

Business Model Responses to Consumer Circumvention: Lessons from Piracy Applied to VPN-Enabled Geo-Arbitrage

ABSTRACT

A concise summary of the motivation, the mixed-methods design (DSPI, CATA, Netnography), key findings regarding the conflict between segmentation and circumvention, and the theoretical implications for Business Model Innovation.

Kapitel 1: Einleitung

Defines the core problem and outlines the research path.

1.1. Theoretical Foundations

- **Motivation:** The globalization of digital services (e.g., Netflix, Spotify) clashes with the corporate strategy of strict international price differentiation.
- **Conflict:** This creates a tension that leads to consumer-side circumvention technologies (e.g., VPNs), enabling digital "Geo-Arbitrage."
- **Historical Parallel:** This dynamic mirrors previous market disruptions, such as the conflict between Napster and the music industry.

1.2. Problem Statement

- The tension between geographic market segmentation and technical circumventability challenges the economic viability of established business models.
- Firms are forced to choose between "Coercive" (blocking/banning) and "Adaptive" (price harmonization) strategies—a process of Business Model Innovation (BMI) driven by consumer behavior.

1.3. Research Questions (RQs)

- RQ1 (The Economic Incentive): To what extent does international price differentiation for digital services deviate from Purchasing Power Parity (PPP), and what magnitude of economic incentive does this create for consumer-driven geo-arbitrage?
- RQ2 (The Strategic Response): How do digital service providers strategically frame the issue of circumvention, and to what extent can a shift towards coercive or adaptive business model responses be measured in their corporate disclosures over time?
- RQ3 (The Real-World Viability): To what extent are these enforcement strategies effective in practice, as shown by the changing viability and success rates of consumer-side circumvention attempts?

1.4. Thesis Structure

- Overview of the following chapters.

Chapter 2: Theoretical Foundations

- Constructs the theoretical lens for the analysis.
- ### **2.1. Economic Foundations of International Pricing**
- Third-Degree Price Discrimination (Varian).
 - Purchasing Power Parity (PPP) as a benchmark for fairness (Rogoff).
 - Geo-blocking as a technical enforcement mechanism for segmentation.

2.2. Consumer-Driven Arbitrage (Geo-Arbitrage)

- Consumer motivations: Price sensitivity vs. Content access.
- Comparison with digital piracy as an analogous form of market disruption.

2.3. Strategic Management and Business Model Innovation (BMI)

- The Business Model Concept (Value Proposition, Capture, Delivery).
- Transaction Cost Economics (TCE): "Search Costs" vs. "Enforcement Costs."

- Strategic Archetypes and BMI frameworks (Foss & Saebi) as responses to disruptive market forces.

2.4. Research Gap

- Lack of a standardized metric to measure digital price dispersion (Need for DSPI).
- Lack of empirical connection between pricing data and measurable strategic responses (CATA) in the context of geo-arbitrage.

Chapter 3: Research Methodology

- Details the rigorous mixed-methods research design.

3.1. Research Design

- Triangulation of three data sources: Quantitative Price Data (Firm Action), Qualitative Text Data (Firm Rhetoric), Netnographic User Data (Consumer Reality).

3.2. Phase 1: Quantitative Price Analysis (for RQ1)

- Data Collection: Systematic VPN-controlled price sampling across 10-12 countries (High/Middle/Low Income). Reference: Cavallo (2017).
- Data Analysis: Calculation of the Digital Services Price Index (DSPI) to normalize prices against PPP. Assessment of interface barriers ("Traffic Light Score").

3.3. Phase 2: Corporate Strategy Analysis (for RQ2)

- Data Collection: Compilation of a longitudinal text corpus (Terms of Service, Shareholder Letters) for the periods 2020 vs. 2024/25. Reference: Loughran & McDonald (2011).
- Qualitative Analysis: Identification of strategic frames (e.g., "Security Risk" vs. "Revenue") using the Gioia Method.
- Quantitative Analysis (CATA): Computer-Aided Text Analysis using frequency dictionaries (e.g., counting "Litigious" vs. "Economic" vocabulary) to measure strategy shifts. Reference: Short et al. (2010).

3.4. Phase 3: Netnographic Viability Analysis (for RQ3)

- Data Collection: Purposive sampling of Reddit threads (e.g., r/NetflixViaVPN) from 2020 and 2024. Reference: Kitchens et al. (2018).
- Data Analysis: Coding of user reports into "Success" vs. "Failure/Ban" categories to measure the practical effectiveness of firm enforcement.

Chapter 4: Results

- Presents the empirical findings objectively.

4.1. The Economic Incentive: DSPI Findings

- Visualization of price deviations (e.g., "Netflix Turkey offers a 70% real-term discount").
- Heatmap of technical entry barriers (SMS verification, Payment blocks).

4.2. The Strategic Response: Framing and CATA Metrics

- Qualitative: Analysis of strategic frames used by firms (Shift from "Fairness" to "Security").
- Quantitative: Results of the Dictionary Analysis (e.g., "200% increase in coercive terminology since 2020").

4.3. The Reality Check: Netnography Findings

- Comparison of consumer success rates in 2020 vs. 2024.
- Empirical evidence of ex-post enforcement (Account Bans) that were not visible in the DSPI analysis.

Chapter 5: Discussion

- Synthesizes findings and connects them back to theory.

5.1. Synthesis: Strategic Archetypes in the Geo-Arbitrage Conflict

- Development of a service typology (e.g., "The Fortress" vs. "The Globalist").

- Classification of examined services (Netflix, Spotify, Steam) into these clusters based on Price Gap (DSPI) and Aggressiveness (CATA).

5.2. Interpretation of Findings

- Discussion of the discrepancy between Corporate Framing (Security) and Economic Motive (Profit).
- Interpretation of "Effectiveness": Can firms permanently stop geo-arbitrage, or only increase the Transaction Costs (TCE)?

5.3. Theoretical & Managerial Implications

- Extending BMI Theory to include "Consumer Circumvention" as a driver for innovation.
- Managerial recommendations (Price harmonization vs. Technical arms race).

5.4. Limitations

- Focus on ex-ante barriers in price collection.
- Use of Netnography as a proxy for ex-post ban data.

Chapter 6: Conclusion

6.1. Summary of Key Findings: Concise answers to RQ1, RQ2, and RQ3.

- Recap of the Conflict:
- Answer to RQ1
- Answer to RQ2
- Answer to RQ3 (The Reality)

6.2. Contribution to Research: Validation of the DSPI metric and the CATA approach for measuring strategic shifts.

- Extending Price Discrimination Theory:
- BMI
- Methodological Contribution:
- Limitations

6.3. Future Research: Expansion to other industries or impact of regulations (e.g., EU Geo-blocking Regulation).

- Regulatory Impact
- The "Cat and Mouse" Dynamic
- Consumer Ethics