Evaluating Post-IRA Shifts in Medicare Part D Enrollment

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Abstract

Medicare is the federal health insurance program for older adults and some disabled beneficiaries. Part D is its outpatient prescription drug benefit. Medicare Part D offers two ways to obtain drug coverage. Beneficiaries can enroll in a stand alone Prescription Drug Plan that covers drugs only, or in a Medicare Advantage plan that bundles medical and drug benefits and often provides stronger financial protection. High out of pocket risk in Part D creates pressure to shift toward integrated coverage. The Inflation Reduction Act reduces catastrophic exposure and expands subsidies, which theory predicts will raise the relative appeal of Medicare Advantage drug plans.This paper asks whether national enrollment timing changes during the IRA implementation period and whether a structural break appears at the start of the 2024 coverage cycle. I use national monthly enrollment data from 2013 to 2025 and track shifts around the staged implementation timeline. Using trend descriptions, interrupted time series, and event time comparisons, I find that PDP share falls by about 1.6 percentage points and MA–PD share rises by about 1.6 percentage points relative to projected pre policy trends in the 2024 decision period. Placebo cutoffs in earlier years show smaller or no breaks, which is consistent with IRA timing. The design documents timing patterns only and cannot separate IRA effects from plan exits, marketing cycles, or other market forces that move together with policy. The results show that reductions in financial risk correlate with faster movement toward integrated coverage, which matters for how insurance design shapes beneficiary behavior.

1 Introduction

Policy changes that alter financial risk can reshape insurance demand. Medicare Part D operates in this environment. More than fifty million beneficiaries rely on the program for drug coverage. Private plans manage every enrollee. Medicare Advantage penetration has grown from about thirty percent of beneficiaries in 2013 to more than fifty percent today. Several forces drive this growth. Integrated plans pool risk across medical and drug spending. They often offer more predictable out of pocket costs. Plan consolidation has reduced PDP availability over time. Marketing and plan quality improvements have increased the visibility of integrated products. These forces create strong background movement that must be considered when studying enrollment changes during policy reform.

Beneficiaries choose between stand alone PDPs and integrated MA PD plans. This structural choice changes exposure to financial risk. A first set of studies shows that beneficiaries respond to these differences. Cline et al. (2010) show that higher expected drug spending increases the probability of selecting integrated coverage. Trish et al. (2025) find that MA PD plans offer more stable cost sharing and lower variation in liability. Other work shows that catastrophic protection shapes plan value when drug use is uncertain. These findings establish that liability exposure affects plan choice.

A second set of studies shows that responsiveness is limited. Heiss, McFadden, and Winter (2013) document that many beneficiaries leave large savings unclaimed because plan choice is complex. Afendulis, Sinaiko, and Frank (2015) find that inertia keeps many beneficiaries in dominated plans. Braun et al. (2018) show that low health literacy reduces the probability of selecting cost-efficient plans. These frictions weaken behavioral responses to financial incentives. They also complicate interpretation of any observed enrollment shifts.

The Inflation Reduction Act introduces major changes to Part D between 2023 and 2025. The law caps insulin and vaccine copayments. It expands low income subsidies. It removes catastrophic coinsurance. It sets a two thousand dollar limit on annual drug spending. These provisions lower expected liability for many beneficiaries. The reforms raise the relative value of integrated coverage. They also occur during a period of strong market trends and declining PDP availability. Distinguishing policy timing from background forces is therefore essential.

The literature has studied long run growth in Medicare Advantage enrollment, but it has not examined whether enrollment shifts align with the years when catastrophic protection and subsidy expansions become relevant for coverage decisions. Prior work does not test whether discrete timing breaks appear during IRA implementation. The gap concerns timing rather than levels. We do not know whether the start of the 2024 coverage cycle marks a structural break in enrollment shares.

This paper addresses this gap by studying national monthly enrollment from 2013 to 2025. The goal is to detect whether a structural break appears around the 2024 decision

period. The analysis describes trends, short run dynamics, and placebo timing. It reports patterns only. It does not identify causal effects. It evaluates whether enrollment timing changes during IRA implementation in a way that aligns with shifts in expected financial protection.

2 Data

The analysis uses CMS Medicare Monthly Enrollment data from January 2013 to August 2025. The files report county by month enrollment. I sum these counts to build a national monthly series. This yields 152 observations for PDP enrollment, MA PD enrollment, and total Part D enrollment.

Shares standardize for changes in total enrollment. PDP share equals PDP enrollment divided by total Part D enrollment. MA PD share equals MA PD enrollment divided by total Part D enrollment. PDP share falls from about sixty four percent in 2013 to about forty two percent in 2025. MA PD share rises in the opposite direction.

The national level shows the average shift in coverage structure. It does not capture local price differences or plan availability. Results cannot isolate geographic drivers or plan exits. The data do not include a check for structural breaks before IRA. The files are subject to routine CMS revisions, so timing should be interpreted with caution.

3 Methods

This section explains the empirical strategy. The unit of analysis is national monthly enrollment shares. The goal is to test whether national enrollment patterns shift at the moment when Inflation Reduction Act provisions become relevant for plan choice. The design uses three complementary tools. Trends show long run movement. Interrupted time series tests for changes in level and slope. Event time and placebo cutoffs test whether the timing of the shift is unique to the policy period. The analysis detects descriptive timing patterns. It does not estimate a causal effect.

3.1 Data construction

The dataset comes from monthly CMS Medicare enrollment files from January 2013 to August 2025. I aggregate county records to the national month level. I compute PDP share and MA–PD share as fractions of total Part D enrollment. The series forms a balanced monthly panel with one hundred fifty two observations.

3.2 Long run trends

I plot national PDP and MA–PD shares across the full period. I include a nonparametric smoother. These plots document the slow structural movement toward integrated MA–PD coverage. Trends establish context. They cannot identify timing.

3.3 Interrupted time series

I estimate an interrupted time series model with a cutoff at January 2024. This cutoff corresponds to the first open enrollment period in which beneficiaries choose plans under expectations of IRA liability caps and redesigned cost sharing. The model is

$$Y_t = \alpha + \beta_1 t + \beta_2 Post_t + \beta_3 (t \times Post_t) + \gamma_m + u_t \tag{1}$$

The outcome is the national enrollment share. The unit is month. Time begins in January 2013. $Post_t$ equals one at or after the cutoff. The term γ_m is a month fixed effect that absorbs seasonal enrollment patterns tied to the annual open enrollment cycle. The model tests whether the level or slope of national enrollment shares changes at the cutoff.

Serial correlation is likely because enrollment evolves smoothly over time. I correct standard errors using a Newey–West estimator with a twelve month lag. This lag length captures annual enrollment cycles and ensures valid inference under autocorrelation and heteroskedasticity.

A stable pre trend is required for interpretation. I test for an artificial break at January 2020 to assess internal consistency. The ITS estimand is the conditional mean shift at the cutoff. It captures descriptive timing rather than causal effects.

3.4 Local event time

I construct a local window around January 2024. Event time indexes each month relative to the cutoff. The window includes twelve months before and twelve months after. I plot average shares and local polynomial fits. This design highlights short horizon adjustment. It also tests whether the level shift persists.

3.5 Placebo cutoffs

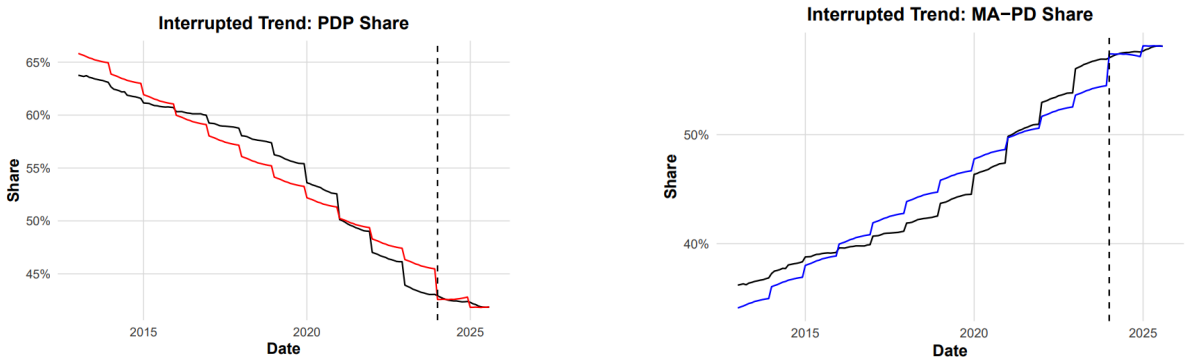
I re estimate the ITS model with cutoffs in January 2021 and January 2022. These dates precede IRA implementation and meaningful anticipation. The placebo tests assess whether similar breaks appear in non policy years. A credible timing pattern should show small placebo effects and a distinct shift only at the policy relevant cutoff.

4 Results

4.1 Interrupted Time Series Estimates

The interrupted time series graphs show estimates with month fixed effects and Newey–West standard errors. The January 2024 cutoff produces a clear level shift. PDP share declines by about 0.015 relative to its projected counterfactual path, and MA–PD share rises by about 0.015. These changes are large compared to typical month-to-month variation, which moves at roughly 0.001 per month. Slope changes are small, indicating that most of the adjustment occurs at the enrollment decision rather than through changes in monthly drift.

Figure 1 plots the observed monthly series with fitted counterfactual and post-cutoff paths. The divergence becomes visible only after removing seasonality and serial correlation. The fitted paths show a discrete and persistent break beginning in January 2024, while the raw trend alone does not reveal the shift.



(a) PDP share

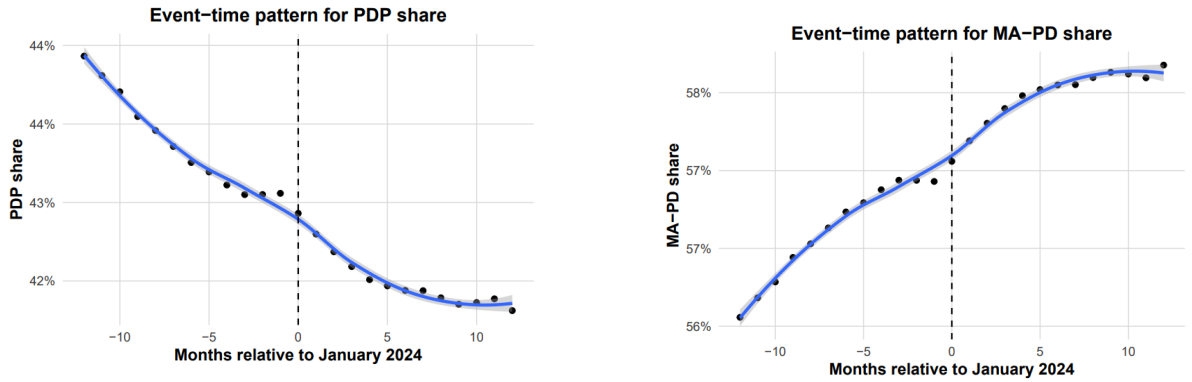
(b) MA–PD share

Figure 1: Interrupted time series fits with January 2024 cutoff. Observed series, counterfactual pre-period trend, and post-cutoff fitted path.

4.2 Event Time Dynamics

Figure 2 shows a twelve-month window around January 2024. PDP share is lower in every post-cutoff month than in the pre-period, and MA–PD shows the symmetric increase. Local polynomial fits indicate that the adjustment is smooth and persistent rather than a single-month jump. This pattern reflects a full-cycle enrollment response.

Table 1 summarizes the average shares before and after the cutoff. PDP share declines by 0.009 and MA–PD share rises by 0.009. These magnitudes align with the level changes estimated in the ITS model, reinforcing the evidence of a distinct timing break in early 2024.



(a) PDP share

(b) MA–PD share

Figure 2: Event-time patterns in PDP and MA–PD shares, twelve months before and after January 2024.

Table 1: Event-window averages, twelve months before and after January 2024.

Metric	Pre	Post	Change
PDP share	0.4338	0.4248	−0.0090
MA–PD share	0.5661	0.5751	+0.0090

4.3 Placebo Timing Tests

Table 2 presents placebo ITS estimates using January 2021 and January 2022 cutoffs, years without IRA implementation or anticipation. The estimated level shifts are small and inconsistent across outcomes. None approach the magnitude of the 2024 break. These placebo results indicate that the model does not generate artificial discontinuities in normal years, and that the January 2024 shift is specific to the policy period.

Table 2: Placebo interrupted time series estimates for PDP and MA–PD shares. Newey–West standard errors in parentheses.

Outcome	Jan 2021 cutoff	Jan 2022 cutoff
PDP share	0.0135 (0.0220)	-0.0439 (0.0245)
MA–PD share	-0.0131 (0.0221)	0.0445 (0.0246)

4.4 Synthesis

The three empirical tools provide consistent evidence. The interrupted time series model detects a discrete shift in early 2024. The event-time analysis shows that the adjustment

persists across the full enrollment window. Placebo years show no comparable timing break. Together these results document a clear and specific shift in enrollment timing during the period when IRA benefit provisions become relevant for coverage decisions. The design identifies timing patterns and does not estimate a causal effect.

5 Discussion

The timing pattern aligns with how financial protection changes under the IRA, but the estimates do not isolate a mechanism. Integrated MA PD plans become more attractive when expected drug liability falls. Standard insurance models predict stronger demand for plans that reduce variance in spending. Prior work on Medicare plan choice shows that beneficiaries respond to changes in catastrophic exposure, premiums, and drug coverage generosity. The observed timing aligns with these incentives. It indicates correlation between changes in expected liability and the moment when beneficiaries adjust their plan choices.

The timing evidence must be interpreted within the limits of the design. January always brings open enrollment adjustments, premium resets, plan exits, and marketing activity. These forces can produce discrete movements even without policy reform. Month fixed effects remove recurring seasonal structure, but they cannot remove one time shocks that coincide with policy dates. Premium changes, consolidation in PDP markets, updates to star rating bonuses, and shifts in plan quality can also influence enrollment decisions. These factors remain plausible alternative explanations.

The smooth adjustment within the enrollment cycle suggests that beneficiaries respond to expected rather than contemporaneous changes. IRA provisions roll out in stages across 2023, 2024, and 2025. Each stage lowers expected risk in integrated coverage. A gradual shift is consistent with this schedule. The evidence shows alignment between policy timing and enrollment movements. It does not quantify a continuous ramp or distinguish policy driven changes from correlated market shifts.

The placebo tests strengthen the timing argument but do not establish a mechanism. They show that the same model does not produce large breaks in earlier years. This reduces the likelihood of recurring January shocks as the sole explanation. It does not rule out other forces that evolve in parallel with IRA reforms. Timing alone cannot distinguish policy incentives from coincident changes in plan supply or beneficiary characteristics.

The mechanism suggests heterogeneous responses. Beneficiaries with high expected drug spending should place greater value on integrated plans when catastrophic rules change. The current data do not allow testing of this prediction. Further work could link enrollment changes to variation in patient risk, plan quality, and local availability. Such tests would help separate a risk protection response from consolidation trends within PDP markets.

These findings document temporal alignment between changes in financial protection and enrollment choices. They show that beneficiaries adjust at the point where IRA provisions become relevant for plan selection. They do not isolate a causal effect. The analysis identifies timing patterns and their consistency with insurance incentives, while acknowledging alternative explanations that remain plausible.

6 Limitations

This analysis documents timing patterns but cannot separate the influence of IRA reforms from long run structural shifts in the Part D market. MA enrollment has grown steadily for a decade. Premium changes, plan consolidation, and star rating incentives have also increased MA value during the study period. These forces may account for part of the observed movement. The results cannot isolate their contribution.

The interrupted time series design reduces seasonal noise through month fixed effects, but these controls do not address non stationary trends or correlated shocks. The central challenge is that January brings multiple changes that recur each year. Marketing, plan exits, and premium resets can all shift enrollment at the same moment as IRA implementation. Their effects cannot be removed by standard controls.

Inference is also limited by the timing of the IRA itself. The policy rolls out in stages over several years. The design cannot isolate which provision, if any, drives the timing break. The estimates reflect correlation between implementation periods and enrollment movements rather than responses to specific policy components.

The interpretation relies on assumptions about how beneficiaries form expectations. Information diffusion may lag policy changes. Communication by plans and brokers may shape timing as much as changes in financial protection. The data do not identify these channels.

Statistical uncertainty remains. The level shifts occur during a period of secular movement toward MA. The slope estimates have wide confidence intervals. The magnitudes must be interpreted in relation to long run trends rather than as stand alone effects.

These limitations rank the main threats. Secular MA growth and annual market cycles pose the strongest challenges. The results therefore identify timing patterns rather than policy driven behavioral responses.

7 Conclusion

The results show continued movement toward integrated MA PD coverage, with a noticeable shift during the period of IRA implementation. The timing aligns with changes in expected liability and benefit design, but the estimates cannot determine whether policy reforms drive

this movement. The evidence documents correlation between IRA implementation and the enrollment cycle rather than a causal effect.

The interrupted time series model detects a discrete shift once seasonal structure and serial correlation are addressed. The event time analysis shows that the adjustment is sustained across the enrollment window. The placebo checks show that similar timing breaks do not appear in earlier years. These patterns are consistent with an interpretation based on changes in financial protection, although other market forces may contribute.

The economic logic suggests that integrated plans gain value when catastrophic exposure falls. The data cannot test whether high risk beneficiaries respond more strongly. Further work with micro level data is needed to link individual characteristics, plan attributes, and market structure to observed timing. This would help separate a risk based response from parallel consolidation within PDP markets.

The findings illustrate how enrollment timing may align with changes in benefit design during the IRA rollout. They add descriptive evidence to the literature on Medicare plan choice. Future research with richer variation in risk, geography, and plan supply is required to distinguish policy related responses from secular market trends.

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