Pricing in Social Media Contexts: Non Linear Pricing

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Introduction

Non-linear pricing models are pricing schemes where the cost per unit changes depending on the quantity purchased, rather than remaining constant as in *linear* (per-unit) pricing. These models are common in utilities, telecom, software subscriptions, and increasingly in online platforms because they allow firms to capture more value, encourage higher consumption, or segment customers based on willingness to pay.

1 Advertising Platforms

Advertising Platforms (Facebook, Instagram, TikTok, YouTube): Digital advertising platforms like Facebook, Instagram, TikTok, and YouTube frequently use nonlinear pricing models. One common method is **Block/Tiered Pricing**, which offers volume-based discounts to advertisers. Those who purchase a small number of impressions may face a higher effective **CPM** (cost per thousand impressions), while bulk ad purchases reduce the unit price.

Example:

Impressions Range	Cost per 1,000 Impressions (CPM)
0 – 100,000	$15
100,001 – 500,000	$12
500,001+	$9

Another model is the **Two-Part Tariff**, where advertisers pay a fixed monthly account fee (like LinkedIn premium for marketers) in addition to variable costs based on ad clicks or impressions. More on this topic will be discussed later in this handout.

Influencer Marketing

Influencer marketing utilizes a **Nonlinear Payment for Reach**, meaning influencers do not charge advertisers in a simple linear way per follower. The cost curve is nonlinear, reflecting differences in engagement, trust, and audience quality between influencer tiers.

Example:

- Micro-influencers (10k–50k followers) might charge $100 per post.
- Macro-influencers (500k–1M followers) might charge $10,000, a rate that is not directly proportional to their larger follower count.

The price an influencer charges isn't based on a simple ”cost per follower.” Instead, it follows a nonlinear curve because brands are paying for different types of value at each tier. The key factors that create this curve are **engagement rate**, **audience trust**, and **conversion potential**.

2 Why the Value Isn't Linear

A linear model would mean an influencer with 1,000,000 followers is always 100 times more valuable than one with 10,000. This is rarely true. Here’s why:

Engagement Decay: As an influencer's audience grows, their average engagement rate (likes, comments, shares per follower) almost always drops. A smaller, tight-knit community is more likely to interact with content. It's the difference between a lively discussion in a classroom versus a handful of people clapping in a giant stadium.

Niche Authority & Trust: Smaller influencers are often seen as more authentic experts or peers. Their recommendation feels like advice from a trusted friend. A celebrity endorsement feels like a paid advertisement. This trust directly impacts an audience's willingness to purchase a product.

Audience Quality: A micro-influencer might have a highly concentrated audience of a specific demographic (e.g., rock climbers in California), which is extremely valuable to a niche brand. A macro-influencer's audience is often much broader and less targeted, containing many people who are not the brand's ideal customer.[3]

Specific Examples Across Tiers: Influencers

Let's break down the pricing and value proposition for different types of influencers.

Nano-Influencer (1,000 – 10,000 Followers)
These influencers have the highest engagement rates and a deep, personal connection with their followers. They are masters of a hyper-niche or a local community.

Example Scenario: A home chef in Austin, Texas, with 8,000 followers who posts daily about using local farm-share ingredients.

Cost:$75 - $200 per post.

Value Proposition: A local organic grocery store pays them $150 for a post. While the reach is small, nearly everyone who sees it is in the right city and has a demonstrated interest in local, organic food. The **ROI is incredibly high** because the audience is perfectly targeted, and the influencer's recommendation is highly trusted.

Micro-Influencer (10,000 – 100,000 Followers)

This is often considered the sweet spot for combining decent reach with strong engagement and authenticity. They are seen as credible experts in their niche.

Example Scenario: A tech reviewer with 90,000 subscribers on YouTube who specializes in budget-friendly gaming keyboards.

Cost: $500 - $2,500 per dedicated video.

Value Proposition: A new keyboard company pays them $2,000 for a review. The video gets 40,000 views from people actively looking to buy a gaming keyboard. The influencer's credibility drives hundreds of direct sales through an affiliate link, making the campaign **highly profitable for the brand**.

Macro-Influencer (100,000 – 1,000,000 Followers)

Here, the value begins shifting from niche conversion to broader brand awareness. They have significant reach, but their audience is more diverse, and engagement is lower.

Example Scenario: A travel and lifestyle blogger with 800,000 Instagram followers.

Cost: $8,000 - $15,000 per post.

Value Proposition: An international airline pays them $10,000 for a post featuring their new business-class cabin. The goal isn't necessarily immediate ticket sales but **brand association and visibility**. They want hundreds of thousands of people to see their brand associated with luxury travel. The cost-per-follower is lower than for a micro-influencer, making it a cost-effective way to achieve broad reach.

Mega-Influencer / Celebrity (1,000,000+ Followers)

This is about massive, top-of-funnel brand awareness, similar to a TV commercial. The relationship is purely transactional, and the audience knows it's a paid ad. **Top-of-funnel brand awareness (TOFU)** [1] is a strategy focused on reaching a mass audience to ensure the brand is widely recognized and stays "top-of-mind". This is the widest part of the funnel. The goal here is to attract a very broad audience and simply introduce them to your brand's existence and what it stands for. The focus is on massive reach, not direct sales.
Using a mega-influencer or celebrity is a common tactic for this, acting much like a large-scale TV commercial to achieve instantaneous, massive reach.

Example Scenario: A professional athlete with 15 million followers.

Cost: $150,000+ per post.

Value Proposition: A major beverage company like Gatorade pays them $200,000 for a single post. The brand is buying **instantaneous, massive reach and the celebrity's cultural relevance**. The per-follower cost might actually be *lower* than for a macro-influencer, but the overall budget is huge. The goal is to stay top-of-mind with a mass audience.

In summary, the price curve is nonlinear because the *job* of the influencer changes at each tier—from driving niche sales at the micro-level to creating mass-market brand awareness at the mega-level.

3 Subscription Models in Social Media Platforms

Social media platforms and associated tools often rely on subscription models with nonlinear pricing. **Two-**

Part Block Tariffs are evident in freemium models (e.g., LinkedIn Premium, X/Twitter Premium, YouTube Premium), which provide basic features for free but charge a fixed fee for access to advanced features or higher usage allowances. For example, LinkedIn Premium charges a monthly fee ($39.99/month) for more search credits and messaging capabilities beyond the free limit.

Tiered Pricing offers quantity discounts, a practice common among social media management tools like Buffer, Hootsuite, or Canva. The price per unit falls as the quantity increases.

Example:

- 3 social accounts: $15/month

[1] (**Bottom of the Funnel (BOFU): Conversion.** This is the narrowest part. Here, potential customers are ready to buy, and marketing efforts focus on closing the sale.)

- 10 social accounts: $50/month
- 25 social accounts: $120/month

4 Pay-Per-Performance Advertising

This model often involves **Nonlinear CPC (Cost-Per-Click) Bidding**. On platforms like Google Ads, Meta Ads, and TikTok Ads, advertisers participate in auctions where the cost per click is not linear. Instead, it depends on the bid amount, quality score, and competition. A small increase in a bid can lead to a disproportionately larger increase in impressions, resulting in a nonlinear payoff.

The Dynamics of Nonlinear CPC Bidding in Digital Advertising

In the landscape of digital advertising, particularly on pay-per-click (PPC) platforms like **Google Ads, Meta Ads, and TikTok Ads**, the relationship between an advertiser's bid and the resulting advertising outcome (such as impressions and clicks) is rarely linear. This phenomenon is best described as **Nonlinear CPC (Cost-Per-Click) Bidding**. This model is rooted in the complex auction-based systems these platforms use to determine which ads are shown and at what cost. Understanding this nonlinearity is crucial for advertisers to optimize their bidding strategies and maximize their return on investment (ROI). A simplistic view of "higher bid, higher placement" fails to capture the nuanced reality where a marginal increase in a bid can lead to a disproportionately large, or sometimes negligible, change in performance.

Core Concepts of the Auction Model

The final cost per click and an ad's position are not determined by the bid amount alone. Instead, they are the result of a dynamic auction that considers several factors, creating a nonlinear relationship.

1. Ad Rank and the Auction Mechanism
Most ad platforms use a variation of a second-price auction (or Vickrey-Clarke-Groves auction). An ad's position, or "Ad Rank," is typically calculated as:

$$\textit{Ad Rank} = \textit{Maximum CPC Bid} \times \textit{Quality Score}$$

The advertiser with the highest Ad Rank wins the top ad position. However, the actual CPC they pay is just enough to beat the Ad Rank of the advertiser below them.

$$\textit{Actual CPC} = \frac{\textit{Ad Rank of the Advertiser Below}}{\textit{Your Quality Score}} + \$0.01$$

This formula itself introduces nonlinearity. Your cost is dependent not just on your bid but on the bids and Quality Scores of your competitors.

2. The Critical Role of Quality Score

Quality Score is a metric used by platforms like Google to estimate the relevance and quality of an advertiser's ads, keywords, and landing pages. It typically comprises three main components:

- **Expected Click-Through Rate (CTR):** The likelihood that your ad will be clicked when shown.

- **Ad Relevance:** How closely your ad matches the intent behind a user's search.[2]
- **Landing Page Experience:** How relevant and useful your landing page is t[3]o someone who clicks your ad.

A high Quality Score can lead to a lower CPC and a better ad position. For example, an advertiser with a lower bid but a higher Quality Score can achieve a better position than a competitor with a higher bid and a poor Quality Score. This interaction is a primary source of nonlinearity.

3. The Impact of Competition

The competitive landscape is constantly in flux. The number of advertisers bidding on a particular keyword, their budget constraints, and their bidding strategies all influence the auction outcome. An increase in competition can drive up CPCs, while a competitor dropping out of an auction can dramatically lower them. This means that even with a constant bid and Quality Score, an advertiser's results can vary significantly.

The ”nonlinear payoff” refers to the situation where the output (e.g., impressions, clicks, conversions) does not change in direct proportion to the input (the CPC bid).

- **Threshold Effects:** There are often ”cliffs” or ”plateaus” in performance. An advertiser might see very few impressions with a bid of $1.00, but by increasing the bid to $1.10, they may cross a threshold that suddenly makes their ad eligible for a much larger volume of impressions. This is because the new bid, when multiplied by the Quality Score, surpasses a key competitor’s Ad Rank.
- **Diminishing Returns:** Conversely, once an advertiser has secured the top ad position, further increasing the bid may not lead to a significant increase in impressions or clicks. At this point, the advertiser is simply increasing their cost per click without a corresponding benefit, illustrating a point of diminishing returns.

5 Illustrative Examples

Here are some scenarios designed to test the understanding of nonlinear CPC bidding.

5.1 Scenario 1: The Quality Score Advantage

Two companies, **”GadgetGo”** and **”TechNow,”** are bidding on the keyword ”new smartphone.”

Advertiser	*Max CPC Bid*	*Quality Score*	*Ad Rank*
GadgetGo	$2.00	9/10	18.0
TechNow	$2.50	6/10	15.0

5.1.1 Questions:

1. Which company will get the higher ad position and why?
2. Calculate the approximate CPC that GadgetGo will pay to secure its position.
3. If TechNow wants to secure the top position, they can either increase their bid or improve their Quality Score. Advise TechNow on which strategy would be more cost-effective in the long run and explain your reasoning.

GadgetGo will pay approximately $**1.68 per click**.

Calculation: The actual CPC is calculated by taking the Ad Rank of the competitor below, dividing it by your own Quality Score, and adding $0.01. This demonstrates how a high Quality Score results in a "discount," allowing GadgetGo to pay significantly less than its maximum bid of $2.00.

5.2 Scenario 2: The Bidding Threshold

An e-commerce store, **"FashionForward,"** is advertising for "summer dresses." They notice the following pattern in their ad performance as they adjust their bids:

Max CPC Bid	Average Impressions/Day
$0.80	500
$0.90	650
$1.00	800
$1.10	3,500
$1.20	3,800

5.2.1 Questions:

1. Describe the relationship between the CPC bid and the number of impressions. Is it linear?
2. What do you believe is happening at the $1.10 bid level? Explain this "jump" in impressions using the concept of Ad Rank and competitive thresholds.
3. What would you advise **FashionForward** regarding their bid for this keyword? Should they bid more than $1.10? Justify your answer using the concept of diminishing returns.

The relationship is **nonlinear**. While a higher bid generally leads to more impressions, the increase is not proportional. As seen in the table, the jump in impressions from a $1.00 bid to a $1.10 bid (an increase of 2,700 impressions) is disproportionately larger than any other bid increase, demonstrating a nonlinear payoff. This "jump" happens because the store's **Ad Rank** (Maximum CPC Bid $\times$ Quality Score) surpassed that of a key competitor at that specific bid amount. Before this point, their Ad Rank was too low to win a significant volume of ad auctions. By increasing the bid to $1.10, they became eligible for a much larger pool of impressions, causing the sudden, dramatic increase in performance.

5.3 Scenario 3: Strategic Analysis

You are a digital business consultant for a small business that is new to Google Ads. Your client has a limited budget and wants to compete against larger, more established companies.
Develop a brief strategic plan for this client. Your plan should focus on how they can leverage the principles of the nonlinear CPC model to compete effectively without needing the largest budget. What should be their primary focus? (Hint: Think beyond just the bid amount).

5.3.1 Answer Hints:

Revisit the Core Formula: Remember that Ad Rank = Maximum CPC Bid × Quality Score. If the client cannot compete on the ”Maximum CPC Bid” part of the equation, where does that leave them to focus their efforts?

The Great Equalizer: The primary focus should be on maximizing Quality Score. A high Quality Score acts as a discount on the CPC and a multiplier for ad position. It’s the most powerful lever for a business with a limited budget.

Break Down ”Quality Score”: Don’t just say ”improve Quality Score.” What are its three main components? A strong answer will detail a strategy for each one:

> Expected Click-Through Rate (CTR): How can you write ad copy that is so compelling and relevant that it demands to be clicked? Think about strong calls-to-action (CTAs), highlighting unique selling propositions (USPs), and using ad extensions.
>
> Ad Relevance: This is about creating a seamless connection between the user’s search, your ad, and your landing page. How would you structure an ad campaign to ensure this? (Hint: Think about tightly-themed ad groups and avoiding broad, generic keywords).
>
> Landing Page Experience: What happens after the click? The best ad in the world is useless if the landing page is slow, confusing, or irrelevant. What specific elements on the landing page should be optimized? (Hint: Think about mobile-friendliness, clear messaging, and easy navigation).

Niche-Down Strategy: Instead of competing for broad, expensive keywords (e.g., ”shoes”), what if the client focused on more specific, long-tail keywords (e.g., ”waterproof hiking shoes for women size 8”)? How does this strategy help improve relevance, Quality Score, and ROI?

1. *Broad Keyword (”shoes”):* A user's intent is unclear. Are they looking for men's, women's, running, or dress shoes? It's difficult to create a relevant ad that satisfies everyone.
2. *Long-Tail Keyword (”waterproof hiking shoes for women size 8”):* The user's intent is crystal clear. You can create a hyper-relevant ad with a headline like ”Women's Waterproof Hiking Shoes in Size 8” that links directly to a page featuring that exact product. This seamless experience is highly relevant to the user.

The Bottom Line: A successful plan will conclude that by obsessively focusing on relevance and user experience to achieve a top-tier Quality Score, the small business can achieve a high Ad Rank and win auctions without having to outbid larger competitors. **Their budget is spent more efficiently, and their primary focus becomes quality and relevance, not spending power.**
One single price policy

6 Quantity discounts and Two-part Tariff

Online social media platforms employ a variety of sophisticated pricing strategies to monetize their vast user bases and cater to a diverse range of customers, from individual users to large corporations. Among these, the two-part tariff and quantity discount models are notable for their application in advertising, premium subscriptions, and creator tools.

6.1 Two-Part Tariff in the Social Media Sphere

A two-part tariff is a pricing strategy where a customer pays a fixed fee for access to a service and then a per-unit charge for its use. This model allows platforms to capture consumer surplus and segment their market effectively.
In the context of online social media, this pricing model manifests in several ways:

- Premium Subscriptions: A prime example is YouTube Premium. Users pay a fixed monthly subscription fee for an ad-free viewing experience, background playback, and access to YouTube Music. The ”variable” component can be seen in additional purchases a user might make, such as channel memberships, Super Chats, or movie rentals. Similarly, platforms like X (formerly Twitter) with its ”Premium” subscription and Snapchat with ”Snapchat+” offer enhanced features for a fixed monthly fee.

- Business and Creator Tools: Some platforms offer a baseline of free services for businesses and creators but charge for advanced features. For instance, a social media management tool might offer a free plan with limited analytics and scheduling capabilities (the ”free” fixed part for basic access) and then charge a subscription fee for more advanced features. The variable component could then be additional charges for extra users or connected accounts.

- Advertising Platforms (Conceptual Application): While not a pure two-part tariff, the structure of some advertising platforms has similar elements. An advertiser might need to meet a certain spending threshold or commit to a minimum budget (a quasi-fixed component) to access premium support or advanced advertising tools. The variable component is the ongoing cost of ad campaigns, which is based on metrics like clicks, impressions, or conversions.

6.2 Quantity Discounts on Social Media Platforms

Quantity discounts are a pricing strategy where the per-unit price of a product or service is reduced for larger volume purchases. This incentivizes users to spend more and is a common practice in the social media advertising and content creation ecosystem.
Examples within the social media domain include:

- Advertising Volume Discounts: Major social media platforms like Meta (Facebook and Instagram) and Google (YouTube) often provide incentives for large advertising expenditures. While not always publicly advertised with specific tiers, large advertisers and agencies who commit to significant ad spends frequently negotiate preferential rates, effectively receiving a quantity discount. This can come in the form of lower costs per impression or click, or access to dedicated account management and support.
- Social Media Management Tool Subscriptions: Third-party social media management platforms such as Sprout Social and Hootsuite explicitly use tiered, quantity-based pricing. Their subscription plans are often structured around the number of social media profiles managed, the number of users on the account, and the volume of scheduled posts. As businesses scale their social media efforts and require management of more accounts or a larger team, they move to higher-tiered plans that offer a lower cost per profile or user than if each were purchased individually.
- API Access for Developers: Social media platforms that offer API access for developers to build third-party applications often structure their pricing in tiers. A developer might get a certain number of free API calls per day, with pricing tiers that offer a progressively lower cost per call as the volume of calls increases. This encourages the development of more robust and popular applications on their platform.

In essence, while the consumer-facing side of social media often appears ”free,” the underlying business models for advertisers, creators, and developers frequently incorporate established pricing strategies like two-part tariffs and quantity discounts to drive revenue and cater to a wide spectrum of user needs and spending capabilities.

6.3 Implementation Ideas

6.3.1 One single price policy, a.k.a linear pricing

All customers pay one single price. No discounts allowed. Example: When you buy gas, your are charged the same price per gallon for one gallon or ten gallons. This is called linear pricing policy.

6.3.2 Quantity discounts

If customers buy $\leq$ CUTOFF units, they pay high price (HP) per unit, and if they buy >CUTOFF units, they pay low price (LP) per unit. CUTOFF is simply the “cutoff point at which the charged price changes. In the standard quantity discount set-up, Charge HP for the first CUTOFF units bought, and charge LP for remaining units bought. For example, you charge $10 per unit for first 1000 units and $8 per unit for remaining units bought.

6.3.3 Two-part Tariff

Closer to home, organizations such as SMUD, for example, find it convenient to give the consumer an incentive to purchase many units of energy by charging a fixed fee to purchase any number of units combined with a low constant per unit usage rate. The fixed fee is also maintained to pay for fixed costs incurred by SMUD to make power available to consumers. This method of nonlinear pricing is called a two-part tariff. To justify paying the fixed fee the customer needs to buy many units. Of course, the customer will not buy

any units whose unit cost exceeds the consumer's reservation price, so the organization must be careful to not charge a unit price that is too high.

6.4 Questions

Assume a social media company (say, YouTube) wants to determine how to maximize the profit earned from a user whose demand in units is given by $q = 20 - 2p$, where q is the demand and p is the price. It costs \$2 for Youtube to produce the unit and serve the unit to the user.

1. First, begin by assuming the company YouTube will use linear pricing; that is, charging the same price for each unit sold. What is the maximum profit that YouTube could achieve under this pricing policy?

2. By applying a quantity discount based pricing policy, could the profit be improved upon compared to the linear pricing model? If so, figure out the HP, LP, and CUTOFF values.

3. If two-part tariff policy is considered, what would the fixed fee and variable unit price values be so that YouTube's profits are maximized? Let us say YouTube is limited by competition to cap the fixed fee and variable rate at \$10.