Zero and the Economics of Information Market Failure

The Problem is Structure, not Persuasion

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Zero is at the root of information market failure and the flood of misinformation, disinformation, and malinformation (MDM). Efforts to correct MDM problems are often superficial and ineffective: people persuasion, content moderation, lessons in critical thinking, and exposure of falsehoods, as if closing the barn door after the fact is effective.

Zero is central to the problem. People think the information they consume costs nothing. News is perceived to be free by the consumer because of secondary payment systems. The evolution of low-cost information technology, coupled with legal frameworks and human behavior, has led to the economic failure of the free news market. A perceived price of zero leaves quality as the remaining consumer selection criteria, rendering traditional market forces ineffective at balancing supply and demand.

This paper shows that many of these problems are rooted in economic structural flaws in the information ecosystem of customer perceived zero price news. These flaws are recent in the history of information sharing because of the unprecedented technological and social developments of internet media. Traditional economic dynamics do not work.

Quality dispersion has replaced price dispersion as a measure of market ignorance. Without a perceived bargain, neither the consumer nor supplier benefits and economic surplus may be negative. If economic surplus is positive, it is driven entirely by supplier surplus. Consumer surplus is zero. Market dynamics do not work. Many suppliers and consumers could benefit from structural improvements, giving an overall lift to the information marketplace.

* Drucker School of Management, Claremont Graduate University, 1021 N Dartmouth Ave, Claremont, CA, Author mailing address: 20214 NE 38th CT, Sammamish, WA 98072 (editor@TechnologyAndDemocracy.org) Acknowledgments to Eugene Ezibilo, Amandeep Dhir, A.G. Malliaris, and Clevo Wilson, who each provided helpful comments to improve focus on the essential elements systematically contributing to free news market failure. Errors and gaps are entirely mine. For individual and social benefits, this is written with four intentions. One, that *academic economists* deepen understanding of these ideas; two, that *news suppliers* better understand their role and duty to their customers; three, that *information consumers* are better able to process what they read and hear; and four, that *stewards of public trust* act intentionally and decisively to build the policy frameworks in which news quality improves and becomes trustworthy. The author declares that he has no relevant or material financial interests that relate to the research described in this paper.

Quality Dispersion as a Measure of Ignorance

"Price dispersion is a manifestation—and, indeed, it is the measure—of ignorance in the market."[1] With news, price is perceived by consumers as zero. Therefore, price dispersion is also zero. Quality dispersion is now the primary measure of ignorance in the free news market.[2] Critically, while more searches improve knowledge of prices, more searches may not improve knowledge of quality.

To express this succinctly, let the definition of quality Q be a composite set of n quality components c where

$Q = \{c_1 + c_2 + c_3 + \ldots c_n\}$ and components c are anything important, whether static or transitory, objective or subjective, articulated or not; + represents a component's simple or complex relationship to other components; and n is usually large

A news supplier s has a set of quality component members

$Q_s = \{c_{s1} + c_{s2} + c_{s3} + \ldots c_{sn}\}$

and a consumer c has a set of quality component members

$Q_c = \{c_{c1} + c_{c2} + c_{c3} + \ldots c_{cn}\}$

The sets Q_s and Q_c must have a sufficient number of common members for a transaction to occur. Perfect alignment is improbable, but alignment is more likely if n is small. A large n for Q_s or Q_c is a guarantee of information asymmetry between suppliers and consumers.[3]

With large numbers of media outlets and short news cycles, consumers are flooded with information for which they have no background to comprehend. They may lower search burdens by using techniques such as satisficing to end the search when a good-enough result is found. Maximizing utility in a classical sense is seldom relevant.

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[1] Stigler (1961), p214.

[2] Changes in quality are often hard to detect whereas changes in price are easy to detect. Product suppliers reduce size or substitute inexpensive ingredients rather than raise the price. Similarly, news suppliers offer products with vastly different qualities, such as sound bites omitting context and low-cost opinion substituting for facts.

[3] Well known impacts of information asymmetry as in Akerlof (1970).

When price is an economic decision criterion, "the widely held view that inexperienced buyers pay higher prices in a market than do experienced buyers, as the former have no accumulated knowledge of asking prices … they will pay higher prices on average."[4]

Similarly, inexperienced consumers of news are at a significant disadvantage with a small n. They lack the experience to distinguish high quality from low quality. With content rapidly changing in constant news cycles, the consumer seldom can stay on topic long enough to learn much about the topic, creating an ecosystem ripe for misinformation. Suppliers benefit from consumer attention spans being overloaded.

A supplier n match to small consumer n becomes less about factual content and more about simpler emotional connection type of content. Qualitative components dominate.

With a price of zero, the qualitative components are the only consumer-supplier transaction drivers. In many markets, like cars or clothing, precise quality components can be defined and observed. This is difficult with free news. Suppliers benefit from being secretive about their Q_s and how they are paid.

With payment from secondary payers, suppliers of free news use consumer private information to drive transaction volume higher without direct payment from consumers. This historically private information may be consumer information that consumers themselves may not know, gathered by the immense information gathering systems that only suppliers can afford. Thus the n for Q_s increases, driven by secondary data gathering and associated payment systems. Consumer n for Q_c remains small and static, greatly increasing information asymmetry.

This quality information asymmetry drives Masherg's Law, where the flood of low-quality information drowns out the trickle of high-quality information.[5] Critically, with Masherg's Law, the consumer struggles to assess the quality of free news.

Secondary Payments to Suppliers

In the past, secondary payment systems have been obvious to consumers. In print, it is a page of advertising. In radio or television, it is a 30 second advertisement. The consumer can pay attention or not. Consumers know advertisers are paying news suppliers, influencing what is presented to consumers. There is no consumer tracking with print media or over-the-air broadcast.

[4] The impact of inexperience is stated in Stigler (1961), 218-19.

[5] The flood results from low-cost fast technology, low cost of opinions, legal protection of opinions, consumer's preference for emotional content (true or not), and volume driven by the 24-hour news cycle. Masherg (2022).

With online media secondary payment systems, consumers will see or hear advertisements but those are the tip of the iceberg. The bulk includes the collection and sale of consumer data and metadata, unseen by the consumer.

While consumers are often clear about money and time, they are uncertain or uncaring about the value of their data, mental health,[6,7] and the cost of regretted decisions because of MDM.[8] Consumer choice is lost. Nothing captures a single tally of cost for a consumer in their search for free news. "We aspire only to approximate truths; we are under no illusion that we can find a single simple formula, or even a moderately complex one, that captures the whole truth and nothing else."[9]

The absence of a simple formula for free news makes it difficult for the consumer to understand their consumption costs and the value they receive.

In particular, consumers have little sense of the value of data given to or taken by suppliers. It can be about the person (name, gender, background), their behaviors (purchases, navigation), engagement (texts, social media, emails), and others. "Much of the news currently published online is simply not worth paying for. Some of it is hardly worth our fleeting attention, let alone hard-earned cash,"[10] yet we willingly pay with personal data. Social media companies have built their multi-billion-dollar annual businesses on the data generosity of their billions of users,[11] for which the consumer gets little qualitative satisfaction. Critically, economic health from the positive feeling of "a good deal" is lost.

People will pay with their time but are less willing to do so when they quantify how much time they spend on free news, discovering their calculated cost of monetizing leisure. With a simple calculation of an average of 142 minutes a day on social media[12] at an average wage of about $35 an hour, the cost is about $82 a day.[13]

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[6] Social media fatigue and the fear of missing out are discussed in Dhir (2018).

[7] Mental health in Heid (2020).

[8] Tragically illustrated by people who died from COVID after declining vaccination due to MDM. Rosenblatt (2021).

[9] Adapted from Simon (1978).

[10] Neilsen (2019).

[11] Economist (2021).

[12] Data from Salim (2019).

[13] Calculations modified from Stillman (2021).

Media outlets have tried subscription models and paywalls with varying degrees of success.[14] A Pew Research Center report also showed that willingness to pay for news is low.[15] When paying with money, only 16% of consumers pay for news, yet 44% will pay for entertainment.[16] Consumers may pay more when news is supplied as entertainment, yet it lowers the barrier to access using the catalyst of positive feeling from getting a good deal, a powerful economic stimulus.

Consumers willingly, perhaps eagerly, distribute free news that takes advantage of the human desire to be entertained. For suppliers, that distribution channel is free, with consumers paying for internet access, distribution, and delivery. This leads to important questions about economic surplus winners and losers, as well as impacts on societal benefit.

Economic Surplus and Zero Societal Benefit

Economic surplus reveals winners and losers by assessing the total benefit to society from buying and selling news. Quantitative payment, such as money, time, or data, combines with qualitative feelings of economic well-being, such as satisfaction and happiness. These expressions of qualitative animal spirits apply to both consumers and suppliers, creating transaction enablers far beyond quantitative metrics.

Quantitative metrics are foundational when not zero. If zero, as with free news,, both consumer and supplier qualitative feelings drive overall economic surplus S, with real economic impacts when S is zero or negative.[17] S is the sum of consumer surplus S_c and supplier surplus S_s defined below. Both S_c and S_s can be positive. If one is negative, the other must be positive and large enough to offset the negative one for S to be positive. If both are negative, S is negative:

$S = S_c + S_s$ is positive when both S_c and S_s are positive

If S_c is negative, then S is positive when $S_s > |S_c|$ else S is negative

If S_s is negative, then S is positive when $S_c > |S_s|$ else S is negative

S is negative when both S_c and S_s are negative

[14] News consumers are unwilling to pay, Chyi (2005).

[15] Pew (2011).

[16] Willingness to pay for entertainment is over twice that for news. Stewart (2020),.

[17] The worst case is when both consumers and suppliers have bad feelings about transactions. No sense of a bargain and no sense of good profit, resulting in negative overall surplus. Consumers and suppliers both express discontent with the economy.

S includes qualitative components for the consumer, Q_c, and the supplier, Q_s, most importantly the feelings of a good deal. The consumer has a maximum price they will pay. The supplier has a minimum price they will accept. Looking at each:

Consumer surplus, S_c, is positive when the price paid is less than the highest price they are willing to pay. Paying less is a bargain, bringing a qualitative sense of economic well-being to the consumer. This is expressed by:

$P_{cp} < P_{cw}$ where cp is what the consumer paid, cw is what the consumer-was-willing-to-pay

Supplier surplus, S_s, is positive when the price accepted is more than the lowest price they are willing to accept. Accepting more is profit, bringing a qualitative sense of economic well-being to the supplier. This is expressed by:

$P_{sa} > P_{sw}$ where sa is what the supplier accepted, sw is what the supplier-was-willing-to-accept

If both are true then 1) both the consumer and the supplier win, 2) an positive economic surplus exists, and 3) a broad sense of economic well-being is created, driving associated societal benefits such as additional transactions and confidence in the economy. This occurs:

When $P_{cp} = P_{sa}$ a transaction is made

If $P_{cw} > (P_{cp} = P_{sa}) > P_{sw}$ both S_c and S_s are positive and S is positive

A general sense of benefit is important for both the current transaction and for stimulating future consumption or production resulting from the qualitative feelings of economic well-being.

However, when free news is delivered to the consumer at a perceived price of zero and the maximum they are willing to pay is zero, there is no positive feeling of a bargain perceived by the consumer. Their animal spirits expect free and their expectations are simply met. Thus, there is zero consumer benefit, and no consumer surplus.

When $P_{cw} = P_{cp} = 0$ then $S_c = 0$

Importantly, the consumer does not realize qualitative benefit and the overall economic benefit is only subject to supplier benefit. This means that societal economic surplus rests solely with suppliers. Further, if the consumer is only willing to pay zero, the supplier must accept zero directly from the consumer for the transaction to complete:

If $P_{cp} = 0$ then $P_{sa} = 0$ (directly from consumer to supplier)

There are three cases where positive economic surplus could occur:

Case 1: both S_c and S_s are positive

Case 2: S_c is larger than a negative S_s

Case 3: S_s is larger than a negative S_c

Yet with free news, S_c is always zero. Thus:

Case 1: $S = 0 + S_s$ so S depends only on S_s

Case 2: $S = 0 + (-S_s)$ allows only negative S_s, so is discarded as S must be negative

Case 3: $S = 0 + S_s$ is again entirely dependent on a positive S_s

These cases result in S_s driving all economic surplus in free news economic systems. The market fails by exhibiting bizarre interactions among consumers, suppliers, and secondary payers with no effective supply and demand dynamics.

With free news, the consumer is not directly paying money to the supplier. To make money, the supplier must get revenue through secondary payment systems such as advertising and consumer data. Critically, the supplier is captive to its payers, not their consumers. The supplier will produce any information for which they generate revenue with no consumer market feedback mechanism.

But what if the consumer is willing to spend non-currency resources? The entire concept of surplus is moved from the objective (money) to the subjective components of Q_c[18] assuming the consumer perceives no value for time or data.

The consumer also pays a non-monetary but real cost for relying on MDM and rejecting information that is factual. Information rejection is a serious problem when scientific news meets general public comprehension. In the example of COVID-19, many people do not understand pandemic disease transmission and control. They can rely on factual expertise but may be dissuaded by small number of simple emotion-based qualitative components exploited by MDM actors, perhaps paying very consequential personal costs.[19]

Suppliers invest to create the supplier version of consumer criteria, to know which qualitative components they can exploit to drive non-monetary forms of payment.[20] Suppliers will edge closer and closer to the quality limits that would repel a consumer, much like they edge close to P_{cw} until

[18] For news, they could be any of the six core biases: rules-of-thumb, authority bias, social imitation, immediacy, scarcity, and the power of free. See Rennie (2020).

[19] Opinion show, website, and social media hosts all tap into the small Qcn of consumer emotions for their personal and financial benefit.

[20] Suppliers have an enormous advantage over consumers through detailed qualitative models about consumers. Consumers generally have little awareness of personal qualitative criteria, without the means (money and computers), the motive (don't care), and the opportunity (no idea where to start).

consumers object and reduce consumption.[21] And if a supplier of MDM causes illness or death, the costs are borne by the consumer and society, creating a moral hazard.[22]

Conclusion

There are very few markets where consumer products are fully funded by secondary payers. There are no free cars. No free food. No free houses. Such markets operate under normal supply and demand dynamics that generate positive economic surplus—or else the market dies.

Free news is unique. It is easily generated, easily distributed, and easily consumed. The information ecosystem has evolved to encourage secondary revenue sources over primary direct consumer revenue, promoting a dynamic that subverts the free market economy allowing MDM to thrive.

A well-functioning market corrects itself when consumers detect low quality before or soon after purchase, creating supplier feedback which drives higher quality or lower prices. This does not happen with free news.

The market fails because of an odd combination of a *perceived* endless supply at a *perceived* price of zero. This creates a market flooded with *non-perceived* low-quality products. Without consumer feedback loop on price and quality, the market does not correct and becomes deluged with more inexpensively produced news, with low quality undetectable by the consumer.

Economic surplus is dominated by supplier surplus with consumers having very little impact on free market dynamics driven by secondary payment systems. Consumer perceived price of zero is at the root.

This is a structural issue that can be changed to benefit both consumers and suppliers of information. Such a transition must be gradual and well executed. If done, the free-market dynamics will return to information, addressing the current economic market failure.

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[21] As described in Flint (2023).

[22] For an in-depth discussion of the seven drivers of current information markets, see Tarr (2023).

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