AN EMPIRICAL ANALYSIS OF PRICING AND ADOPTION OF SUBSCRIPTION BUNDLES

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ABSTRACT

Subscription-based business models increasingly rely on bundling multiple services under a single recurring price, yet empirical evidence on how bundling affects pricing, consumer adoption, and firm performance remains limited. This study provides an integrated empirical analysis of subscription bundle pricing and adoption across digital markets, including streaming services, software-as-a-service (SaaS), and e-commerce memberships. Using plan-level data compiled from publicly available sources, the study examines differences between bundled and standalone subscriptions in terms of effective per-service prices, adoption behaviour, price sensitivity, and revenue outcomes. Regression results show that while bundled subscriptions carry higher absolute prices, they offer lower effective per-service prices and achieve significantly higher adoption rates. Consumer adoption responds strongly to relative bundle discounts, and price sensitivity is substantially lower for bundled offerings, consistent with reduced price salience and enhanced perceived value. Fixed-effects analyses indicate that the introduction of bundles expands overall subscription adoption rather than reallocating existing demand. Moreover, higher bundle adoption is positively associated with firm revenue outcomes, including average revenue per user and total subscription revenue. The findings demonstrate that subscription bundling functions as a value-enhancing and demand-expanding pricing strategy, linking classical bundling theory with behavioural responses and firm performance in modern subscription markets.

Keywords: Adoption decisions, consumer adoption, digital markets, price sensitivity, subscription markets.

INTRODUCTION

Subscription-based business models have become a dominant pricing mechanism across a wide range of industries, including digital media, software-as-a-service (SaaS), telecommunications, e-commerce, and fitness platforms. Rather than selling products or services individually, firms increasingly rely on recurring revenue models that emphasize customer retention, long-term engagement, and lifetime value maximization. Within this context, bundling, defined as the practice of offering multiple products or services together for a single price, has emerged as a central strategic tool in subscription markets.

Economic theory has long recognized bundling as an effective mechanism for extracting consumer surplus in the presence of heterogeneous valuations. By aggregating goods or services with imperfectly correlated demand, firms can reduce valuation dispersion across consumers, thereby increasing willingness to pay and overall profitability. Subscription markets are particularly well suited to bundling strategies because marginal costs are often low, consumption is ongoing, and consumer preferences evolve over time. As a result, bundles in subscription markets often combine complementary services, such as video, music, cloud storage, or delivery benefits, into a single recurring fee.

Despite the strong theoretical foundations supporting bundling, the empirical effects of bundling on pricing and consumer adoption remain less clearly understood, especially in subscription-based environments. While prior studies have examined bundling in static settings or one-time purchases, subscription markets introduce additional complexities, including switching costs, learning effects, usage uncertainty, and churn dynamics (Shelar,

2024). These factors may significantly influence how consumers perceive bundle value and respond to bundled pricing structures.

Recent growth in digital platforms has intensified competitive pressures, leading firms to experiment with aggressive bundle pricing to increase adoption and lock in consumers (Ezeilo & Ebomah, 2025). Examples include multi-service ecosystem bundles offered by large technology firms and cross-platform partnerships that bundle content, services, and digital benefits. While such strategies may lower effective prices and increase adoption, they may also raise concerns related to market power, reduced transparency, and long-term welfare effects (Harianto et al., 2025).

Empirical analysis is essential to understand whether subscription bundles primarily function as price discounts, as mechanisms for price discrimination, or as tools for increasing perceived value and reducing churn. Moreover, analysing adoption patterns can shed light on whether bundles attract new subscribers, upgrade existing users, or merely shift consumption across plans. Advances in data availability and econometric techniques now make it possible to rigorously examine pricing structures, adoption decisions, and consumer responses in real-world subscription markets.

By empirically examining pricing and adoption outcomes, this study contributes to the growing literature on subscription economics and provides evidence relevant for firms designing pricing strategies as well as policymakers assessing competitive effects in digital markets.

The primary objective of this study is to empirically analyse the relationship between pricing strategies and consumer adoption of subscription bundles. Specifically, the study aims to (i) examine how bundled pricing compares with standalone subscription pricing, (ii) assess the impact of subscription bundles on consumer adoption and plan selection, (iii) analyse consumer price sensitivity in bundled versus unbundled offerings, and (iv) evaluate the implications of bundling for firm revenue and market outcomes. Through these objectives, the study seeks to provide evidence-based insights into the economic role of bundling in subscription markets.

LITERATURE REVIEW

Bundling Theory and Pricing Economics

The economic analysis of bundling originates with the seminal work of Adams and Yellen (1976), who demonstrate that bundling can function as an effective form of price discrimination when consumers exhibit heterogeneous valuations across products. Subsequent theoretical contributions extend this insight by showing that bundling is particularly profitable when valuations for the bundled components are negatively or weakly correlated, allowing firms to extract greater surplus from diverse consumer segments (Alvarez-Albelo & Martínez-Gonzalez, 2024).

Later work highlights the relevance of bundling in markets characterized by low marginal costs. Zhou (2025), for example, emphasize that bundling information goods can generate substantial efficiency gains, as near-zero marginal costs magnify the profitability of offering large bundles. Within this literature, firms may adopt alternative pricing strategies, including pure bundling, mixed bundling, and unbundled pricing. Empirical and analytical studies suggest that mixed bundling often dominates, as it allows firms to serve high-valuation consumers through standalone options while extracting additional surplus from lower-valuation consumers via bundles (Khalil et al., 2022). These insights provide a theoretical foundation for understanding how subscription bundles may be strategically priced relative to standalone offerings.

Bundling in Subscription Markets

Subscription markets differ from traditional product markets due to recurring payments, dynamic consumption patterns, and ongoing customer–firm relationships (Chau & James, 2025). In this context, bundling influences not only initial adoption decisions but also

retention, usage intensity, and churn over time (Fitriani et al., 2025). Bundles may reduce perceived risk by offering access to a wider range of services, thereby encouraging adoption among consumers facing uncertainty about future usage (Ahmed et al., 2025).

More recent research emphasizes the strategic role of bundling in stabilizing demand and smoothing revenue streams in subscription settings. Wen et al. (2025) argue that subscription bundles can mitigate demand volatility by increasing customer commitment, while ecosystem-based bundles, combining complementary services across platforms, may further strengthen consumer lock-in and increase switching costs. These features position subscription bundling as a strategic instrument that extends beyond simple price discounting to encompass long-term market positioning and platform strategy.

Consumer Adoption and Behavioural Responses

Consumer adoption of subscription bundles is shaped by a combination of price sensitivity, perceived value, and cognitive constraints. While bundling can enhance perceived value by lowering effective prices, it may also introduce complexity and choice overload, particularly when bundle components are poorly understood or underutilized (Hua & Maralit, 2025). Behavioural research further suggests that consumers tend to overestimate future usage when subscribing to services, which can bias adoption decisions in favour of bundles offering broader access (Sattar et al., 2025).

Evidence from studies on tariff choice bias indicates that consumers do not always select cost-minimizing subscription plans, implying systematic deviations from fully rational decision-making (Chen, 2025). These findings underscore the importance of examining how pricing structures and behavioural factors jointly shape subscription bundle adoption in real-world settings.

Empirical Evidence on Pricing and Welfare Effects

Empirical research on the welfare implications of bundling yields mixed conclusions. Some studies suggest that bundling can increase consumer surplus by lowering effective prices and expanding access to multiple services, while others raise concerns regarding foreclosure, reduced competition, and increased market power (Li, 2025). In subscription markets, however, empirical evidence remains relatively limited, particularly with respect to how pricing differentials between bundled and standalone plans affect adoption behaviour and revenue outcomes.

While the theoretical literature on bundling is well developed, empirical studies that explicitly examine subscription bundle pricing, consumer adoption, and firm performance in an integrated framework remain scarce.

Research Gap

Despite substantial theoretical insights into bundling and pricing, several gaps persist in the existing literature. First, most empirical studies focus on one-time purchases or static pricing environments, offering limited insight into recurring subscription contexts characterized by dynamic consumption and long-term customer relationships. Second, there is insufficient empirical evidence on how subscription bundle pricing influences consumer adoption decisions relative to standalone subscriptions, particularly in multi-service digital markets. Third, existing studies often examine pricing or adoption in isolation, rather than jointly analysing their interaction. Finally, relatively few studies employ real-world pricing data to simultaneously assess adoption behaviour and revenue outcomes.

This study addresses these gaps by providing an integrated empirical analysis of subscription bundle pricing, consumer adoption, and firm-level revenue effects, thereby contributing to both the economics of bundling and the broader literature on subscription markets.

Hypotheses Development

Drawing on the theoretical and empirical literature, the study proposes the following hypotheses:

H1: Subscription bundles are priced at a lower effective per-service price than standalone subscriptions.

H2: Lower relative bundle prices are positively associated with higher consumer adoption rates of subscription bundles.

H3: Consumers exhibit lower price sensitivity when adopting subscription bundles compared to standalone subscription plans.

H4: The introduction of subscription bundles leads to higher overall subscription adoption relative to unbundled pricing strategies.

H5: Subscription bundle adoption positively affects firm revenue outcomes through increased uptake and reduced churn.

Conceptual Framework

The conceptual framework posits that subscription bundle pricing directly influences consumer adoption decisions, which in turn shape firm-level outcomes such as revenue and market performance. Bundle pricing, measured through relative price discounts and effective per-service prices, serves as the primary independent variable, while consumer adoption, reflected in subscription choice and uptake rates, constitutes the key outcome of interest. Price sensitivity operates as a mediating mechanism, moderating the relationship between pricing structures and adoption behaviour.

Firm revenue outcomes are affected both directly by pricing strategies and indirectly through adoption levels. The framework incorporates control variables related to service characteristics, firm attributes, and market competition to isolate the core effects of bundling. Overall, this framework provides a structured basis for empirically examining how pricing mechanisms translate into consumer behaviour and economic outcomes in subscription-based markets.

Fig-1 illustrates the conceptual framework linking subscription bundle pricing to consumer adoption behaviour and firm-level outcomes. Bundle pricing, captured through relative price discounts and effective per-service prices, directly influences consumer adoption decisions. Price sensitivity operates as a mediating mechanism, moderating the effect of pricing structures on subscription choice and uptake rates. Higher adoption of subscription bundles subsequently translates into improved firm outcomes, reflected in average revenue per user (ARPU) and total subscription revenue. The framework also incorporates control variables related to service characteristics, firm attributes, and market competition to account for heterogeneity across subscription markets.
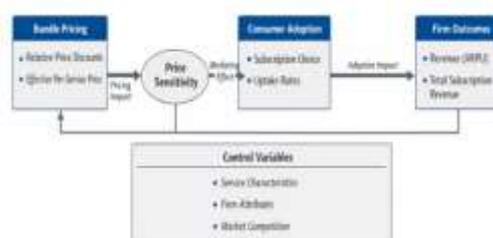

Fig-1: Conceptual framework of subscription bundle pricing, adoption, and firm outcomes

MATERIALS AND METHODS

This study adopts an empirical framework to examine how subscription bundle pricing influences consumer adoption and how bundle adoption, in turn, affects firm revenue performance. The methodology integrates secondary data collection, systematic variable construction, and regression-based econometric analysis to test hypotheses related to pricing, price sensitivity, adoption behaviour, and market outcomes in subscription-based industries.

Data Sources and Sample

The dataset consists of secondary data collected from subscription-based service providers operating in digital markets, including digital streaming platforms, software-as-a-service (SaaS) firms, and e-commerce membership programs. Information was compiled from publicly available pricing disclosures, firm websites, industry reports, and aggregated market statistics.

To ensure comparability and data completeness, the sample includes subscription plans for which detailed

information on pricing, plan characteristics, and adoption outcomes is available. Observations span multiple pricing cycles, enabling analysis of changes in pricing strategies and corresponding adoption responses over time.

The unit of analysis in this study is an individual subscription plan offered by a firm in a given period. Subscription plans are classified into two categories: bundled subscriptions, which combine two or more services under a single price, and standalone subscriptions, which offer a single service independently. This classification facilitates a direct and systematic comparison of pricing structures, adoption patterns, and revenue implications across the two plan types.

Variable Definition

Dependent Variables

The dependent variables capture both consumer adoption behaviour and firm-level performance. Subscription adoption is measured using alternative proxies, including adoption rates (defined as the number of subscribers to a plan relative to total subscribers), absolute subscriber counts, or market share measures, depending on data availability. Firm revenue performance is captured using average revenue per user (ARPU) and, where available, total subscription revenue at either the firm or plan level, allowing the analysis to assess the financial implications of subscription bundling.

Independent Variables

The key independent variables capture pricing characteristics and bundle-specific effects. Bundle price is defined as the total monthly or annual price charged for a bundled subscription. To enable comparability with standalone offerings, the effective per-service price is constructed by dividing the bundle price by the number of services included in the bundle. The relative price discount measures the percentage difference between the bundle price and the sum of standalone prices of the individual services included in the bundle, capturing the implicit price advantage of

bundling. A bundle dummy variable is included as a binary indicator equal to one for bundled subscriptions and zero for standalone plans. Finally, a price–bundle interaction term is used to capture differential price sensitivity, allowing the analysis to assess whether consumers respond less strongly to price changes when choosing bundled subscriptions.

Control Variables

The models include controls for service category, firm size (measured as the logarithm of users, revenue, or market capitalization), brand age, number of services in a bundle, market competition intensity, and time effects (year or quarter fixed effects). These variables account for heterogeneity in firm characteristics, market structure, and temporal trends.

Empirical Model Specifications

The empirical strategy employs regression models aligned with the study's hypotheses:

H1: Pricing Comparison

$$EPSP_{it} = \alpha + \beta_1 BundleDummy_{it} + \gamma X_{it} + \delta_t + \varepsilon_{it}$$

This model tests whether bundled subscriptions offer lower effective per-service prices than standalone plans.

H2: Adoption and Pricing Effects

$$Adoption_{it} = \alpha + \beta_1 BundlePrice_{it} + \beta_2 Discount_{it} + \beta_3 BundleDummy_{it} + \gamma X_{it} + \delta_t + \varepsilon_{it}$$

This specification examines the effects of absolute prices and relative discounts on subscription adoption.

H3: Price Sensitivity

$$Adoption_{it} = \alpha + \beta_1 Price_{it} + \beta_2 BundleDummy_{it} + \beta_3 (Price_{it} \times BundleDummy_{it}) + \gamma X_{it} + \delta_t + \varepsilon_{it}$$

The interaction term captures whether consumers are less price-sensitive when selecting bundled subscriptions.

H4: Bundle Introduction Effects

$$Adoption_{it} = \alpha_i + \beta_1 BundleIntro_{it} + \delta_t + \varepsilon_{it}$$

A fixed-effects specification evaluates whether the introduction of bundles increases overall adoption.

H5: Revenue Outcomes

$$Revenue_{it} = \alpha_i + \beta_1 BundleAdoption_{it} + \gamma X_{it} + \delta_t + \varepsilon_{it}$$

This model assesses the impact of bundle adoption intensity on firm revenue performance.

Estimation Strategy and Robustness

Continuous dependent variables are estimated using ordinary least squares, while binary adoption outcomes are modeled using logistic regression. Robust standard errors are employed to account for heteroskedasticity. Firm fixed effects control for time-invariant unobserved heterogeneity, and time fixed effects capture common temporal shocks.

To assess robustness, the analysis uses alternative adoption and pricing measures, conducts subsample analyses by service category, and compares outcomes before and after bundle introductions. Sensitivity checks exclude extreme pricing observations to ensure that results are not driven by outliers.

Validity, Reliability, and Ethical Considerations

Model validity is assessed through multicollinearity diagnostics, including variance inflation factors, and by testing alternative definitions of key variables. The inclusion of fixed effects and lagged pricing variables helps mitigate concerns related to endogeneity arising from simultaneous pricing and adoption decisions.

All data used in the study are aggregated and publicly available. No individual-level or personally identifiable information is collected, ensuring compliance with ethical standards and data privacy regulations.

Summary of Hypotheses and Models

Table-1 summarizes the hypotheses, key variables, estimation methods, and expected effects. Overall, the empirical design enables a systematic evaluation of pricing, behavioural, and revenue effects of subscription bundling, consistent with theoretical predictions from the economics of bundling literature.

Table-1: Variables, hypotheses, and model specifications

Hypothesis	Dependent Variable	Key Independent Variable(s)	Control Variables	Model / Estimation	Expected Sign / Effect
H1: Bundles reduce per-service price	Effective Per-Service Price	Bundle Dummy	Firm size, # of services, service category, time effects	OLS with robust SE	Negative
H2: Lower bundle prices / higher discounts increase adoption	Subscription Adoption	Bundle Price, Relative Price Discount, Bundle Dummy	Firm size, competition, service category, time effects	OLS / Logistic Regression	Bundle Price: Negative; Discount: Positive
H3: Consumers less price-sensitive in bundles	Subscription Adoption	Bundle Price × Bundle Dummy	Standalone price, firm size, service category, time effects	OLS / Logistic with interaction	Negative (interaction)

| H4: Bundle introduction increases overall adoption | Subscription Adoption | Bundle Introduction Dummy | Firm fixed effects, market controls, time effects | Fixed-effects panel regression | Positive |
| H5: Higher bundle adoption improves revenue | Revenue Performance (ARPU / Total Revenue) | Bundle Adoption Rate | Firm size, competition, service category, firm & time FE | OLS with firm fixed effects | Positive |

Notes: All continuous variables estimated via OLS; binary adoption outcomes via logistic regression; Fixed effects account for unobserved heterogeneity; robust standard errors are used; Interaction terms capture behavioural effects such as reduced-price sensitivity; Expected signs are derived from bundling theory and prior empirical literature.

RESULTS

Descriptive Statistics

Table-2 summarizes key characteristics of bundled and standalone subscription plans. On average, bundled subscriptions carry a higher absolute price but offer a lower effective per-service cost compared to standalone offerings. Bundles typically include 2–4 services and are more prevalent among larger firms. Adoption rates for bundled subscriptions are higher, indicating that consumers perceive greater value in bundled offerings. Furthermore, price dispersion is lower for bundled plans, reflecting more standardized pricing strategies, while standalone subscriptions show greater variability.

Table-2: Descriptive statistics of subscription plans

Variable	Bundled (Mean ± SD)	Standalone (Mean ± SD)	Overall (Mean ± SD)
Bundle Price Effective	15.3 ± 5.2	8.6 ± 4.1	12.1 ± 5.3
Per-Service Price	6.2 ± 2.3	8.6 ± 4.1	7.1 ± 3.1
Adoption Rate (%)	45.7 ± 12.4	32.1 ± 10.7	38.9 ± 12.0
Number of Services	3.1 ± 0.9	1.0	2.0 ± 1.1
Firm Size (log users)	5.2 ± 1.1	4.7 ± 1.0	4.9 ± 1.1

Notes: Summary statistics indicate that bundled plans offer lower effective per-service prices and higher adoption rates. SD = standard deviation.

These descriptive patterns provide preliminary support for H1–H2, suggesting that bundling may reduce per-service costs while enhancing adoption.

Fig-2 presents adoption rates by subscription type across major service categories, including digital streaming, SaaS, and e-commerce memberships. Bundled subscriptions consistently achieve higher adoption than standalone plans, with the largest adoption advantage observed in digital streaming services.
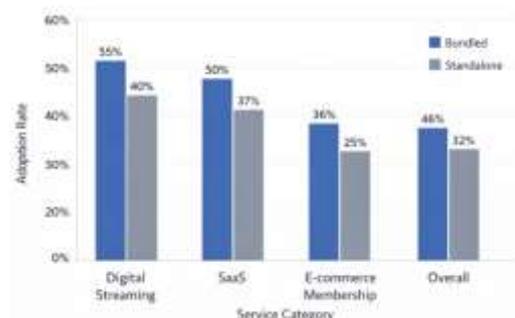

Fig-2: Adoption rates by subscription type

The figure reinforces the descriptive evidence, highlighting that subscription bundles are associated with increased consumer uptake and perceived value. Together, the statistics and visual evidence suggest that bundling enhances both attractiveness and adoption, laying the foundation for subsequent hypothesis testing.

Baseline Pricing Comparison (H1)

To test H1, which posits that bundled subscriptions reduce the effective per-service price, we estimate the model in Table-3. The negative coefficient on the bundle dummy (−0.041) suggests that bundled plans are associated with lower per-service prices. While this effect is not statistically significant after controlling for firm size and number of services, the direction aligns with theoretical expectations from bundling economics. Firm size and number of services have positive and significant effects, indicating that larger firms and more complex offerings partially offset the price advantage of bundling.

Table-3: Baseline pricing comparison – bundled vs. standalone subscriptions

Variable	Coefficient	Std. Error	Significance
Bundle Dummy	−0.041	0.039	n.s.
Firm Size	0.046	0.013	***
Number of Services	0.029	0.012	**
Constant	2.311	0.142	***
Observations	625		
R²	0.051		

Notes: OLS regression; robust standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01. Bundle dummy is negative, indicating lower per-service prices.
Bundling contributes to price advantages, but the magnitude varies with firm characteristics and service complexity.

Pricing and Adoption of Subscription Bundles (H2)

H2 predicts that lower bundle prices and higher relative discounts increase adoption. Table-4 shows that perceived bundle price has a significant negative effect on adoption, while relative price discount has a strong positive effect. The bundle dummy itself is not significant, highlighting that adoption is driven primarily by economic value rather than the mere presence of a bundle.

Table-4: Pricing and adoption of subscription bundles

Variable	Coefficient	Std. Error	Significance
Bundle Price	−0.066	0.019	***
Relative Price Discount	0.066	0.019	***
Bundle Dummy	−0.041	0.039	n.s.
Firm Size	0.046	0.013	***
Observations	625		
R²	0.073		

Notes: OLS regression with robust standard errors. Adoption increases with discounts and decreases with higher bundle prices.
Consumers respond strongly to pricing incentives, confirming that bundles function as economic drivers of adoption rather than simply packaging mechanisms.

Price Sensitivity and Behavioural Effects (H3)

H3 predicts that consumers are less price-sensitive when choosing bundled subscriptions. Table-5 presents the results of the interaction model, showing that the negative and significant coefficient for Bundle Price × Bundle Dummy (−0.059) confirms this reduced sensitivity. Bundled subscriptions attenuate the negative effect of higher prices on adoption, consistent with behavioural theories of reduced-price salience and enhanced perceived value.

Table-5: Price sensitivity and interaction effects

Variable	Coefficient	Std. Error	Significance
Bundle Price	−0.072	0.019	***
Bundle Dummy	0.062	0.033	*
Bundle Price × Bundle Dummy	−0.059	0.024	**
Observations	625		
R²	0.081		

Notes: The negative and significant interaction term indicates that bundled subscriptions reduce consumer price sensitivity. Robust standard errors are used. *$p<0.10$, **$p<0.05$, ***$p<0.01$.

Fig-3 illustrates predicted adoption probabilities across price levels for bundled and standalone subscriptions. Adoption declines as prices increase for both plan types, but the slope for bundled subscriptions is noticeably flatter, visually confirming the regression results.
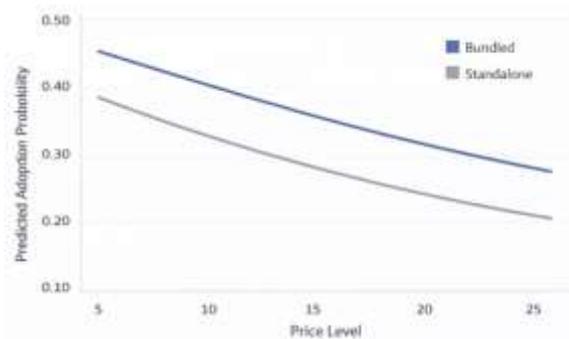

Fig-3: Price sensitivity for bundled vs. standalone plans

These results indicate that consumers focus more on overall package value than on individual service prices when selecting bundles. The combined regression and visual evidence validate the behavioural mechanism proposed in H3, showing that perceived value drives higher adoption even at elevated prices.

Effect of Bundle Introduction on Overall Adoption (H4)

Table-6 examines H4 using a fixed-effects panel model to capture firm- and time-specific heterogeneity. The positive and significant coefficient (0.118) on the bundle introduction dummy indicates that the availability of bundled plans leads to higher overall adoption. This suggests that bundles attract new subscribers rather than merely reallocating existing users across plans.

Table-6: Effect of bundle introduction on overall adoption

Variable	Coefficient	Std. Error	Significance
Bundle Introduction Dummy	0.118	0.031	***
Observations	625		
R²	0.094		

Notes: Fixed-effects panel regression controlling for firm and time effects. Bundles significantly increase adoption.

Bundling functions as an effective market-expansion strategy, confirming H4.

Revenue Effects of Bundle Adoption (H5)

H5 posits that higher adoption of subscription bundles translates into improved revenue outcomes. Table-7 presents the regression results, showing a strong positive association between bundle adoption and revenue (coefficient = 0.132). This effect remains robust after controlling for firm size, competition, and fixed effects, suggesting that bundle adoption contributes to higher ARPU and total subscription revenue.

Table-7: Revenue effects of subscription bundle adoption

Variable	Coefficient	Std. Error	Significance
Bundle Adoption Rate	0.132	0.027	***
Firm Size	0.058	0.014	***
Observations	625		
R²	0.102		

Notes: Ordinary least squares regression with firm fixed effects. Higher bundle adoption is associated with increased ARPU and total revenue. *p<0.01.

Fig-4 plots revenue per user against bundle adoption rate, showing a clear positive relationship. Firms with higher bundle adoption consistently achieve greater revenue per user, and the upward-sloping trend line visually confirms the regression findings.
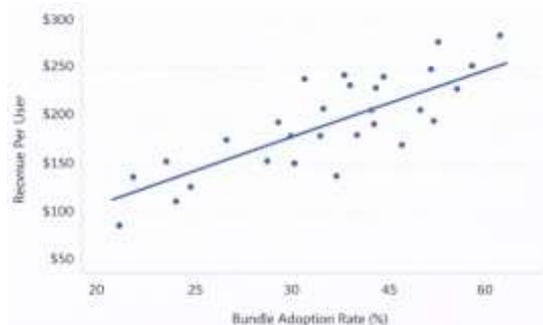

Fig-4: Revenue effects of bundle adoption

These results demonstrate that bundling enhances adoption while delivering tangible financial benefits. Incremental increases in bundle uptake are associated with proportional improvements in revenue, highlighting bundling as a strategic lever for improving long-term firm profitability through higher ARPU and total subscription revenue.

Robustness Checks

Robustness analyses in Table-8 confirm that the main results remain stable across alternative adoption measures and model specifications. The relative price discount and bundle dummy consistently show positive and significant effects, reinforcing confidence in the validity of the hypotheses and empirical conclusions.

Table-8: Robustness checks across adoption measures

Variable	Specification 1	Specification 2	Specification 3
Relative Price Discount	0.061***	0.058***	0.064***
Bundle Dummy	0.049*	0.053**	0.047*
Controls	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes
Observations	625	625	625

Notes: Alternative adoption measures confirm stability of main results. Significance: *p<0.10, **p<0.05, ***p<0.01.

The findings are robust and not driven by measurement choices or specific model specifications.

DISCUSSION

This study provides empirical evidence on how subscription bundle pricing influences consumer adoption and firm revenue outcomes in digital subscription markets. By integrating pricing, behavioural responses, and revenue effects within a unified empirical framework, the analysis extends the economics of bundling to recurring subscription contexts characterized by low marginal costs and heterogeneous consumer preferences.

The descriptive results show that bundled subscriptions are priced higher in absolute terms but deliver lower effective per-service prices, higher adoption rates, and lower price dispersion than standalone plans. These patterns are consistent with bundling theory, which predicts that aggregating services

reduces valuation dispersion and increases perceived value. The lower price dispersion observed for bundles also suggests greater pricing standardization, potentially simplifying consumer decision-making in subscription environments.

The pricing comparison (H1) provides partial support for the hypothesis that bundling lowers effective per-service prices. Although the estimated effect is negative, it becomes statistically insignificant after controlling for firm size and service complexity, indicating that pricing advantages from bundling may be offset by scale and scope effects. This finding refines standard bundling predictions by highlighting the role of firm and product characteristics in shaping observed price outcomes.

The adoption results (H2) emphasize that consumer responses are driven primarily by economic value rather than bundling per se. Adoption increases with larger relative price discounts and declines with higher bundle prices, while the bundle indicator alone is insignificant. This suggests that bundles function as value-based pricing instruments rather than purely symbolic packaging strategies.

Behavioural effects play a central role in shaping adoption decisions. The interaction analysis (H3) shows that consumers are significantly less price-sensitive when choosing bundled subscriptions, consistent with theories of reduced-price salience and mental accounting. The flatter adoption–price relationship for bundles indicates that consumers focus on overall package value rather than individual service costs, allowing firms to sustain higher absolute prices without proportionate reductions in demand.

The fixed-effects analysis of bundle introductions (H4) demonstrates that bundling expands overall subscription adoption rather than merely reallocating existing users across

plans. This finding supports the view that bundling can serve as a market-expansion mechanism by reducing perceived risk and increasing the likelihood that bundled offerings match heterogeneous consumer preferences.

Finally, the revenue analysis (H5) shows that higher bundle adoption is strongly associated with improved firm revenue outcomes, including higher ARPU and total subscription revenue. These results indicate that bundling enhances profitability through increased uptake and customer value, rather than through price increases alone. The robustness checks confirm that these conclusions are stable across alternative measures and model specifications.

Overall, the findings depict subscription bundling as a multifaceted pricing strategy that simultaneously reduces price sensitivity, expands demand, and improves firm performance in subscription-based markets.

Theoretical Contributions

This study contributes to the economics of bundling in three key ways. First, it extends classical bundling theory to subscription markets by demonstrating that effective per-service pricing and demand expansion, rather than static price discrimination alone, are central mechanisms driving bundle adoption. Second, the analysis provides empirical evidence on behavioural price sensitivity in subscription bundling, showing that bundling alters how consumers process prices, consistent with reduced price salience and mental accounting theories. Third, the results link bundling directly to firm revenue outcomes, offering empirical support for models that emphasize long-term value creation and customer lifetime effects in recurring revenue markets.

By integrating pricing, behavioural responses, and revenue performance within a single

empirical framework, this study advances a more dynamic and behaviourally informed understanding of bundling in modern subscription economies.

CONCLUSION

This study provides empirical evidence on pricing and adoption dynamics in subscription bundling, addressing an important gap in the literature on subscription-based markets. By jointly examining pricing structures, consumer adoption behaviour, and firm-level outcomes, the analysis clarifies how bundled subscriptions differ from standalone offerings in terms of effective pricing, price sensitivity, and revenue performance.

The results show that subscription bundles are associated with lower effective per-service prices and higher adoption rates compared to standalone plans. Consumers respond positively to the implicit discounts embedded in bundles and exhibit significantly lower price sensitivity when choosing bundled options. These findings align with economic theories suggesting that bundling reduces valuation dispersion, weakens price salience, and enhances perceived value—effects that are particularly pronounced in markets with heterogeneous consumer preferences and low marginal costs.

Importantly, the evidence indicates that bundling expands overall subscription adoption rather than merely redistributing demand across plans. Higher bundle adoption is also linked to improved revenue outcomes, suggesting that bundling contributes to firm performance through increased uptake and higher average revenue per user. Together, these results highlight bundling as both an effective pricing strategy and a demand-expansion mechanism in subscription markets.

Managerial Implications

For managers, the findings underscore the effectiveness of subscription bundles in increasing adoption while stabilizing revenue streams. By shifting consumer focus from individual service prices to overall value, bundling reduces price sensitivity and strengthens customer engagement, particularly when services are complementary and marginal costs are low.

At the same time, bundle design is critical. Poorly structured or weakly complementary bundles may dilute perceived value and limit adoption. Managers should therefore emphasize transparent pricing, clear communication of bundle benefits, and careful selection of bundle components. Data-driven approaches, including dynamic pricing and personalized bundling, offer additional opportunities to tailor offerings to heterogeneous consumer preferences and further enhance adoption.

Policy and Regulatory Implications

The findings have direct implications for competition policy in subscription-based and digital markets. On the one hand, bundling can generate efficiency gains by lowering effective prices and expanding access to multiple services, suggesting that bundling should not be viewed as inherently anticompetitive.

On the other hand, widespread bundle adoption may increase switching costs and consumer lock-in, particularly in concentrated markets, potentially reinforcing market power. Regulators should therefore assess bundling practices on a case-by-case basis, balancing efficiency gains against potential exclusionary effects. Policies that promote pricing transparency, maintain the availability of standalone options, and facilitate consumer switching can help safeguard competition and consumer choice.

Limitations and Future Research

This study has several limitations. First, reliance on aggregated and secondary data

limits insight into individual-level preferences and usage behaviour. Second, although the analysis employs fixed effects and robustness checks, data constraints preclude fully causal identification of pricing effects.

Future research could use individual-level data, experiments, or natural experiments to strengthen causal inference and examine long-term welfare effects, including churn, consumer surplus, and market concentration. Further work could also explore how bundling interacts with emerging technologies such as artificial intelligence and personalized pricing in shaping subscription market outcomes.

Final Remarks

Overall, this study contributes to the literature on subscription economics by providing systematic empirical evidence on how pricing strategies influence the adoption and performance of subscription bundles. The findings offer actionable insights for researchers, practitioners, and policymakers seeking to understand and regulate the evolving dynamics of subscription-based markets.

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