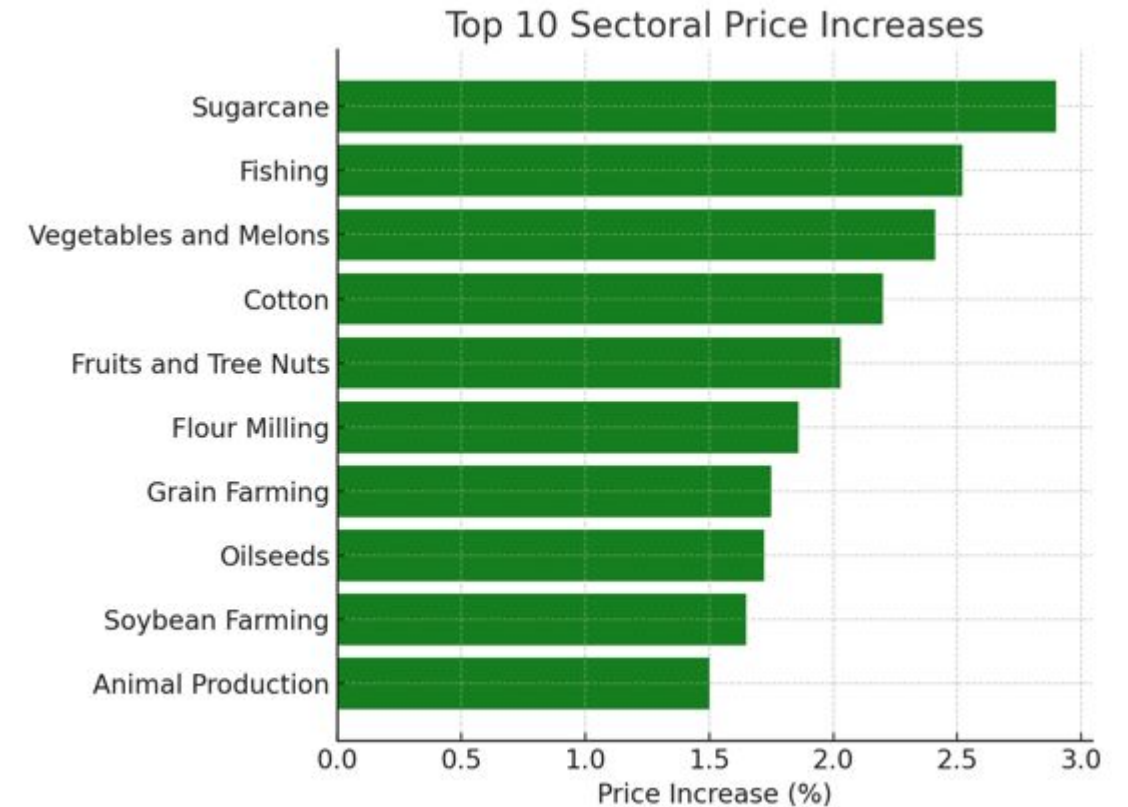
- Construction:** -15.2% (\approx \$8.3B loss)
- Machinery & Equipment:** -14.7%
- Computer Electronics:** -13.8%
- Metals & Metal Products:** $>$ -10%

- Widespread output decline highlights how regulatory frictions ripple across sectors through inter-sectoral linkages.



Price Effects Across Sectors

- General price increase of 2.02% to 4.94% across all sectors.
- Highest price hikes in :
 - **Sugarcane: +4.94%**
 - **Fishing: +4.83%**
 - **Fruits & Vegetables: +4.37%**
- Confirms cost-push inflation: Rising compliance costs passed on to consumers.
- Reinforces findings from macro-level price increases in Table in slide 6



Impact of AI Tools to reduce compliance workloads



Overview of AI Impact

AI-driven tools like NLP and ML automate:

- Legal document interpretation
- Regulatory filings
- Predictive risk analysis



Key Impact

30–40% reduction in compliance workload

Enhanced productivity in monitoring, documentation, and reporting

Improved business agility and cost efficiency



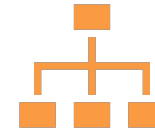
Core Capabilities

Real-time legal monitoring from gov databases, news, and legal portals

Categorizes updates, assesses impact using ML models

Sends real-time alerts via dashboards, email, SMS

Recommends compliance actions using risk scoring



Business Integration

Seamlessly integrates with ERP, accounting, and HR systems

Conclusion

Simulation Insights

- Compliance mandates increase consumer prices across Washington State.
- They lead to a sharp decline in GDP, sector output, and exports.
- The primary driver is lower capital productivity, creating an economic drag.

AI to the Rescue

- AI tools can reduce 30–40% of compliance workloads, especially in:
 - Monitoring
 - Documentation
 - Reporting
- This efficiency gain helps recover productivity losses modeled in baseline scenarios.

Bottom Line

- Adopting AI-driven compliance systems is critical to safeguard growth and competitiveness



Thank you