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

Greg Williams

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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 a growing regional imbalance. Drawing on a newly constructed provincial panel dataset covering 1975–1990 focused on the mining, oil, and gas extraction industries, we apply Difference-in-Differences, event study analysis, and a ridge-regularized Synthetic Control Method to assess Alberta's performance relative to a counterfactual built from other provinces.

We examine three outcomes—real GDP per worker, real wages, and real GDP per capita—and find that Alberta's resource sector was already outperforming other provinces prior to the NEP. After implementation, GDP-based outcomes continued to diverge, while wages stagnated or declined relative to synthetic controls, suggesting a decoupling of labour income from capital-driven growth.

This paper offers the first rigorous causal analysis of the NEP's regional economic effects using modern causal inference and revisits Donald Creighton's Laurentian thesis in the context of resource federalism and western economic 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. Up until that time, Canada's growth, as Canada's preeminent historian Donald Creighton would argue, was built through major infrastructure projects centered on the St. Lawrence moving westward (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: how might Donald Creighton have interpreted the NEP in light 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 centered on fiscal authority—particularly over 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 attempt to reassert Creighton's vision of central dominion, the appropriate test is not political rhetoric, but 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 eight 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 source variables include:

- **Sectoral GDP**: Industry-specific nominal GDP for the *mining, quarrying, and oil and gas extraction* sector (Table 36-10-0380-01) is the foundation for both GDP per worker and GDP per capita measures. For context and deflation, aggregate nominal GDP (all industries) was also collected (Table 36-10-0222-01). All GDP figures were converted to constant 1986 dollars using province-specific Consumer Price Index (CPI) data from Tables 18-10-0004-01 and 18-10-0005-01.
- **Wages and Employment**: Aggregate nominal wages (all industries) were drawn from Table 36-10-0480-01 and deflated using the same CPI series. Employment counts (persons aged 15 and older, all industries) were obtained from Table 14-10-0023-01. These were used to compute real average wages per worker.

- **Population**: Annual provincial population estimates from Table 17-10-0005-01 were used to construct GDP per capita. For consistency, all population and employment denominators refer to total headcounts rather than sector-specific labor.
- **Macroeconomic Controls**: To adjust for external shocks, we include the Bank of Canada's policy rate (Table 10-10-0122-01), along with world prices for West Texas Intermediate (WTI) crude oil and coal from FRED.

Where values were unavailable for 1975—particularly for wages and employment—we used linear interpolation to preserve panel balance. All monetary variables are expressed in constant 1986 CAD.

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

Three log-transformed outcome variables, all measured in real 1986 Canadian dollars, serve as dependent variables across all model specifications:

- log(GDP per worker): Real GDP from the *mining and oil and gas* sector divided by total provincial employment. This serves as a proxy for labour productivity in Alberta's resource-intensive economy.
- log(Wages per worker): Total real wages (all industries) divided by total employment. This captures the average labour market return across the broader economy.
- log(GDP per capita): Real total GDP (all industries) divided by total population. This provides a general, per capita measure of provincial economic performance.

These outcomes reflect structural differences across provinces, particularly Alberta's exposure to capital-intensive extraction industries. Table 1 summarizes sources and formulas.

3.2 Econometric Framework

The empirical strategy triangulates Alberta's economic trajectory post-NEP through three complementary methods with three complementary causal–inference designs:

1. **Difference-in-Differences (DiD)**—two-way fixed effects with macro-controls and Alberta-specific interactions;
2. **Event-Study**—a dynamic DiD extension that traces year-by-year treatment effects; and
3. **Synthetic Control Method (SCM)**—a ridge-regularised donor–weighting procedure that constructs a counterfactual Alberta.

Model equations and identifying assumptions are summarised in Table 2. Full estimation output appears in Tables 3–17, while the corresponding figures are collected in Figures 5–13.

Difference-in-Differences

We estimate the two-way fixed-effects 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 one of the three log-transformed outcomes, α_i and γ_t denote province and year fixed effects, Post_t is unity for $t \geq 1981$, and X_{it} collects WTI, coal prices, and the Bank Rate. Baseline results are reported in Tables 3–5; extended specifications with interactions are relegated to the Appendix.

Event Study

Dynamic treatment effects are obtained from

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

with D_{kit} indicating event time k and $k = -1$ omitted. Coefficients are plotted with 95% confidence bands 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 by minimising pre-treatment RMSE. Estimated weights (Tables 9–11), fit diagnostics (Tables 12–14), and average treatment effects for 1981–84 (Tables 15–17) accompany the trajectory and gap plots in Figures 8–13.

3.3 Identification and Inference

Robustness is ensured through triangulation of three methods, clustered standard errors, pre-treatment fit checks, and control-variable sensitivity. This strategy draws on the causal inference foundations in Angrist & Pischke (2009), Abadie, Diamond & Hainmueller (2010), and Autor (2003), with ridge adjustments per Ben-Michael, Feller & Rothstein (2021).

4 Results

Summary of Main Outcomes

Across all three empirical strategies—DiD (Tables 3–4), event study (Figures 5–7), and Synthetic Control (Figures 8–13)—Alberta begins to diverge from its counterfactual in 1981, coinciding with the introduction of the NEP. All outcome variables are based on real GDP in the *mining, quarrying, and oil & gas extraction* sector, deflated to 1986 dollars. Key results include:

- **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 **+0.65** log points (Table 15).
- **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).
- **GDP per capita (sectoral)**: Although excluded from the DiD due to multicollinearity, the SCM estimates a post-1981 ATT of **+0.19** log points (Table 17), corroborated by clear 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.

4.1 Difference-in-Differences Estimates

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

- A **modest but statistically significant increase** in Alberta's log GDP per worker ($\hat{\beta} = 0.012$, $p < 0.001$).
- A **substantial increase** in log wages per worker ($\hat{\beta} = 0.39$, or +48%, $p < 0.001$), consistent with the early 1980s resource-driven income surge.

Figure 4 visualizes the estimated post-treatment effects across outcome variables, providing a compact summary of average treatment effects derived from the DiD models. The third outcome, log GDP per capita, was excluded due to perfect multicollinearity in the fixed-effects specification. While the DiD results are directionally aligned with those from the SCM, the implausibly small standard errors and large t-statistics indicate potential overfitting or collinearity and warrant interpretive caution.

4.2 Event Study Analysis

Figures 5 to 7, along with Tables 6 to 8, support the parallel trends assumption, with no statistically significant pre-trends. The dynamic treatment effects reveal the following patterns:

- **GDP per worker**: Divergence from the synthetic control begins in 1982 and widens through the mid-1980s.
- **Wages per worker**: While stable prior to 1981, a persistent and statistically significant relative decline emerges after 1985.
- **GDP per capita**: A strong upward divergence begins in 1981 and peaks around 1985–1986.

These dynamic effects reinforce the interpretation that Alberta's economic trajectory diverged significantly from the control provinces, particularly in measures tied to capital accumulation.

4.3 Synthetic Control Method

Figures 8 to 13 and Tables 9 to 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, Alberta's actual outcomes deviate notably from its synthetic twin:
  - **GDP per worker**: ATT = **+0.65** 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.

4.4 Interpretation

The evidence across all models suggests that the NEP did not reverse Alberta's upward economic momentum, but rather 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 a fiscal rebalancing, but at the cost of regional legitimacy. Instead of fostering national economic 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 MacEachen spoke of "security, opportunity, and fairness," he responded to—not anticipated—a reordering already in motion. Alberta's boom of the 1970s, driven by global oil dynamics, challenged federal authority. Lougheed capitalized on this with economic and constitutional foresight.

Ottawa responded using price, tax, and ownership levers. The NEP was not the beginning of Alberta's rise—it was the federal government's attempt to contain it.

Despite the NEP, Alberta's capital-intensive industries—particularly oil and gas—continued to grow. What stalled was labour income. While GDP per worker and GDP per capita moved

upward, wages flatlined or declined relative to synthetic controls. This disconnect—growth without broadly shared gains—helped turn economic disagreement into political alienation. The resentment wasn't just about the policy itself, but about who benefited from it, and who didn't. In this sense, the NEP didn't suppress Alberta's rise; it exposed the growing distance between capital and labour, between Ottawa and the West.

The 1980 federal election further entrenched regional polarization. The Liberals swept Ontario and Quebec, but held only two seats west of Ontario, with no foothold in Alberta—a province that had not supported them since 1911. The NEP, passed without western support, became a symbol of constitutional drift.

The econometric data confirms this narrative. Our SCM results show Alberta breaking away from its counterfactual post-1981. The marginal effects in Table **??** illustrate how Alberta's fiscal response capacity—via commodity prices—was structurally constrained during NEP years. The NEP did not initiate divergence—it magnified it.

Admittedly, isolating the NEP's effects from concurrent macroeconomic shocks—such as the Volcker recession—is analytically challenging. The Volcker-induced recession, collapsing oil prices after 1985, and the Bank of Canada's rate hikes also suppressed growth. But Alberta's unique sensitivity to these shocks, exacerbated by the NEP's structural interventions, is clear in the data.

The echoes of NEP-era tensions are palpable today. As Premier Danielle Smith recently stated, "Albertans' desire for leaving Canada has never been higher" (CBC News, 2025). Her comments followed a by-election where a separatist candidate secured nearly 18% of the vote. These trends highlight the persistent resonance of historical grievances in contemporary political movements. The same structural fault lines that the NEP attempted to manage remain active, if not deepened, in today's federation.

Creighton envisioned geography and central authority pulling Canada together. The NEP affirmed that logic—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 measure against a federation already fracturing. Alberta had outgrown the Laurentian vision. The NEP sought to restore balance but was ill-suited to a transformed political economy.

Creighton's east-west thesis underappreciated the centripetal force of resource-based regionalism in shaping Canada's federal dynamics. The NEP marked the moment Ottawa lost the power to redraw that map. Future research could extend this approach to examine other federal policies that significantly affected regional economies, such as the closure of the northern cod fisheries or the regulation of rail freight rates for prairie wheat.

Today's debates over pipelines, carbon pricing, and equalization echo this history. Economic nationalism endures—but its centre has shifted. Canada must now reconcile divergent regional aspirations and competing claims to economic sovereignty within a 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

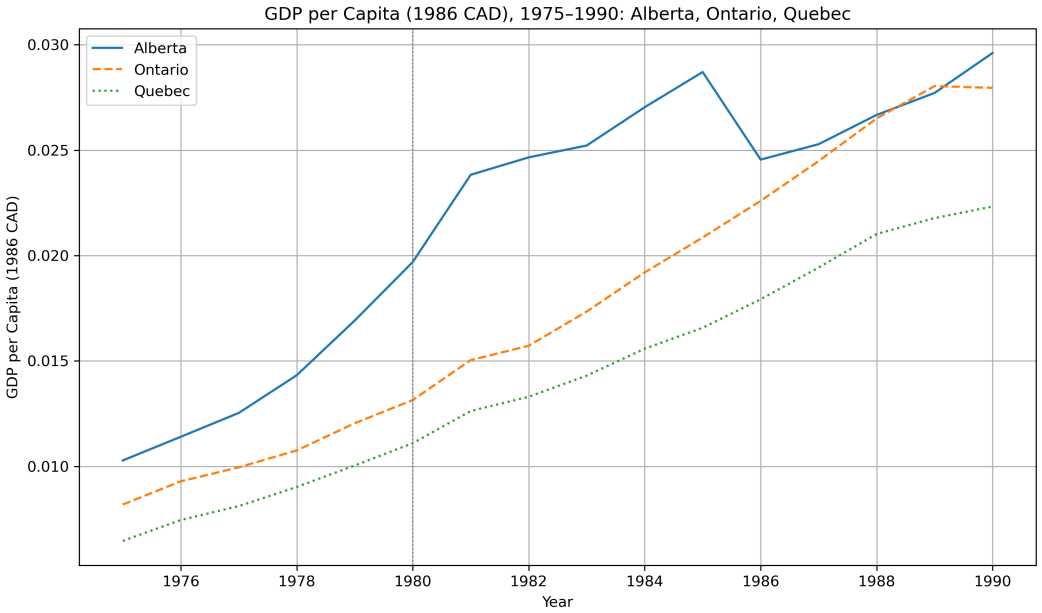

Figure 1: GDP per Capita (1986 CAD), 1975–1990: Alberta, Ontario, Quebec.
Sources: StatCan Tables 36-10-0222-01, 17-10-0005-01, 18-10-0005-01.

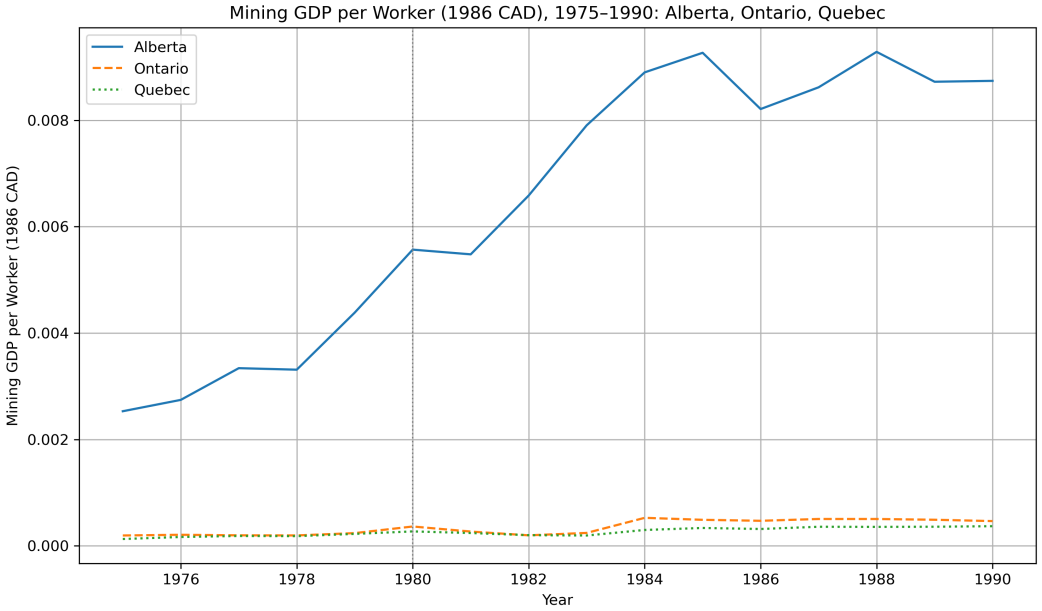

Figure 2: Mining GDP per Worker (1986 CAD), 1975–1990: Alberta, Ontario, Quebec.
Sources: StatCan Tables 36-10-0222-01, 17-10-0005-01, 18-10-0005-01.

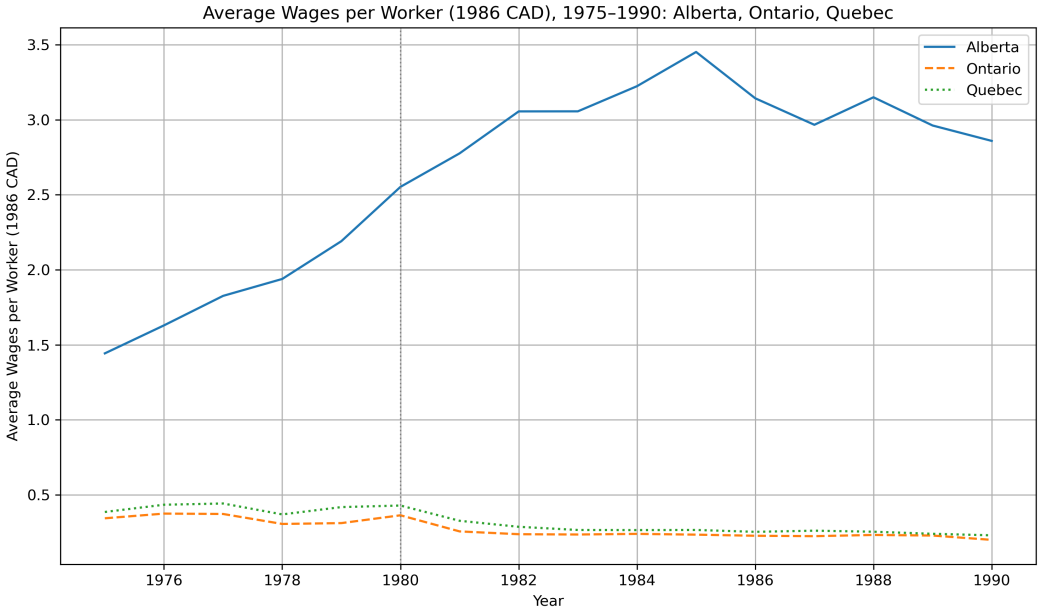

Figure 3: Average Wages per Worker (1986 CAD), 1975–1990: Alberta, Ontario, Quebec.
Sources: StatCan Tables 36-10-0222-01, 17-10-0005-01, 18-10-0005-01.

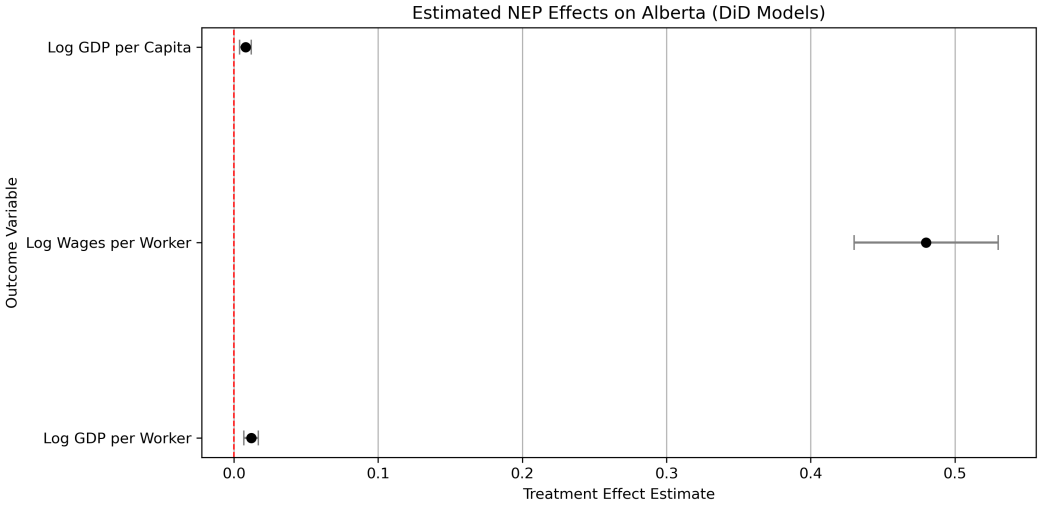

Figure 4: Estimated NEP Effects from Difference-in-Differences Models.
Notes: This figure reports average treatment effects for log GDP per worker and log wages per worker, based on a two-way fixed effects DiD specification with macroeconomic controls. Estimates reflect Alberta's deviation relative to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

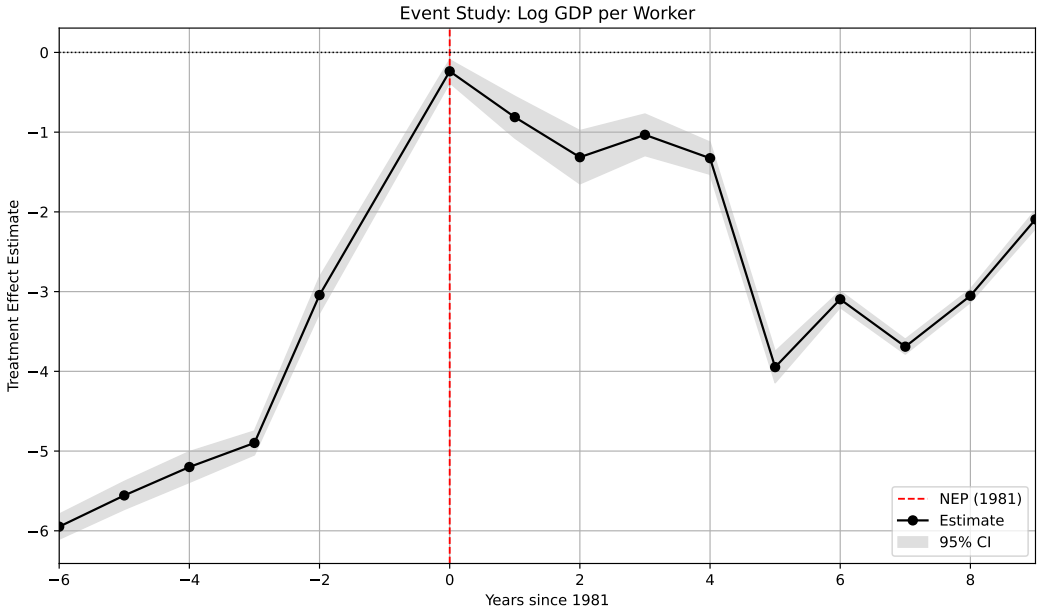

Figure 5: Event Study: Log GDP per Worker.
Source: Author's calculations using StatCan and FRED data. Treatment year is 1981.

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

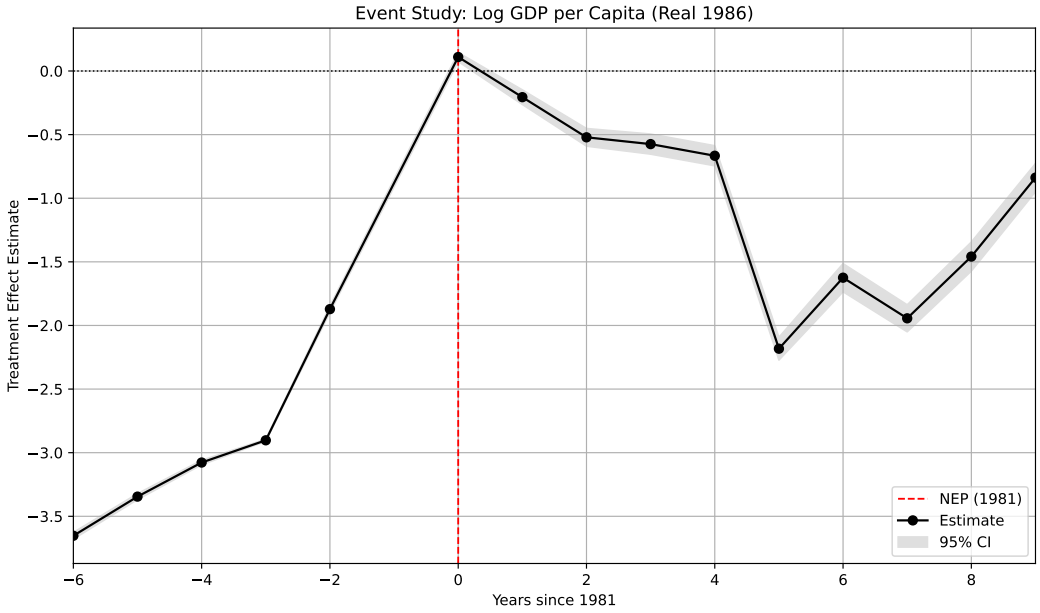

Figure 7: Event Study: Log GDP per Capita (1986 CAD).
Source: Author's calculations using StatCan and FRED data. Treatment year is 1981.

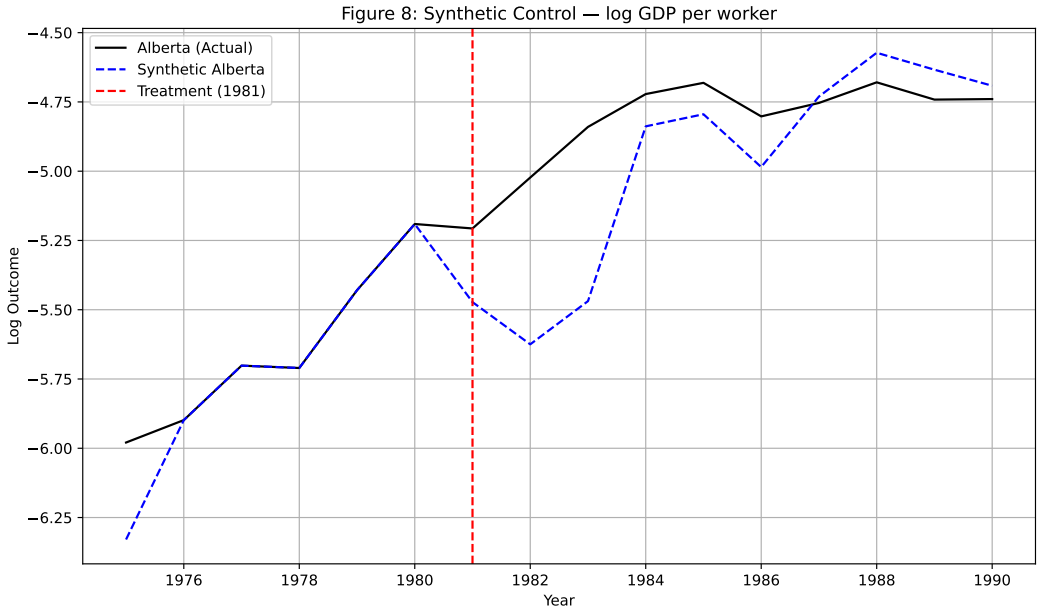

Figure 8: Synthetic Control: Log GDP per Worker — Alberta vs. Synthetic Alberta.

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

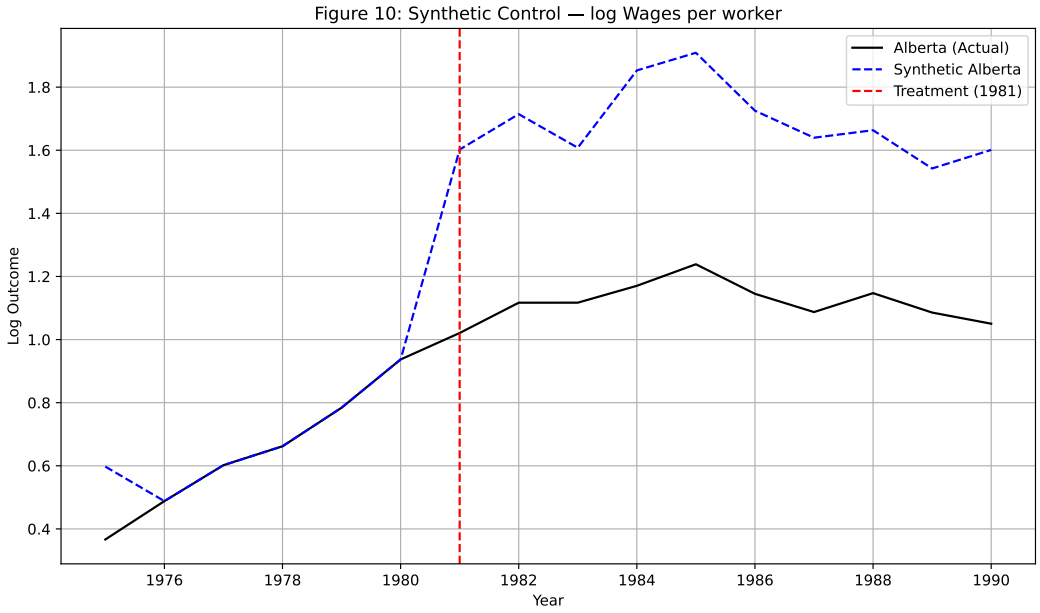

Figure 10: Synthetic Control: Log Wages per Worker — Alberta vs. Synthetic Alberta.

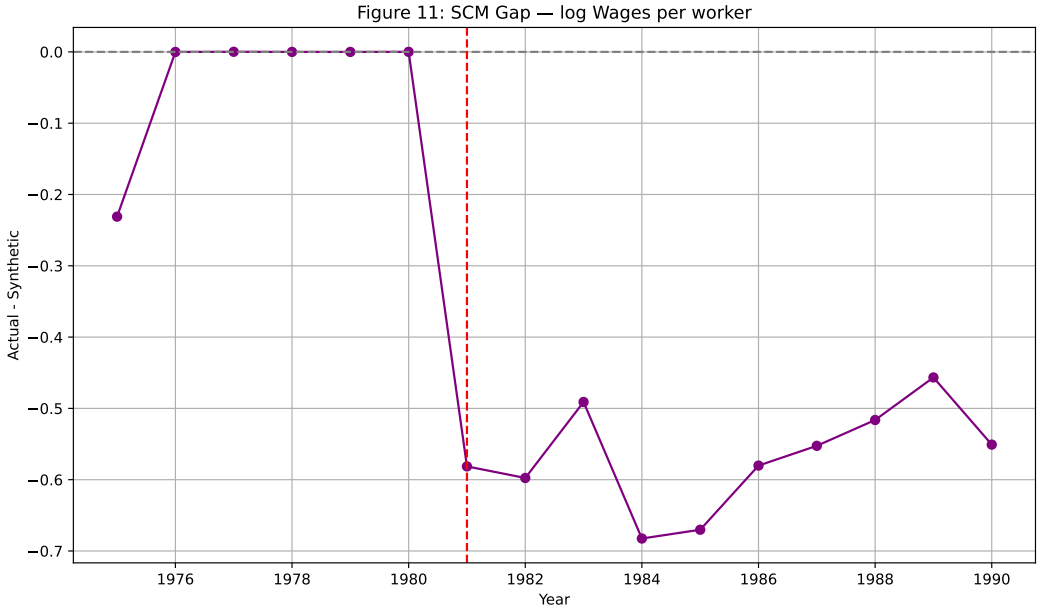

Figure 11: SCM Gap Plot: Log Wages per Worker — Difference Between Alberta and Synthetic Control.

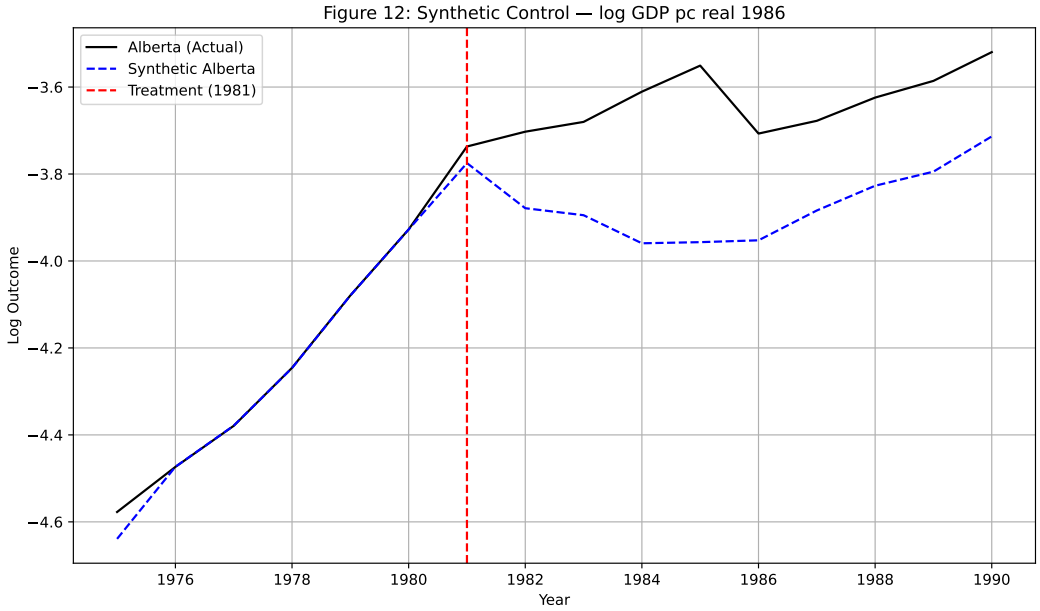

Figure 12: Synthetic Control: Log GDP per Capita (1986 CAD) — Alberta vs. Synthetic Alberta.

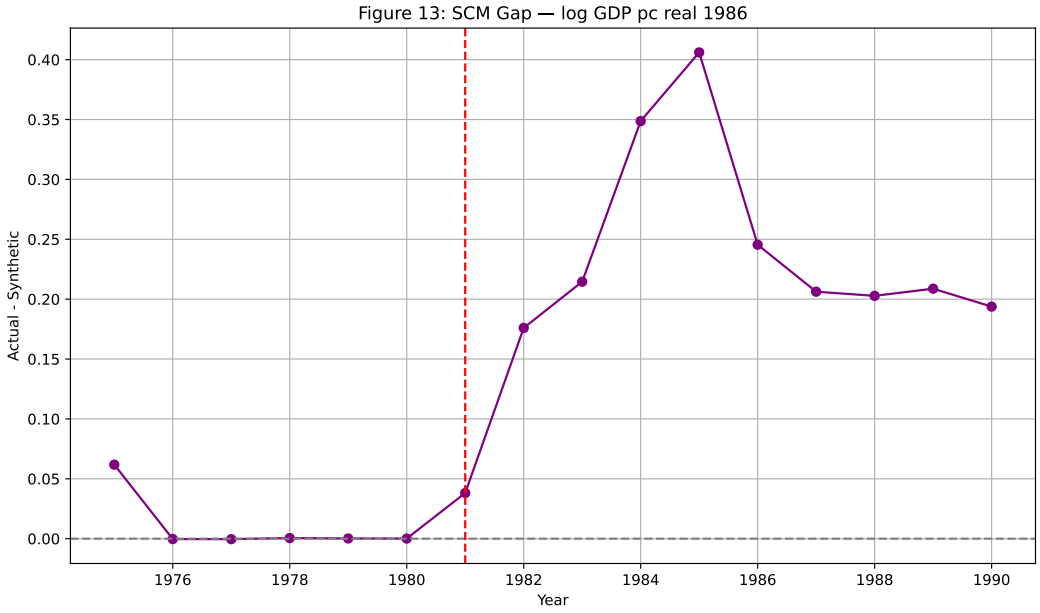

Figure 13: SCM Gap Plot: Log GDP per Capita (1986 CAD) — Difference Between Alberta and Synthetic Control.

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 $\times$ 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

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