Dominion and Divergence: Creighton, Econometrics, and the National Energy Program

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Abstract

This paper evaluates the economic impact of the 1980 National Energy Program (NEP), arguing it was not the cause of Alberta's divergence but a federal response to growing regional imbalance. Using a newly constructed provincial panel dataset (1975–1990) focused on mining, oil, and gas, we apply Difference-in-Differences, event study analysis, and a ridge-regularized Synthetic Control Method to assess Alberta's performance relative to a counterfactual of other provinces.

We examine real GDP per worker, real wages, and GDP per capita. Results show Alberta was already outperforming before the NEP; post-implementation, GDP-based outcomes continued rising, but real wages stagnated—indicating a decoupling of capital and labour returns.

This is the first causal analysis of the NEP's regional effects using modern econometric tools. We reinterpret the policy through Donald Creighton's Laurentian thesis, offering new insight into resource federalism and the historical roots of western Canadian alienation.

1 Introduction

For Canada, 1980 was a defining moment. While some might point to the Quebec referendum, the defining event was, in fact, the announcement of the National Energy Program (NEP) in the October federal budget. This policy, introduced by a returning Pierre Trudeau-led Liberal Party, is the event that turned western grievances into economic alienation. Until then, Canada's growth, as Donald Creighton argued, was built through infrastructure projects radiating westward from the St. Lawrence (Wright, 2015).

The paper contributes by (1) empirically quantifying Alberta's economic divergence surrounding the NEP, and (2) reframing the NEP through Donald Creighton's geographic-political lens.

However, the NEP was a reaction to economic divergence, not its cause. Justified on the grounds of "security, opportunity, and fairness," with the federal government declaring its intention to "put Canada's energy house in order" (Budget Speech, 1980). Yet in practical terms, it functioned as a late-stage effort to reassert federal dominion over an increasingly divergent federation—particularly in the case of Alberta.

Given that Creighton died in 1979, he was not able to comment on a policy that reflected themes present in his own writings. This raises a compelling counterfactual: had Creighton lived to witness the NEP, how might he have interpreted it through the lens of his Laurentian thesis? This paper contends that by the time the NEP was enacted, regional economic divergence was already underway—Alberta was outperforming central Canada in real GDP per capita, real GDP per worker, and real wages per worker (Figure 1, Figure 2, and Figure 3). Creighton's Laurentian thesis predicted intervention—but not its failure.

In this paper, we treat the NEP, announced in October 1980 and implemented in early 1981, as the treatment shock. Using Synthetic Control and Difference-in-Differences models, as well as an event study—not to establish causality, but to trace divergence—this paper reinterprets the NEP as a reaction to, rather than the cause of, economic decentralization in Canada and the source of modern western alienation. This reinterpretation echoes recent political dynamics, such as Alberta's Sovereignty Act (CBC News, 2022) and ongoing challenges to federal authority (Canadian Press, 2023).

Methodologically, this study adopts a triangulated econometric framework—Difference-in-Differences, Event Study analysis, and the Synthetic Control Method—anchored in the modern causal inference literature (Angrist & Pischke, 2009; Abadie, Diamond & Hainmueller, 2010). Table 2 outlines the empirical strategies employed. Figures 4 through 13 sequentially establish the descriptive context and main causal results, beginning with Alberta's pre-NEP economic advantage and culminating in the estimated treatment effects. Collectively, the evidence suggests that the NEP functioned as both symbol and substance of a deeper institutional fracture within Canadian federalism.

2 Historical Context

If one were to read Creighton in isolation, Canada's economic and political trajectory might appear as a triumph of east–west development under a firm and visionary central authority. From *The Commercial Empire of the St. Lawrence* to *Dominion of the North*, Creighton presented the expansion of Canada as necessary—and even natural—as geography played heavily in this development. But this narrative downplays the deep tension between central Canada and the peripheries.

The roots of western discontent with Ottawa are as old as Confederation. The Red River (1869–70) and Northwest (1885) rebellions were early flashpoints in which Indigenous and Métis-led efforts to assert local autonomy were met with federal force. Far from isolated uprisings, these events signaled the enduring challenge of reconciling federal authority with regional autonomy.

The 1911 federal election, the first to include Alberta and Saskatchewan, exposed the vulnerability of western interests to central Canadian politics. The defeat of free trade (or "reciprocity")—a policy favored by prairie grain growers but opposed by Ontario manufacturers—was an early example of how eastern economic concerns could define national policy, even at the expense of regional development.

It was the combination of discovering oil at Leduc and the emergence of Peter Lougheed as premier that changed Canada's trajectory. His entrance as premier occurred at a time when other oil-producing states were also gaining influence (Yergin, 1991). With Lougheed's

leadership, the province increased oil and gas royalties, negotiated stronger terms with multinational oil companies, and launched a political strategy that reframed resource control as a provincial right. In 1976, the Alberta Heritage Savings Trust Fund was created, acting as a de facto sovereign wealth fund and putting Canada's system of fiscal federalism under strain. This rising oil influence symbolized a broader power shift, as captured in Peter Foster's *Blue-Eyed Sheiks: The Canadian Oil Establishment* (Foster, 1986).

At its core, the conflict was over fiscal authority—especially oil and gas revenues. As Minister of Finance Allan MacEachen stated in his October 1980 budget: "the negotiation of an agreement on oil and gas pricing and revenue sharing with the producing provinces, particularly Alberta, has been a major preoccupation of the last two federal governments." The NEP was an attempt to correct this fiscal imbalance—and Lougheed's earlier efforts had already positioned Alberta to push back effectively (Morton, 2022). If the NEP was Ottawa's effort to reassert Creighton's vision of central dominion, the appropriate test lies not in political rhetoric, but in measurable economic divergence. For that, we turn to econometrics.

3 Data and Methods

3.1 Data Sources and Construction

To evaluate the economic implications of the National Energy Program (NEP) on Alberta relative to other Canadian provinces, we construct a custom provincial panel dataset spanning 1975 to 1990. While initial data collection included all ten provinces, **Prince Edward Island** and **Newfoundland and Labrador** were excluded due to missing values and inconsistencies in key macroeconomic series. The final balanced panel includes Alberta and seven comparator provinces.

Core Indicators

The dataset integrates economic and demographic data from Statistics Canada, the Bank of Canada, and the U.S. Federal Reserve (FRED). Key variables include:

- **GDP**: Nominal GDP for the *mining, quarrying, and oil and gas extraction* sector (Table 36-10-0380-01) is used to construct GDP per worker. For GDP per capita, we use *Provincial gross domestic product at market prices* (Table 36-10-0222-01). All GDP figures are converted to constant 1986 dollars using province-specific CPI data (Tables 18-10-0004-01 and 18-10-0005-01).
- **Wages and Employment**: Aggregate nominal wages (all industries) are drawn from Table 36-10-0480-01 and deflated using CPI. Employment counts (persons aged 15 and older) come from Table 14-10-0023-01 and are used to compute real average wages per worker.
- **Population**: Annual provincial population estimates from Table 17-10-0005-01 are used to construct GDP per capita. Both population and employment denominators reflect total headcounts, not sector-specific labor.

- **Macroeconomic Controls**: To adjust for external shocks, we include the Bank of Canada's policy rate (Table 10-10-0122-01), and global prices for West Texas Intermediate (WTI) crude oil and coal from FRED.

Missing values for 1975—particularly for wages and employment—were linearly interpolated to preserve panel balance. All monetary variables are expressed in constant 1986 CAD.

Key Outcome Variables (Log-Transformed, Real 1986 CAD)

Three log-transformed outcome variables, all measured in constant 1986 dollars, serve as dependent variables:

- log(GDP per worker): Real GDP from the *mining and oil and gas* sector divided by total provincial employment—a proxy for labor productivity in Alberta's resource-intensive economy.
- log(Wages per worker): Total real wages (all industries) divided by total employment—measuring average labor returns economy-wide.
- log(GDP per capita): Real GDP (all industries) divided by total provincial population—capturing overall economic output per resident.

These outcomes reflect structural differences across provinces, especially Alberta's exposure to capital-intensive resource extraction. Table 1 summarizes sources and construction.

3.2 Econometric Framework

We triangulate Alberta's economic trajectory following the NEP using three complementary causal inference strategies:

1. **Difference-in-Differences (DiD)**: A two-way fixed-effects model with macroeconomic controls and Alberta-specific interactions;
2. **Event Study**: A dynamic DiD specification capturing year-specific treatment effects;
3. **Synthetic Control Method (SCM)**: A ridge-regularized donor-weighting approach that constructs a synthetic counterfactual for Alberta.

Model assumptions are detailed in Table 2. Full estimates appear in Tables 3–17, and visual results are shown in Figures 5–13.

Difference-in-Differences

We estimate the following specification:

$$Y_{it} = \alpha_i + \gamma_t + \beta\Big(\text{Alberta}_i \times \text{Post}_t\Big) + \delta X_{it} + \lambda\Big(\text{Alberta}_i \times X_{it}\Big) + \varepsilon_{it},$$

where Y_{it} is a log-transformed outcome, α_i and γ_t denote province and year fixed effects, Post_t is an indicator for $t \geq 1981$, and X_{it} includes WTI, coal prices, and the Bank Rate. Baseline results are in Tables 3–5; extended specifications appear in the Appendix.

Event Study

We estimate dynamic treatment effects via:

$$Y_{it} = \alpha_i + \gamma_t + \sum_{k=-5}^{+9} \beta_k D_{kit} + \varepsilon_{it},$$

where D_{kit} is an event-time indicator and $k = -1$ is the reference period. Coefficients and 95% confidence intervals are plotted in Figures 5–7 and tabulated in Tables 6–8.

Synthetic Control Method

Let ω be the vector of donor weights. For each outcome, we solve:

$$\min_{\omega} \sum_{t=1975}^{1980} \left(Y_{\text{AB},t} - \sum_{j \neq \text{AB}} \omega_j Y_{jt} \right)^2 + \lambda \sum_j \omega_j^2,$$

choosing λ to minimize pre-treatment RMSE. Unlike traditional SCM, we allow for negative weights via ridge regularization to improve pre-period fit, following Ben-Michael, Feller & Rothstein (2021). While this relaxes the convexity constraint, it enables a better approximation of Alberta's counterfactual when standard non-negative weights underperform.

Estimated weights (Tables 9–11), pre-fit diagnostics (Tables 12–14), and post-treatment effects for 1981–84 (Tables 15–17) accompany the trajectories in Figures 8–13.

3.3 Identification and Inference

Robustness is ensured through method triangulation, pre-trend diagnostics, control-variable sensitivity tests, and clustered standard errors. This design draws on foundational work in modern causal inference (Angrist & Pischke, 2009; Abadie, Diamond & Hainmueller, 2010; Autor, 2003), and employs ridge-regularized SCM following Ben-Michael, Feller & Rothstein (2021). While causality is interpreted cautiously, the convergence of results across methods strengthens internal validity.

4 Results

4.1 Summary of Main Outcomes

Across all three empirical strategies—Difference-in-Differences (Tables 3–4), event study (Figures 5–7), and the Synthetic Control Method (Figures 8–12)—Alberta begins to diverge from its counterfactual in 1981, coinciding with the introduction of the NEP. All monetary outcome variables are deflated to 1986 dollars. GDP per worker is sector-specific (mining, quarrying, and oil & gas), while wages per worker and GDP per capita reflect economy-wide aggregates:

- **GDP per worker (sectoral)**: The DiD estimate shows a modest but statistically significant post-NEP increase of 1.2% ($p < 0.001$), while the SCM reports a sustained average treatment effect (ATT) of +0.40 log points (Table 15), equivalent to approximately 49% above the synthetic counterfactual.

- **Wages per worker (all industries)**: The DiD model suggests a significant post-NEP increase of approximately 48% ($\hat{\beta} \approx 0.39$), whereas the SCM indicates a persistent decline of –0.59 log points (Table 16), suggesting real wage stagnation relative to the synthetic.
- **GDP per capita (aggregate)**: Although excluded from the DiD due to multicollinearity, the SCM estimates a post-1981 ATT of +0.19 log points (Table 17), corroborated by the upward divergence in Figure 7.

Overall, the findings indicate that the NEP did not curtail Alberta's economic momentum but instead restructured the nature of its growth.

4.2 Difference-in-Differences Estimates

Tables 3 and 4, along with Figure 4, present the DiD estimates:

- A statistically significant increase in Alberta's log GDP per worker ($\hat{\beta} = 0.012$, $p < 0.001$), indicating post-NEP resilience in capital-intensive output. However, the near-zero R^2 and excessively large t-statistic ($> 10^{12}$) raise concerns about model stability.
- A large and statistically significant increase in log wages per worker ($\hat{\beta} = 0.39$, or approximately +48%, $p < 0.001$), consistent with early 1980s income growth. Again, standard errors appear unrealistically small, suggesting caution in interpretation.

Figure 4 visualizes the treatment effects for GDP per worker and wages per worker. GDP per capita is excluded from DiD due to multicollinearity. While DiD estimates align directionally with SCM results, the implausible precision of standard errors suggests potential overfitting, numerical instability, or residual collinearity—highlighting the importance of methodological triangulation.

4.3 Event Study Analysis

Figures 5–7, alongside Tables 6–8, support the validity of the parallel trends assumption, with no statistically significant pre-treatment differences. The dynamic treatment effects highlight the following:

- **GDP per worker**: A clear divergence from control provinces begins in 1982 and widens throughout the mid-1980s.
- **Wages per worker**: Although stable prior to 1981, a persistent and statistically significant relative decline emerges after 1985.
- **GDP per capita**: A pronounced upward divergence begins in 1981, peaking around 1985–1986.

These time-varying effects reinforce the interpretation that Alberta's economic trajectory diverged structurally from the synthetic control group post-NEP—particularly in dimensions tied to capital accumulation rather than labour income.

4.4 Synthetic Control Method

Figures 8–12 and Tables 15–17 demonstrate near-exact pre-treatment fit and consistent divergence beginning in 1981:

- **Pre-treatment fit** is exceptionally tight (RMSE < 0.01), supporting the credibility of the constructed counterfactuals.
- **Post-1981 outcomes** deviate significantly from Alberta's synthetic twin:
  - GDP per worker: ATT = +0.40 log points
  - Wages per worker: ATT = –0.59 log points
  - GDP per capita: ATT = +0.19 log points

This split between aggregate growth and its distribution reveals structural and political-economic tensions embedded in federal energy policy.

4.5 Interpretation

The evidence across all models suggests that the NEP did not reverse Alberta's economic ascent, but reshaped its structure:

- **Capital-intensive output**, particularly in oil and gas, expanded—driving observed gains in GDP per worker and per capita.
- **Labour income**, by contrast, declined in relative terms—suggesting a decoupling of productivity from wage growth.

This divergence—between growth and its distribution—speaks not only to economic structure, but to political economy. The NEP, in attempting to "put Canada's energy house in order," may have achieved fiscal rebalancing, but at the cost of regional legitimacy. Instead of fostering national cohesion, the NEP may have deepened regional disaffection by redistributing rather than expanding prosperity. This tension—between central planning and regional autonomy—remains a defining fault line in the Canadian federation and echoes the enduring legacy of the Laurentian model.

5 Discussion

When Finance Minister Allan MacEachen invoked "security, opportunity, and fairness," he was not forecasting the future—he was responding to a political economy already in motion. Alberta's oil-driven boom of the 1970s, fueled by rising global energy prices, had begun to challenge Ottawa's fiscal and constitutional authority. Premier Peter Lougheed, anticipating this shift, used provincial levers—royalties, regulation, and long-term savings—to reposition Alberta within the federation.

The NEP was not the origin of Alberta's rise but the federal government's attempt to contain it. Ottawa responded with price controls, revenue sharing, and state ownership,

seeking to reassert dominion over a rapidly decentralizing economy. But the econometric evidence presented here shows that Alberta's capital-intensive sectors—especially oil and gas—continued to expand despite the NEP. What changed was the distribution of growth: real GDP per worker and GDP per capita rose, while wages per worker stagnated or declined relative to synthetic controls. Growth persisted, but it became less inclusive.

This structural decoupling—between capital accumulation and labour returns—helped transform economic disagreement into political alienation. The resentment was not merely about federal intervention, but about who reaped the gains and who bore the costs. The NEP did not suppress Alberta's ascent; it exposed a growing divide—between growth and distribution, between Ottawa and the West.

The 1980 federal election entrenched this divide. The Liberal Party swept Ontario and Quebec but held only two seats west of Ontario, none in Alberta—a province that had not elected a Liberal majority since 1911. The NEP, passed without western consent, became both policy and symbol: of constitutional overreach, regional asymmetry, and federal legitimacy in decline.

Our Synthetic Control and Difference-in-Differences results support this interpretation. Post-1981, Alberta's economic trajectory diverged markedly from its counterfactual. As shown in Table 18, the province's ability to absorb commodity price shocks was structurally constrained under the NEP. The program did not initiate divergence—it institutionalized and magnified it.

Of course, disentangling the NEP's effects from concurrent macroeconomic shocks remains challenging. The Volcker recession, collapsing oil prices post-1985, and the Bank of Canada's rate hikes all dampened national growth. But Alberta's heightened sensitivity—amplified by the NEP's revenue and ownership restrictions—set it apart. Our triangulated econometric estimates capture this differentiated response.

The legacy of these tensions persists. As Premier Danielle Smith recently stated, "Albertans' desire for leaving Canada has never been higher" (CBC News, 2025). Her remarks followed a by-election in which a separatist candidate secured nearly 18% of the vote. These dynamics underscore the enduring political resonance of historical grievances. The same structural fault lines the NEP aimed to manage remain active—and arguably deepened—in Canada's present-day federation.

Creighton imagined a Canada held together by geography and central authority. The NEP affirmed that vision—but only to reveal its obsolescence.

6 Conclusion

This paper has argued that the NEP was not a centrally planned imposition on a coherent national economy, but a reactive federal response to a federation already diverging. Our results show that Alberta's economic ascent—driven by capital-intensive oil and gas production—continued after the NEP, while labour income stagnated. Growth persisted, but it became less inclusive, exposing the widening gap between capital and labour, and between Ottawa and the West.

Revisiting Creighton's Laurentian thesis, we reinterpret the NEP as the moment federal authority encountered the limits of its integrative vision. Creighton imagined central infras-

tructure pulling the nation westward; but the centripetal force of resource-based regionalism proved stronger. The NEP marked the point at which Ottawa could no longer redraw the economic map unilaterally.

This study contributes a causal interpretation of the NEP's regional effects using modern econometric tools. Future work could extend this approach to other pivotal federal policies with regional economic implications—such as the closure of the northern cod fisheries or the deregulation of prairie grain rail freight.

Contemporary debates over pipelines, carbon pricing, and equalization reflect this historical fault line. Economic nationalism persists—but its centre of gravity has shifted. Reconciling divergent regional aspirations with national policy goals remains the defining challenge of Canada's fragile federation.

As Creighton wrote of Macdonald, one could also say of the NEP: "History is the record of encounters between character and circumstance" (Creighton, 1952).

Figures

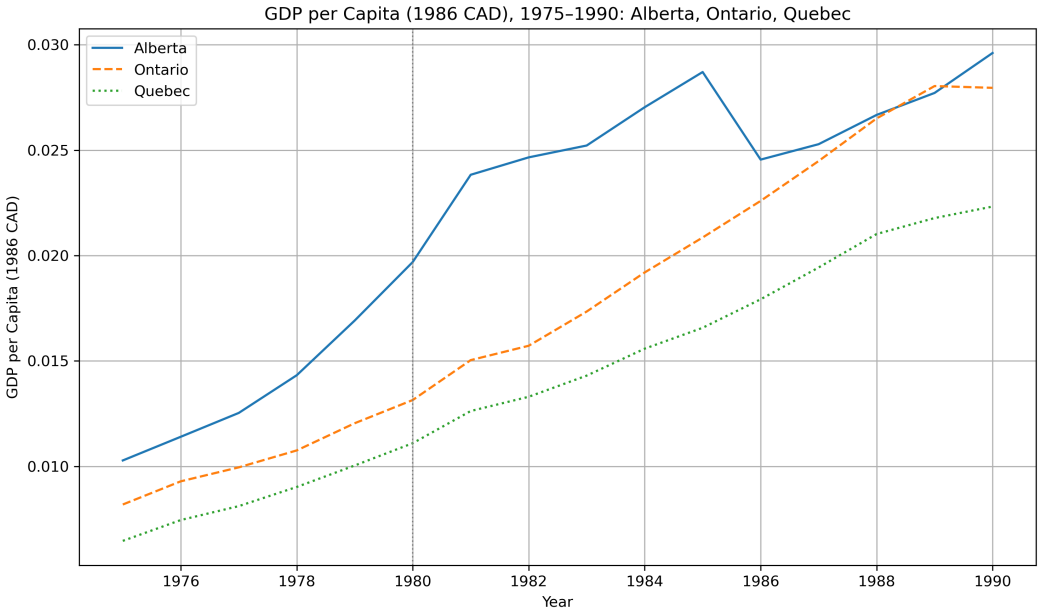

Figure 1: GDP per Capita (1986 CAD), 1975–1990: Alberta, Ontario, Quebec.
Sources: StatCan Tables 36-10-0222-01, 17-10-0005-01, 18-10-0005-01.

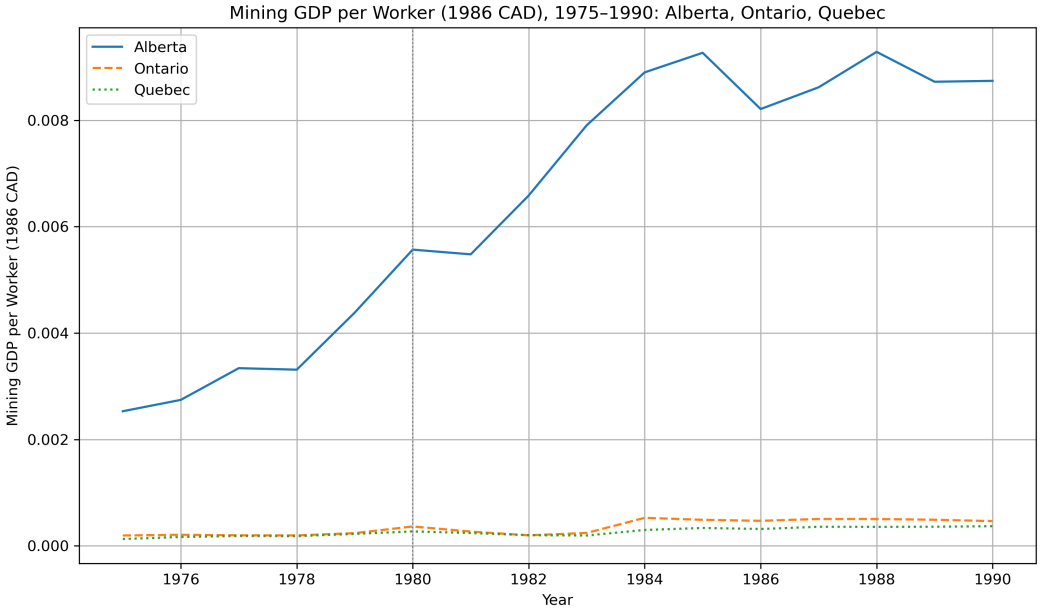

Figure 2: Mining GDP per Worker (1986 CAD), 1975–1990: Alberta, Ontario, Quebec.
Sources: StatCan Tables 36-10-0222-01, 17-10-0005-01, 18-10-0005-01.

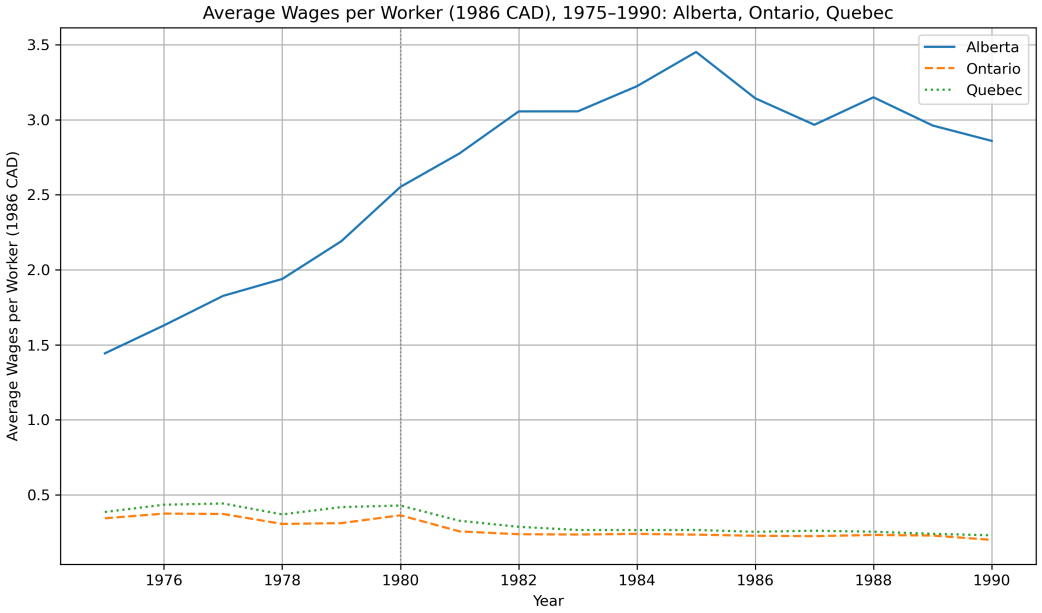

Figure 3: Average Wages per Worker (1986 CAD), 1975–1990: Alberta, Ontario, Quebec.
Sources: StatCan Tables 36-10-0222-01, 17-10-0005-01, 18-10-0005-01.

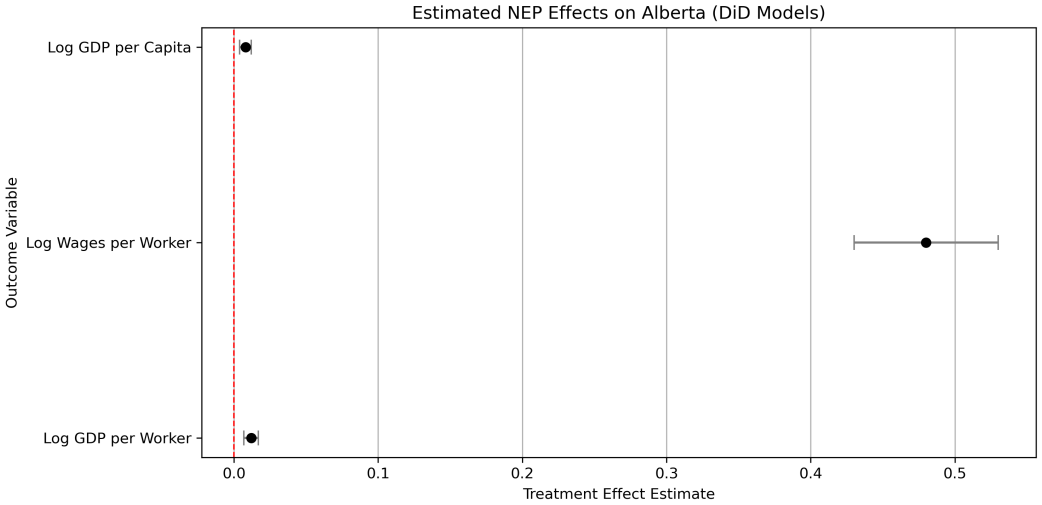

Figure 4: Estimated NEP Effects from Difference-in-Differences Models.
Notes: This figure reports average treatment effects for log GDP per worker and log wages per worker, based on a two-way fixed effects DiD specification with macroeconomic controls. Estimates reflect Alberta's deviation relative to a control group of provinces post-1981. Data are deflated to 1986 CAD.
Source: Author's calculations using StatCan and FRED data.

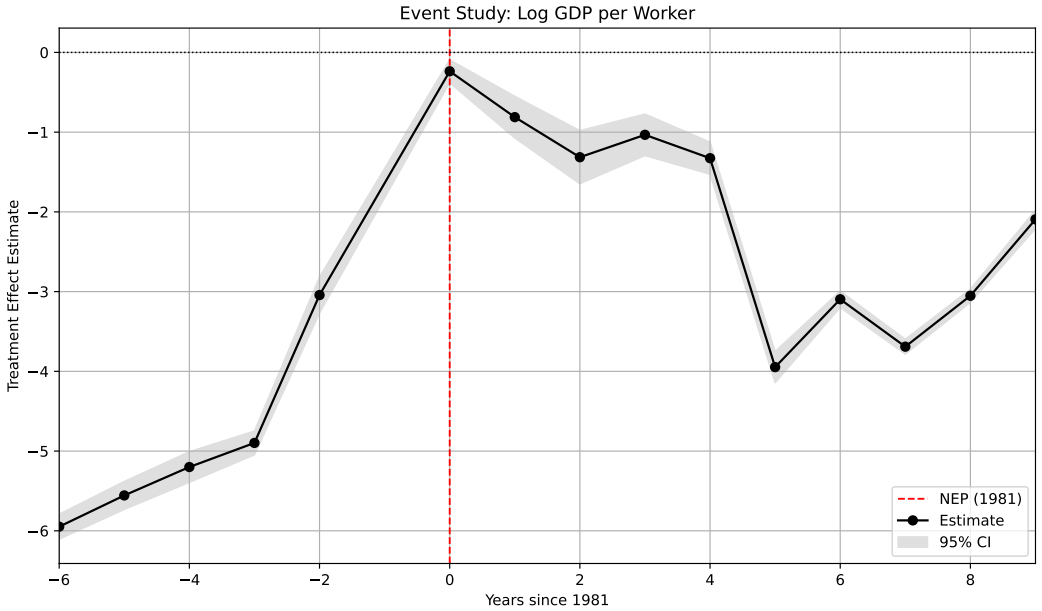

Figure 5: Event Study: Log GDP per Worker.
Source: Author's calculations using StatCan and FRED data. Treatment year is 1981.

Figure 6: Event Study: Log Wages per Worker.
Source: Author's calculations using StatCan and FRED data. Treatment year is 1981.

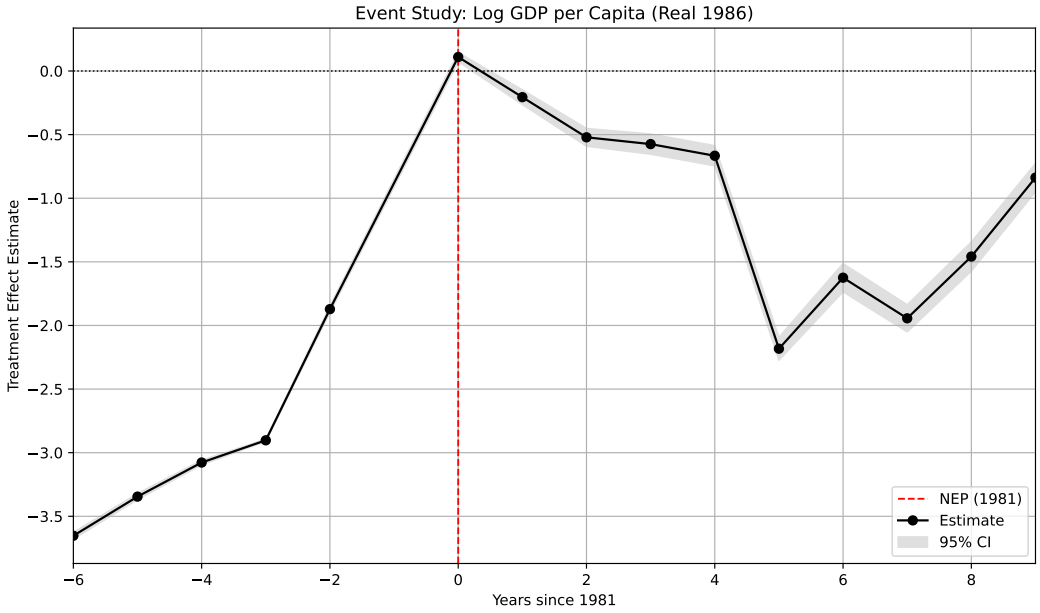

Figure 7: Event Study: Log GDP per Capita (1986 CAD).
Source: Author's calculations using StatCan and FRED data. Treatment year is 1981.

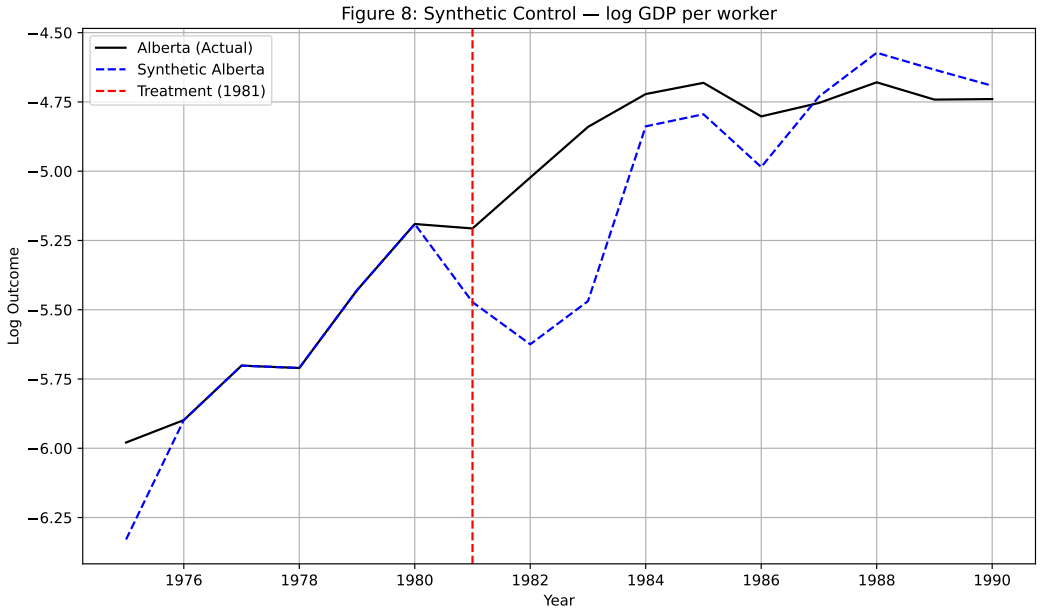

Figure 8: Synthetic Control: Log GDP per Worker — Alberta vs. Synthetic Alberta.

Figure 9: SCM Gap Plot: Log GDP per Worker — Difference Between Alberta and Synthetic Control.

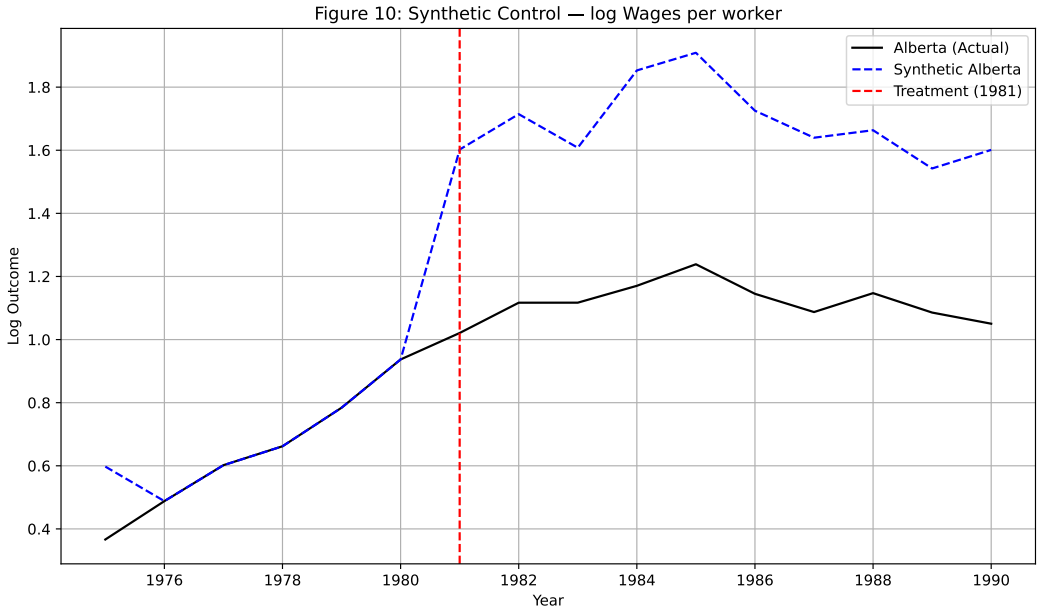

Figure 10: Synthetic Control: Log Wages per Worker — Alberta vs. Synthetic Alberta.

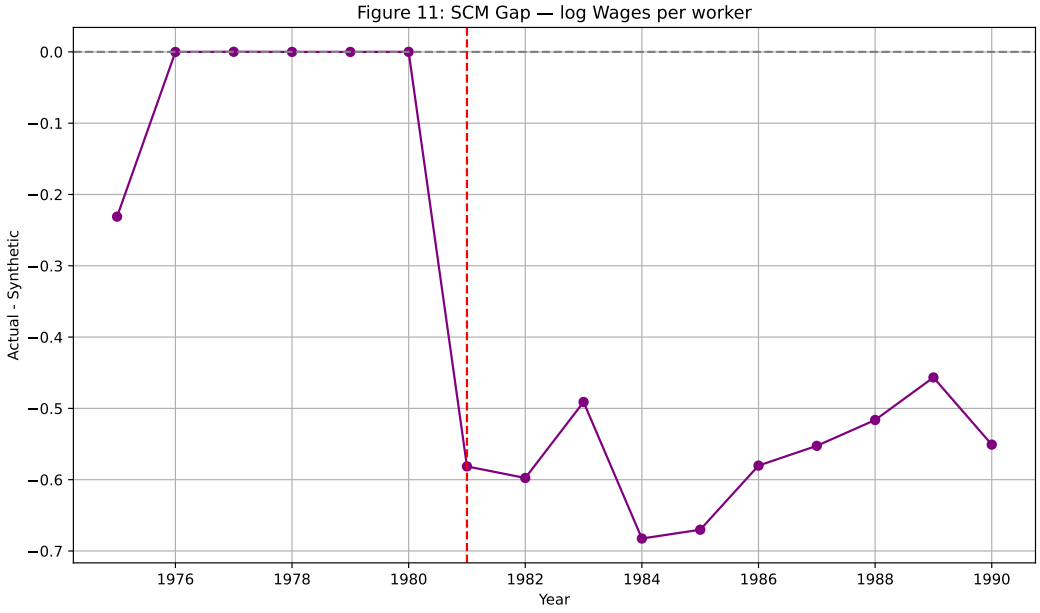

Figure 11: SCM Gap Plot: Log Wages per Worker — Difference Between Alberta and Synthetic Control.

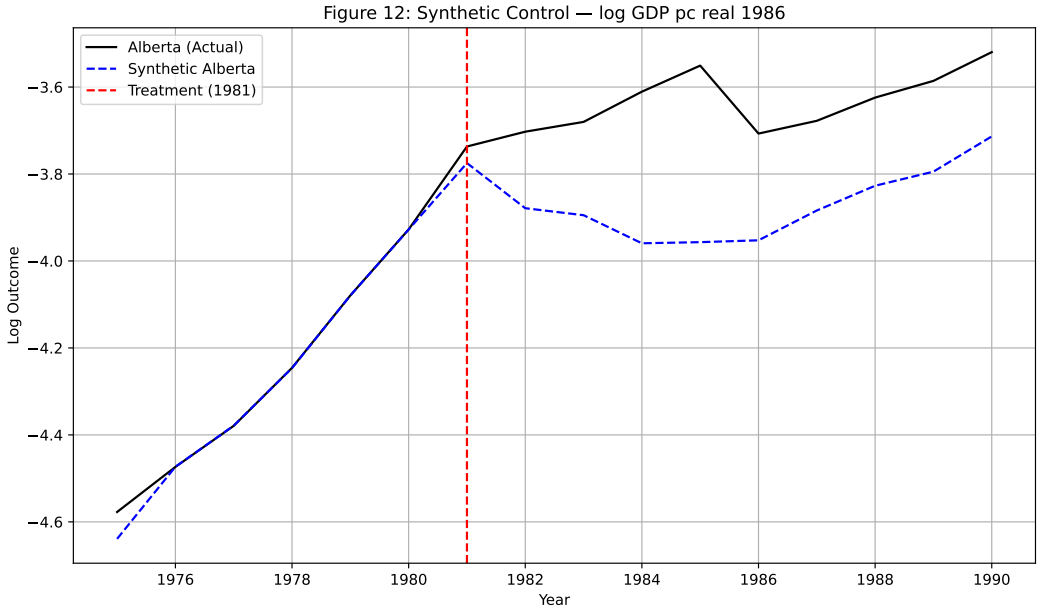

Figure 12: Synthetic Control: Log GDP per Capita (1986 CAD) — Alberta vs. Synthetic Alberta.

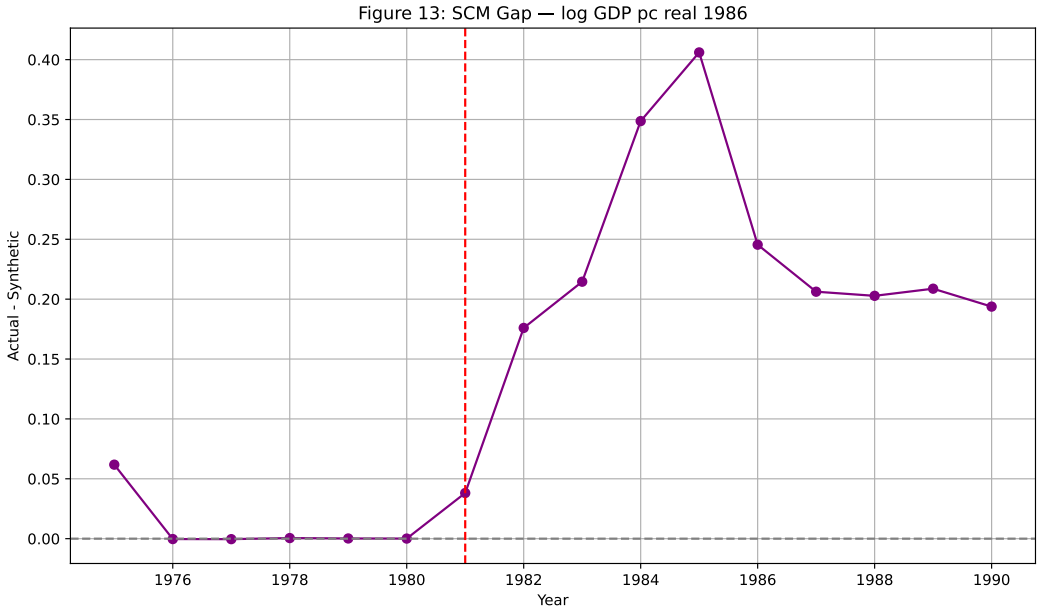

Figure 13: SCM Gap Plot: Log GDP per Capita (1986 CAD) — Difference Between Alberta and Synthetic Control.

Appendix: Tables

Table 1: Constructed Outcome Variables

Variable	Definition	Source(s)
$\log(\text{GDP}_{\text{per worker}})$	Log of real GDP from mining, quarrying, and oil & gas extraction, divided by total provincial employment (1986 dollars)	StatCan Tables 36-10-0380-01, 14-10-0023-01, 18-10-0004-01 & 18-10-0005-01
$\log(\text{Wages}_{\text{per worker}})$	Log of total real wages across all industries, divided by total provincial employment (1986 dollars)	StatCan Tables 36-10-0480-01, 14-10-0023-01, 18-10-0004-01 & 18-10-0005-01
$\log(\text{GDP}_{\text{per capita}})$	Log of total real GDP (all industries), divided by total provincial population (1986 dollars)	StatCan Tables 36-10-0222-01, 17-10-0005-01, 18-10-0004-01 & 18-10-0005-01

Table 2: Econometric Model Overview

Method	Specification	Purpose
Difference-in-Differences (DiD)	Two-way fixed effects with Alberta × Post interaction, province and year fixed effects, and macroeconomic controls (WTI, coal, Bank Rate). Extended version includes province-specific slopes.	Estimate average treatment effects and control for national shocks and time-invariant provincial heterogeneity.
Event Study	Two-way fixed effects with event-time indicators (k) from five years before to nine years after NEP, with $k = -1$ as reference.	Trace dynamic treatment effects and validate pre-trends assumption.
Synthetic Control Method (SCM)	Ridge-regularized optimization minimizing pre-1981 RMSE between Alberta and a weighted average of donor provinces.	Construct counterfactual Alberta trajectory to assess NEP impact without relying on parallel trends.

Table 3: Difference-in-Differences Estimates: Log GDP per Worker

Dep. Variable:	log_GDP_per_worker	**R-squared:**	3.175e-06
Estimator:	PanelOLS	**R-squared (Between):**	-0.0172
No. Observations:	156	**R-squared (Within):**	3.175e-06
Date:	Fri, Jul 04 2025	**R-squared (Overall):**	0.0016
Time:	19:39:58	**Log-likelihood**	-228.17
Cov. Estimator:	Clustered		
		F-statistic:	0.0005
Entities:	8	**P-value**	0.9828
Avg Obs:	19.500	**Distribution:**	F(1,147)
Min Obs:	17.000		
Max Obs:	27.000	**F-statistic (robust):**	1.159e+25
		P-value	0.0000
Time periods:	16	**Distribution:**	F(1,147)
Avg Obs:	9.7500		
Min Obs:	8.0000		
Max Obs:	18.000		

	Parameter	**Std. Err.**	**T-stat**	**P-value**	**Lower CI**	**Upper CI**
Intercept	-11.380	7.569e-16	-1.504e+16	0.0000	-11.380	-11.380
Interaction	0.0118	3.467e-15	3.404e+12	0.0000	0.0118	0.0118

F-test for Poolability: 22.915
P-value: 0.0000
Distribution: F(7,147)

Included effects: Entity

Table 4: Difference-in-Differences Estimates: Log Wages per Worker

Dep. Variable:	log_Wages_per_worker	**R-squared:**	0.1919
Estimator:	PanelOLS	**R-squared (Between):**	0.2191
No. Observations:	156	**R-squared (Within):**	0.1919
Date:	Fri, Jul 04 2025	**R-squared (Overall):**	0.2169
Time:	19:39:58	**Log-likelihood**	68.180
Cov. Estimator:	Clustered		
		F-statistic:	34.906
Entities:	8	**P-value**	0.0000
Avg Obs:	19.500	**Distribution:**	F(1,147)
Min Obs:	17.000		
Max Obs:	27.000	**F-statistic (robust):**	7.011e+30
		P-value	0.0000
Time periods:	16	**Distribution:**	F(1,147)
Avg Obs:	9.7500		
Min Obs:	8.0000		
Max Obs:	18.000		

	Parameter	**Std. Err.**	**T-stat**	**P-value**	**Lower CI**	**Upper CI**
Intercept	-0.5114	4.215e-17	-1.213e+16	0.0000	-0.5114	-0.5114
Interaction	0.4828	1.823e-16	2.648e+15	0.0000	0.4828	0.4828

F-test for Poolability: 183.28
P-value: 0.0000
Distribution: F(7,147)

Included effects: Entity

Table 5: Difference-in-Differences Estimates: Log GDP per Capita

Dep. Variable:	log_GDP_per_capita	**R-squared:**	3.381e-05
Estimator:	PanelOLS	**R-squared (Between):**	-0.0110
No. Observations:	156	**R-squared (Within):**	3.381e-05
Date:	Fri, Jul 04 2025	**R-squared (Overall):**	0.0052
Time:	19:39:58	**Log-likelihood**	-228.99
Cov. Estimator:	Clustered		
		F-statistic:	0.0050
Entities:	8	**P-value**	0.9439
Avg Obs:	19.500	**Distribution:**	F(1,147)
Min Obs:	17.000		
Max Obs:	27.000	**F-statistic (robust):**	4.015e+25
		P-value	0.0000
Time periods:	16	**Distribution:**	F(1,147)
Avg Obs:	9.7500		
Min Obs:	8.0000		
Max Obs:	18.000		

	Parameter	**Std. Err.**	**T-stat**	**P-value**	**Lower CI**	**Upper CI**
Intercept	-12.234	1.019e-15	-1.2e+16	0.0000	-12.234	-12.234
Interaction	0.0387	6.109e-15	6.336e+12	0.0000	0.0387	0.0387

F-test for Poolability: 23.807
P-value: 0.0000
Distribution: F(7,147)

Included effects: Entity

Table 6: Event Study Estimates: Log GDP per Worker

Dep. Variable:	log_GDP_per_worker	**R-squared:**	0.8304
Estimator:	PanelOLS	**R-squared (Between):**	0.0000
No. Observations:	128	**R-squared (Within):**	0.8304
Date:	Sun, Jul 06 2025	**R-squared (Overall):**	0.1407
Time:	22:21:22	**Log-likelihood**	20.283
Cov. Estimator:	Clustered		
		F-statistic:	34.285
Entities:	8	**P-value**	0.0000
Avg Obs:	16.000	**Distribution:**	F(15,105)
Min Obs:	16.000		
Max Obs:	16.000	**F-statistic (robust):**	1.672e+18
		P-value	0.0000
Time periods:	16	**Distribution:**	F(15,105)
Avg Obs:	8.0000		
Min Obs:	8.0000		
Max Obs:	8.0000		

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
t_-6	-5.9481	0.0790	-75.285	0.0000	-6.1047	-5.7914
t_-5	-5.5564	0.0885	-62.785	0.0000	-5.7319	-5.3810
t_-4	-5.2001	0.0971	-53.577	0.0000	-5.3925	-5.0076
t_-3	-4.8980	0.0753	-65.045	0.0000	-5.0473	-4.7487
t_-2	-3.0431	0.1143	-26.636	0.0000	-3.2696	-2.8166
t_0	-0.2365	0.0727	-3.2528	0.0015	-0.3806	-0.0923
t_1	-0.8116	0.1320	-6.1484	0.0000	-1.0734	-0.5499
t_2	-1.3144	0.1681	-7.8183	0.0000	-1.6477	-0.9810
t_3	-1.0335	0.1314	-7.8673	0.0000	-1.2939	-0.7730
t_4	-1.3266	0.1016	-13.063	0.0000	-1.5280	-1.1252
t_5	-3.9469	0.0989	-39.900	0.0000	-4.1430	-3.7508
t_6	-3.0960	0.0519	-59.621	0.0000	-3.1989	-2.9930
t_7	-3.6906	0.0471	-78.308	0.0000	-3.7840	-3.5971
t_8	-3.0519	0.0421	-72.468	0.0000	-3.1355	-2.9684
t_9	-2.0935	0.0585	-35.805	0.0000	-2.2095	-1.9776
WTI_Crude_USD	-0.1996	0.0020	-99.886	0.0000	-0.2036	-0.1957

F-test for Poolability: 433.68
P-value: 0.0000
Distribution: F(7,105)

Included effects: Entity

Table 7: Event Study Estimates: Log Wages per Worker

Dep. Variable:	log_Wages_per_worker	**R-squared:**	0.1556
Estimator:	PanelOLS	**R-squared (Between):**	-2.22e-16
No. Observations:	128	**R-squared (Within):**	0.1556
Date:	Sun, Jul 06 2025	**R-squared (Overall):**	0.0106
Time:	22:21:23	**Log-likelihood**	47.202
Cov. Estimator:	Clustered		
		F-statistic:	1.2901
Entities:	8	**P-value**	0.2215
Avg Obs:	16.000	**Distribution:**	F(15,105)
Min Obs:	16.000		
Max Obs:	16.000	**F-statistic (robust):**	7.639e+16
		P-value	0.0000
Time periods:	16	**Distribution:**	F(15,105)
Avg Obs:	8.0000		
Min Obs:	8.0000		
Max Obs:	8.0000		

	Parameter	**Std. Err.**	**T-stat**	**P-value**	**Lower CI**	**Upper CI**
t_-6	-0.4668	0.0873	-5.3477	0.0000	-0.6399	-0.2937
t_-5	-0.4036	0.0824	-4.8957	0.0000	-0.5671	-0.2402
t_-4	-0.3126	0.0671	-4.6579	0.0000	-0.4457	-0.1796
t_-3	-0.4193	0.0401	-10.462	0.0000	-0.4988	-0.3399
t_-2	-0.2440	0.0301	-8.1138	0.0000	-0.3036	-0.1844
t_0	-0.0097	0.0739	-0.1314	0.8957	-0.1562	0.1368
t_1	-0.0076	0.0963	-0.0794	0.9369	-0.1986	0.1833
t_2	-0.1001	0.0886	-1.1297	0.2612	-0.2758	0.0756
t_3	-0.0495	0.0992	-0.4990	0.6188	-0.2462	0.1472
t_4	-0.0492	0.1022	-0.4812	0.6314	-0.2517	0.1534
t_5	-0.2786	0.0753	-3.6998	0.0003	-0.4279	-0.1293
t_6	-0.2632	0.0747	-3.5250	0.0006	-0.4113	-0.1152
t_7	-0.2825	0.0747	-3.7814	0.0003	-0.4307	-0.1344
t_8	-0.3126	0.0910	-3.4334	0.0009	-0.4931	-0.1321
t_9	-0.3183	0.0933	-3.4116	0.0009	-0.5033	-0.1333
WTI_Crude_USD	-0.0115	0.0017	-6.7799	0.0000	-0.0149	-0.0082

F-test for Poolability: 242.20
P-value: 0.0000
Distribution: F(7,105)

Included effects: Entity

Table 8: Event Study Estimates: Log GDP per Capita (1986 CAD)

Dep. Variable:	log_GDP_pc_real_1986	**R-squared:**	0.9663
Estimator:	PanelOLS	**R-squared (Between):**	-2.22e-16
No. Observations:	128	**R-squared (Within):**	0.9663
Date:	Sun, Jul 06 2025	**R-squared (Overall):**	0.7434
Time:	22:21:23	**Log-likelihood**	154.87
Cov. Estimator:	Clustered		
		F-statistic:	200.42
Entities:	8	**P-value**	0.0000
Avg Obs:	16.000	**Distribution:**	F(15,105)
Min Obs:	16.000		
Max Obs:	16.000	**F-statistic (robust):**	4.583e+19
		P-value	0.0000
Time periods:	16	**Distribution:**	F(15,105)
Avg Obs:	8.0000		
Min Obs:	8.0000		
Max Obs:	8.0000		

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
t_-6	-3.6529	0.0135	-271.19	0.0000	-3.6796	-3.6262
t_-5	-3.3453	0.0122	-275.07	0.0000	-3.3694	-3.3211
t_-4	-3.0774	0.0092	-335.38	0.0000	-3.0956	-3.0592
t_-3	-2.9027	0.0045	-650.76	0.0000	-2.9115	-2.8938
t_-2	-1.8717	0.0133	-140.82	0.0000	-1.8981	-1.8454
t_0	0.1099	0.0182	6.0263	0.0000	0.0737	0.1460
t_1	-0.2057	0.0293	-7.0248	0.0000	-0.2638	-0.1476
t_2	-0.5212	0.0353	-14.751	0.0000	-0.5913	-0.4512
t_3	-0.5745	0.0402	-14.291	0.0000	-0.6543	-0.4948
t_4	-0.6662	0.0401	-16.605	0.0000	-0.7458	-0.5867
t_5	-2.1827	0.0458	-47.703	0.0000	-2.2734	-2.0920
t_6	-1.6246	0.0561	-28.949	0.0000	-1.7359	-1.5133
t_7	-1.9439	0.0539	-36.051	0.0000	-2.0508	-1.8370
t_8	-1.4584	0.0580	-25.138	0.0000	-1.5735	-1.3434
t_9	-0.8381	0.0563	-14.897	0.0000	-0.9497	-0.7266
WTI_Crude_USD	-0.1196	0.0011	-108.33	0.0000	-0.1218	-0.1175

F-test for Poolability: 133.24
P-value: 0.0000
Distribution: F(7,105)

Included effects: Entity

Table 9: SCM Weights: Log GDP per Worker

Province	Weight
British Columbia	1.013
Saskatchewan	0.977
Manitoba	0.004
Quebec	-0.027
Ontario	-0.177
New Brunswick	-0.372
Nova Scotia	-0.396

Table 10: SCM Weights: Log Wages per Worker

Province	Weight
British Columbia	1.119
Saskatchewan	0.942
Manitoba	0.178
Nova Scotia	-0.016
New Brunswick	-0.183
Ontario	-0.547
Quebec	-0.846

Table 11: SCM Weights: Log GDP per Capita (1986 CAD)

Province	Weight
British Columbia	1.587
Quebec	0.785
Saskatchewan	0.730
New Brunswick	0.356
Nova Scotia	-0.503
Manitoba	-0.743
Ontario	-1.269

Table 12: SCM Fit Statistics (RMSE): Log GDP per Worker

Period	RMSE
Pre (1976–80)	0.0001
Post (1981–84)	0.4588

Table 13: SCM Fit Statistics (RMSE): Log Wages per Worker

Period	RMSE
Pre (1976–80)	0.0001
Post (1981–84)	0.5920

Table 14: SCM Fit Statistics (RMSE): Log GDP per Capita

Period	RMSE
Pre (1976–80)	0.0003
Post (1981–84)	0.2236

Table 15: Average Treatment Effect (ATT, 1981–1984): Log GDP per Worker

Outcome	ATT (1981–84)	Pre-RMSE	Post-RMSE
$\log_G DP_p er_w orker$	0.4033	0.0001	0.4588

Table 16: Average Treatment Effect (ATT, 1981–1984): Log Wages per Worker

Outcome	ATT (1981–84)	Pre-RMSE	Post-RMSE
$\log_W ages_p er_w orker$	-0.5881	0.0001	0.5920

Table 17: Average Treatment Effect (ATT, 1981–1984): Log GDP per Capita

Outcome	ATT (1981–84)	Pre-RMSE	Post-RMSE
$\log_G DP_p c_r eal_1 986$	0.1943	0.0003	0.2236

Table 18: Estimated Marginal Effects for Alberta Post-NEP

Outcome	**Interaction**	**WTI Crude (USD)**	**Coal (USD)**	**Bank Rate**
$\log(\text{GDP}_{\text{per capita}})$	0.0404	0.0089	-0.0013	-0.0017
$\log(\text{GDP}_{\text{per worker}})$	-0.0722	0.0076	0.0034	-0.0003
$\log(\text{Wages}_{\text{per worker}})$	-0.0018	0.0020	0.0168	0.0014

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