Masherg's Law and Free News Market Failure

By STEVEN C. TARR, PHD *

Why do consumers tolerate low quality news when they do not tolerate low quality cars? Amidst a glut of dubious information driven by social media, websites, and news outlets, this paper provides an economic framework about modern news deficiencies. High-speed production and consumption of facts and opinions overwhelm individual cognitive processing limits. With Masherg's Law, the flood of low-quality information drowns out the trickle of high-quality information. Consumer and social economic benefit are zero, with all economic benefit going to the supplier. Information asymmetry contributes to a complex relationship between the consumer and the supplier. The principal-agent model shows an alternative view of that relationship. From a systems view, there is no single cause. The free news market has failed due to seven factors: I. technology enables fast low-cost distribution such as television, websites, or social media; II. existing laws protect distributors from content liability, like Section 230 in the United States; III. facts are expensive and the value fades quickly in the 24-hour news cycle; IV. opinions have legal protection; V. consumers think news is free due to supplier secondary payment mechanisms; VI. consumers cannot process the immense volume of news due to Masherg's Law. And VII. *suppliers know more about consumers than consumers do about themselves. These seven factors converge, resulting in the oddity of consumer perceived zero-cost infinite supply. This floods the market with non-perceived low quality products. Without a consumer*

feedback loop on price, the market does not correct and becomes flooded with more inexpensively produced low quality news, resulting in economic market failure.

* 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.

I started with simple questions about everyday news.[1] If a low-quality car is easy to spot after the buyer has owned it for some time, why isn't low-quality news easy to spot? Then, if consumers demand high-quality cars, why don't they demand high-quality news?

People worldwide are continually exposed to a barrage of information from suppliers with diverse motivations, leading to personal confusion and social chaos. Information asymmetry for tangible products was addressed many years ago, such as lemon laws to protect car buyers from unscrupulous sellers who have more information about a car's quality.

News consumers and news suppliers interact to make a peculiar asymmetric market. While every historical advance in communications technologies has presented challenges, the speed of the internet, and our response to it, is unprecedented for both consumers and suppliers.

Economically, much 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 failure of the free news market. A perceived price of zero leaves quality as the selection criteria, rendering traditionally market forces ineffective at balancing supply and demand.

This results from seven factors, each covered in-depth in the appendices: I. technology enables fast, low-cost channel creation; II. existing laws protect distributors from content liability; III. facts are expensive; IV. opinions have legal protection and are inexpensive; V. consumers perceive news is free; VI. consumers cannot process the volume of news; and VII. suppliers have sophisticated quality definitions far beyond the capabilities of consumers.

[1] News is defined as public information products, perceived to be free by the consumer, delivered by traditional media or internet media, excluding private information governed by agreements or contracts which have effective marketplaces.

These and other topics are usually examined individually, rendering an incomplete picture of the free news market. This seven-factor model is a systems approach as a more complete basis for understanding why the market has failed.

I have written with four intentions. One, that *academic economists* deepen understanding of these ideas; two, that *free news suppliers* better understand their role and duty to their customers; three, that *consumers of information* are better able to process what they read and hear; and four, that *stewards of public trust* act intentionally and decisively to build the framework in which public information quality improves and becomes trustworthy.

Quality Dispersion as a Measure of Ignorance

"Price dispersion is a manifestation—and, indeed, it is the measure—of ignorance in the market."[2] Now, with free news price perceived as zero, quality dispersion is the primary measure of ignorance in the free news market.[3] 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 supplier s of news has its own set of quality component members

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

[2] See Stigler (1961).

[3] 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.

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. Yet perfect alignment is improbable. Abundant quality components are nearly a guarantee of information asymmetry between suppliers and consumers.

Creating definitions of Q_s and Q_c is hard. Consumers get information for which they have no background to comprehend. Satisficing can help lower cost by ending the search when a good enough result is found. Maximizing utility in a classical sense is seldom relevant.

Stigler's paper also cites "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. They lack the experience to distinguish high quality from low quality.

Secondary Payments to Suppliers

Historically, secondary payment systems have been visible to consumers. In print, a page of advertising. In radio or television, a 30 second advertisement. The consumer can pay attention or not. The advertisers are paying news suppliers and influencing what is presented to consumers.

None of this is visible with online media secondary payment systems of consumer data. While consumers are often clear about money and time, they are less clear about the value of their data, mental health,[5,6] and the cost of regretted decisions

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

[5] Social media fatigue and FOMO – the fear of missing out is discussed in Dhir (2018).

[6] Mental health in Heid (2020).

because of misinformation, disinformation, and malinformation (MDM).[7] The precision from paying with money is lost. Nothing captures a single tally of cost for a consumer in their search for free news. Herbert Simon said it well: "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."[8] The absence of a simple formula for free news makes it difficult for the consumer to understand their consumption costs.

In particular, consumers have little sense of the value of data given 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"[9] 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.[10]

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 142 minutes a day on social media[11] at an average wage of about $30 an hour, the cost is $71 a day.[12]

Media outlets have tried subscription models and pay walls with varying degrees of success.[13] A Pew Research Center report also showed that willingness to pay for news is low.[14] When paying with money, only 16% of consumers pay for news yet

[7] This is tragically illustrated by people accepting COVID-19 MDM who later get the illness and die, wishing they would have been vaccinated, Rosenblatt (2021).

[8] Adapted from Simon (1978).

[9] See Neilsen (2019).

[10] See Economist (2021).

[11] Data from Salim (2019).

[12] See Stillman (2021).

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

[14] See Pew (2011).

44% will pay for entertainment.[15] Keeping current with free news is difficult and consumers may pay more when it is supplied as entertainment, lowering the barrier to access much like a catalyst. Consumers willingly, perhaps eagerly, distribute free news that takes advantage of the human desire to be entertained.[16] For suppliers, that distribution channel is free, with consumers paying for internet access, distribution, and delivery. This leads to important questions about economic winners and losers, as well as impacts on societal benefit.

Economic Surplus and Societal Benefit

Economic surplus is one way to look at the winners and losers by measuring the total benefit to society from buying and selling news. Accounting for net good and bad impacts is messy with free news transactions. Payment (with money, time, or data) combines with the human feelings of economic well-being (subjective quality components). These expressions of animal spirits apply to both consumers and suppliers.

The overall economic surplus, 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 balance the negative 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

[15] Willingness to pay for entertainment is over twice that for news. Detailed in Stewart (2020), the World Economic Forum, results from China, Germany, India, South Korea, the United Kingdom and the United States about their media consumption and payment habits and preferences.

[16] Stigler (1961).

Economic surplus has subjective components for the consumer, $Q_{c,}$ and the supplier, Q_s. The consumer has a maximum price they will pay. The supplier has a minimum price they will accept. Looking at each:

Consumer surplus is when the price paid is less than the highest price they are willing to pay. Paying less is a bargain, bringing a subjective sense of economic well-being to the consumer.

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

Supplier surplus is when the price accepted is more than the lowest price they are willing to accept. Accepting more is profit, bringing a subjective sense of economic well-being to the supplier.

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

If both are true then consumer and supplier win, an overall economic surplus exists, and a wide sense of economic well-being is created with associated societal benefits. When 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 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 subjective 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 subjective benefit and the overall economic benefit is only subject to supplier benefit. This means that societal economic surplus rests solely with suppliers. Further,

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

With free news, the consumer is not directly paying money to the supplier. To make money, the supplier must sell through secondary payment systems such as advertising and consumer data. Critically, the supplier is captive to its payers, not their consumers.

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[17] assuming the consumer perceives no value for time or data.

The consumer also pays a non-monetary but real cost for rejecting information that is factual and instead relying on MDM. 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 or rely on MDM, perhaps paying very consequential personal costs.

Suppliers invest[18] to create the supplier version of Q_c to know which subjective components they can exploit to drive non-monetary forms of payment.[19] Suppliers will edge closer and closer to quality limits of Q_c that would repel a consumer, much like they edge close to P_{cw} until consumers object and reduce consumption.[20] And if a supplier of MDM causes illness or death, the costs are borne by the consumer and society, creating a moral hazard.

[17] For news, they could be any of the six Google biases of rules-of-thumb, authority bias, social imitation, immediacy, scarcity, and the power of free. See Appendix **VI.**

[18] Normative economics explores value judgements, sometimes using opinion surveys and studies, essential for free news suppliers.

[19] Suppliers have an enormous advantage over consumers through detailed Q_c models about consumers. Consumers generally have little awareness of personal Q_c, lacking the means (money and computers), probably the motive (don't care), and opportunity (no idea where to start even if motivated).

[20] As described in Flint (2023).

Determining Consumer Quality

Consumer detection of quality is difficult, leaving the consumer vulnerable to MDM. A consumer's consumption choices are often unclear, given that Q_c uses many thought processes and news takes many forms. A consumer's objective and subjective needs converge to a decision to consume or not. And there is no certainty that consumption leads to comprehension or satisfaction.[21]

The inability to detect quality drives Masherg's Law, where the flood of low-quality information drowns out the trickle of high-quality information.[22] Critically, with Masherg's Law the consumer struggles to differentiate the quality of free news. A consistent and rigorous personal Q_c is too hard for consumers to apply. And with price perceived to be zero, there is no economic incentive to distinguish high-quality news from low. Market failure is the result.

Role of the News Supplier

With thanks to George Akerlof's retelling of a story from India 1932,[23] Sir Malcolm Darling describes a small village moneylender charging interest far above prime rate. The moneylender uses intimate knowledge of customers to provide loans to those who would otherwise get none. Here is Darling's passage updated to reflect not money but information suppliers:

> "It is only fair to remember that in the villages, the information supplier is the one knowledgeable person amongst a generally unknowing people; and that those methods of business suit the happy-go-lucky ways of the people. The supplier is always accessible, even at night; dispenses with troublesome formalities, asks no inconvenient questions, gives promptly and, if personal data is shared, does not press for other payment. The supplier keeps in close personal touch with

[21] With both the choice and the satisfaction from that choice relating to an economic utility function.

[22] 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. See the Appendices for detail.

[23] Original quote from Akerlof (1970).

> consumers, and in many villages shares their occasions of weal or woe. With intimate knowledge of these people, the supplier is able, without serious risk, to supply those who would otherwise get no information at all."

Similar to the moneylender, modern news suppliers invest in knowing their consumers very well.[24] There are few troublesome formalities, not even payments. And when the perceived price is zero, the only driver is the match between Q_s and Q_c. Modern media companies have substantial resources to make the match, leaving the consumer highly disadvantaged.

Information Asymmetry for Free News

Information asymmetry is the essence of Lemon Laws, where the seller may know more about the car's condition than the buyer. The same holds true for free news. Information about the quality of the free news can determine if a transaction occurs or not. Parties can be disadvantaged or advantaged by knowing the factual basis for the news. If the supplier and the consumer both know facts A and C but not B they are equally disadvantaged. B could be good or bad for either the seller or buyer. It is imperfect information, yet symmetric.

But if either the supplier or consumer knows B, and the other does not, the information is asymmetric and the knowledgeable party has an advantage. Quality asymmetry is a central issue with news and can take many forms. Some enable transactions and some do not.[25] This forms the basis for an analytical framework. Simple possibilities could be:

$Q_s = Q_c$ information symmetry without control over MDM, transactions do occur (1)

[24] A father learned his teenage daughter was pregnant from mined data in Duhigg (2012).

[25] Set notation: $=$ both sets have same members. $\supset$ Q_s has more elements than Q_c. $\subset$ Q_s fewer than Q_c. $\not\subset$ Q_{se} has no element in Q_c. $\not\supset$ Q_{se} has elements not in Q_c. $\cap$ intersection of Q_{se} and Q_{ce} has no elements, Ø

$Q_s \supset Q_c$ supplier has more information without control over MDM, transactions may occur (2)

$Q_s \subset Q_c$ consumer has more information, supplier does not satisfice, transaction may occur (3)

Now let

$Q_{se} \subset Q_s$ the essential supplier quality subset for a transaction to occur and

$Q_{ce} \subset Q_c$ the essential consumer quality subset for a transaction to occur

Then when

$Q_{se} \not\subset Q_c$ essential supplier quality components are not wanted by consumer, no transaction (4)

$Q_s \not\supset Q_{ce}$ essential consumer quality components are not met by supplier, no transaction (5)

$Q_{se} \cap Q_{ce} = \emptyset$ essential quality criteria are missing for both parties, no transactions (6)

In all cases, suppliers may attempt to cause a transaction to occur by offering reassurance.[26] If that works, the supplier has successfully tapped into a Q_{ce}, perhaps unarticulated by the consumer.

The presence or absence of Q_{se} or Q_{ce} are screening criteria that act as gatekeepers to transactions. In a non-free news market, a supplier or consumer may have secret criteria to provide a financial advantage which, if made public, drives costs and/or prices higher or lower. With free news and a consumer perceived price of zero, there is no direct financial advantage possible.

[26] Such as branding, guarantees, licensing or certification.

Thus, we are back to quality component matching as the driver. In many markets, like cars or labor, clear quality components can be defined and observed. This is difficult with free news. There are benefits for suppliers to be secret about their quality and how they get paid.

The supplier of free news can use private information in cases (1) (2) (3) to drive transaction volume higher with payment via secondary mechanisms of advertising and consumer data. This private information may be consumer information that the consumer themself may not know about.

Strict adherence to Q_s to drive transactions is risky because "if it works, do it" is fraught with unknown side effects. In the words of Hal Varian, "people in business usually know a set of rules that work well for running their own business, but they often have no idea of where these rules come from or why they work."[27] Artificial intelligence and its underlying technologies exhibit similar characteristics, such as neural networks and large language models.

Are there substitute quality characteristics for which a consumer might trade? To make a transaction proceed a precise match of Q_s and Q_c is not required, only a partial match with essential components by either the supplier or consumer. We cannot appeal to either party's behavior for good choices but can only influence the matching process to meet both personal and societal desires.[28]

The simple illustrations (1-6) show two parties. There may be more with free news, such as an agent A in the supplier compensation chain, whether money (cash for clicks) or data (sending the supplier information about consumer); More subtly, an agent B may be a member of the tribe compensated by emotional rewards of belonging or the emotional penalties of not belonging.

[27] Described in Varian (1994).

[28] Some influences relate to *personal* supplier and consumer characteristics while some relate to *social* agreements such as regulation and taxation.

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 due to an odd combination of a *perceived* endless supply at a *perceived* price of zero. This drives a market flooded with *non-perceived* low quality products. Without a 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.

Principal-Agent Model

The principal-agent model can be used in a novel way. The principal is the consumer, hiring the supplier as the agent to produce news more efficiently than the consumer could on their own.

Again, Q_s is largely hidden from the consumer-principal except for, perhaps, brand[29] image. The consumer-principal only sees what the supplier-agent produces, not why or how, creating a moral hazard where the supplier-agent can behave with few consequences, producing just enough to maximize gains and minimize effort and expense. The supplier-agent of news has no risk for the consumer-principal's time costs, emotional costs, or societal costs. What can be shifted to externalities is shifted, giving the information equivalent of environmental pollution.[30] A money-based incentive solution is impossible because, to the consumer-principal, the price of the content appears to be zero.

The consumer-principal will decide and act based upon the belief that the supplier-agent respects their interests. They do, but only as far as needed to keep

[29] Such as: America's Newsroom. The Most Trusted Name in News. America's NewsChannel. And so on.

[30] Historically a supplier would steer clear of crossing a line to risk losing consumers to other high quality suppliers. Currently many low quality suppliers are ready and willing to function below the line thus putting pressure on high quality suppliers – lower your standards or lose consumers to us.

the consumption high. Unlike standard principal-agent agreements, there is no pay-for-performance and no agreed-upon metrics. Low-quality information shifts risk from the supplier-agent to the consumer-principal to verify facts. This is contrary to why the consumer-principal outsourced news in the first place, to have the supplier-agent use their expertise to produce high quality news.

Consumer Vulnerability

Consumers are vulnerable when viewing the free news market through the lens of either the economic surplus or the principal-agent models. They consume lower quality information, have higher search costs, and are subject to MDM. They rarely articulate their goals and payoff functions with the precision of a supplier, seldom seeking to understand their suppliers' goals and payoff functions. Inexperienced consumers are especially vulnerable to the effects of Masherg's Law.

The rise of the internet and social media has revealed dishonesty for information itself. Many technology-enabled niche news suppliers have skewed news to make money from a small segment of uninformed consumers driving their content. With unverifiable factual quality, the least honest have incentive to dishonesty, using opinions to build a tribal following and using technology to finding people to consume junk news.

Dishonesty is limited when product or service quality can be verified. The seller knowing more than the buyer is a classic lemon market, typically motivating sellers to know quality so they can charge higher prices. But what if the seller does not verify the quality of the product? What price can they charge? In both cases, the buyer may lose but may have no way of knowing. What is the impact of unknown loss due to dishonesty? Caveat emptor? Venditor (seller beware)? Lector (reader)? Auditor (listener)?

Technology makes it easy to polish up a website or social media account to look substantial and authoritative.[31] Many websites knowingly publish news focusing on the subjective components Q_c and are advised by their lawyers to include disclaimers such as "for information and entertainment purposes only," begging the definition of information. Some sites include disclaimers on every web page. Others only have a disclaimer on one page of fine print. It is up to the consumer to detect.

Free News Market Issues

Classically, product price goes up or down to ensure market clearing. [32] With free news, however, perceived price is zero and it does not change. Driven by technology, supply continues to grow beyond the simplest demand definition: what one person can consume in 24 hours. There is no market clearing at all.

This creates a powerful incentive for free news suppliers to create products that match emotion, the simplest component of Q_c. Because objective high-quality free news has higher costs—research, creation, production—than subjective low-quality free news, Masherg's Law applies and low quality drives out high quality. It is convenient that low-quality free news is equally capable of engaging consumers, who actively consume low quality free news for which they are willing to pay nothing.

Suppliers have little motivation to understand the demand for high quality free news if consumers cannot articulate high quality. Perhaps the high quality market is not worth serving with such little demand. They can make more money with low quality free news.

[31] Fake news websites intended to deceive and satirical news websites intended for humor, both from Wikipedia.

[32] Equilibrium of supply and demand does not happen with free news due to perceived zero price, uncertain quality, and excessive supply.

Conclusions

Driven by Masherg's Law, the free news market has failed. Technology has enabled an explosion of free news, making it hard to tell high quality from low, and facts from opinion. We are molded by what we see and read, by what our groups accept and reject, and how our society unites or divides. Information is the raw material of our cognitive well-being.

We have a convergence of seven factors at the root of this market failure.[33] First, technology enables fast low-cost channel creation with cable, a website, or social media. Second, existing laws protect distributors from content liability, like Section 230 in the United States. Third, factual information is expensive and fades quickly in the 24-hour news cycle. Fourth, opinions have legal protection and facts do not. Fifth, consumers perceive news is free due to supplier secondary payment mechanisms. Sixth, consumers cannot process the immense volume of free news which is subject to Masherg's Law. Seventh, suppliers develop both their own Q_s and a very sophisticated supplier Q_c, far beyond the ability of a consumer to know their own Q_c. A convergence of these seven factors has resulted in market failure for free news.

Economic surplus is solely a function of supplier economic surplus, with no consumer economic surplus.

With a perceived price of zero for news, quality is the determinant of consumption. Like the story about India, suppliers monitor consumers 24x7, using sophisticated methods to know Qs and Qc, far beyond the ability of a consumer to know their own Qc. This creates extreme information asymmetry for the benefit of the supplier.

[33] Each of these seven factors are detailed in the Appendices.

Inexperienced consumers enter the market without a knowledge base for evaluating quality. Indeed, each of are inexperienced because of the rapidly changing stories of the 24x7 news cycle. None of us can have a sufficient understanding of all the topics to know high quality from low quality.

The agents producing the news act in their self-interest, not that of the principals who rely on the agent-suppliers to collect, produce, and distribute products.

Prices can be collected and tracked while observing how people act.[34] With the perceived price of zero, a price-like quantitative metric is absent with free news. When a consumer perceives the free news price to be zero, quality is the sole determinant of their consumption. Suppliers control news production, at a cost to the individual consumer who perceives a price of zero and cannot determine quality. We also see a cost to communities through a skewing of news by mass media, with the economic and societal costs misinformation.[35]

For society, Masherg's Law causes the major cost. Consumers cannot find the trickle of high quality news but may also devalue *all* news, not knowing what to believe. High quality news agencies and reporters get lost in the sheer volume of low quality suppliers.

Robert Shiller's observations about people and stock investing also apply to free news and MDM.[36] "… headlines reflect the news media's constant attention to trivial factoids and 'celebrity opinion' about the market's price level. Driven as their authors are by competition for readers, listeners, and viewers, media accounts tend to be superficial and thus to encourage basic misconceptions about the market." One would need to write books to provide correct information.

[34] Described in both Shiller (1981) and Summers (1986).

[35] Bursztyn (2020) shows detailed analysis that Fox News viewers of Hannity were seven days slower than Carlson viewers to change COVID behaviors, resulting in a greater number of COVID cases and deaths in March 2020.

[36] Shiller (2000).

Therein lies the tension. Quick, fast, and easy mass media messages are necessarily superficial.

Free news suppliers, acting in their self-interests, have aligned with low-cost technology to create a failed market of information asymmetries, principal and agent dysfunction, moral hazards, and the extreme shift of externalities to unsuspecting consumers. For the first time in history technology has enabled market failure only hinted at in the past[37] and now presented to consumers in full force.

This is unusual. Instead of a few suppliers creating a non-competitive market, an excess of supply from an excess of suppliers has created a hyper-competitive market. Free market mechanisms, with transparent price and transparent quality driving market dynamics, have failed to govern the supply and demand of free news. The result is free news market failure.

For Online Publication

Appendix I. Technology Enables Fast Inexpensive Channel Creation

We consume instantaneous digital information from suppliers around the world. Global databases, operating systems, and networks form the core of this supply chain, endlessly delivered to mobile devices.

The ease of creating and disseminating news makes it plentiful and accessible. But it creates problems of too much information, too many search results, and a mismatch of quality-expected versus quality-delivered. Technology enables suppliers to create sophisticated quality definitions for both them and consumers.

[37] Bator (1958) describes such failures.

Unlike tangible products, information has unique properties. Consumption does not deplete information, storage is inexpensive and persistent, and dissemination is inexpensive, easy, and fast, thus lowering barriers to consumption and creating a low cost of entry for suppliers.

Unique information product properties include easy-to-copy, easy-to-share, easy-to-access, low storage cost, low distribution cost, inexpensive search, rapid growth rate, abundant low quality, non-destructive consumption, continual drop in processing costs (Moore's Law), amenable to network effects (Metcalf's Law), and near-instantaneous distribution.

Technology makes it easy to polish up a website or social media account to look substantial and authoritative.[38] Many websites knowingly publish news focusing on the subjective components Q_c and are advised by their lawyers to include disclaimers such as "for information and entertainment purposes only," begging the definition of information. Some sites include disclaimers on every web page. Others only have a disclaimer on one page of fine print. It is up to the consumer to detect.

Both supplier and consumer are influenced by the ease of producing volumes of news inexpensively, then delivering it to mass or micro targets using harvested personal data. This personal data is processed at very low cost by algorithms acting as information brokers to deliver news. Big technology companies have enabled automated refinement of news production and reduced the role of human editors. A supplier shapes news into something attractive to the consumer, matching Q_s with Q_c, thus creating a market.

Speed is a driver of the technology-enabled news market. Filtering news becomes essential with the 24-hour news cycle and its news-of-the moment. For example, voters have difficulty constructing an enduring Q_c. This is especially true of those who wait until the last minute to cast their ballot, weighing recency higher than the

[38] Fake news websites intended to deceive and satirical news websites intended for humor, both from Wikipedia.

relevancy of months-old information, now forgotten.[39] Consumers process high volumes of news, driving a supplier's need to fill time with something, anything.[40]

In 1961 George Stigler wrote economists "assume that the consumer has a large laboratory, ready to deliver current information quickly and gratuitously"[41] to the consumer to learn about products. Today the assumption is gone. Consumers now have countless suppliers providing near-real-time information. Yet the search problem remains. With so much being produced, finding high-quality information is difficult.

The consumer pays others to gather news, similar to a company outsourcing work. [42] But unlike the firm, the consumer takes greater risk, having no formal quality agreement with the supplier. In Stigler's 1961 scenario, the local information about car price and quality was limited, making the search process fairly easy.

Today, search can be difficult with high-speed technology. We are overwhelmed with millions of web search results and the tyranny of choice sets in.[43] We cannot make sense of millions of results, so we take the easy way out: click on one of the first few we see. Various studies—you can search for them—show about 90 percent of clicks are on the first page.

Technology ease-of-use contributes to personal confusion and societal costs, subject to misinformation, disinformation, and malinformation (MDM).[44] From a

[39] "They were very smart about elections — they did their dumping the day before the election, so I had no time to react." As reported by Riccardi and Bauder (2023).

[40] For insight into the 24-Hour News Cycle see Hochfelder (2016) and Adcock (2023). Adcock reports on the business and financial drivers of opinion-commentators on most major free news outlets, under the guise of informing viewers.

[41] Stigler (1961, p224).

[42] Payment may be money, viewing ads, or data. Concepts derived from Coase (1937).

[43] Roets (2012).

[44] **Misinformation** is false with no harm intended; **disinformation** is false with harm intended; **malinformation** is fact-based out-of-context with harm intended. See complete definitions at Cybersecurity (2023).

consumer point-of-view, pernicious information is wrong and misleading regardless of its origin or intent.

MDM drives supplier and consumer behaviors for both price and quality. Technology allows consumers to easily spot price differences and are driven to the equal-quality supplier with the lowest price. In contrast, consumers cannot easily spot differences in quality so they consume from suppliers over the full spectrum, from honest to dishonest.

Where information is the product being produced and consumed, what happens when all news is perceived to be the same price, essentially free? Quality then drives our personal decisions about the news we consume. Worldwide searches for the "best" quality have long surpassed searches for "price" and the gap is increasing.[45]

Yet quality is often avoided because it is hard to define with precision. Each consumer or supplier definition of quality includes many components of importance—what news outlet, who said it, how recent—with each component's relationship to others, simple or complex.[46]

Tangible products have market limits because of physical production and distribution constraints. Internet information has no such limits. Technology-enabled news floods the market, driving Masherg's Law.

Appendix II. Existing Laws Protect Distributors from Content Liability

Publishers were excluded from content liability long before social media existed. The precedents have continued.

[45] Wheaton (2018) and Google (2020).

[46] Quality component examples include Q_{s1}=conservative/liberal, Q_{s2}=financial goals, Q_{s3}=editorial process, Q_{s4}=emotional, Q_{s5}=story selection and Q_{c1}=well-presented, Q_{c2}=emotional, Q_{c3}=make-me-think, Q_{c4}=confirms-my-beliefs, Q_{c5}=story selection.

Trusting *The Encyclopedia of Mushrooms,* wild mushroom enthusiasts found and consumed certain mushrooms, leading to severe illness and requiring liver transplants. They sued. The courts ultimately said, "a publisher does not have a duty to investigate the accuracy of the text it publishes," in finding in favor of the publisher.[47]

With Winter vs G.P. Putnam's Sons, Putnam's was not liable for a child's injury while doing a science experiment printed in their book. The "plaintiff was not injured by use of the book for the purpose for which it was designed, i.e., to be read. More importantly perhaps, the danger of plaintiff's proposed theory [of publisher liability] is the chilling effect it would have on the First Amendment — freedoms of speech and press." The publisher was not liable. [48]

The Winter case decision included some colorful prose. "We accept the risk that words and ideas have wings we cannot clip and which carry them we know not where. The threat of liability without fault (financial responsibility for our words and ideas in the absence of fault …) could seriously inhibit those who wish to share thoughts and theories."

With the internet, Section 230 of the Telecommunications Act of 1996 provides similar protection for platform operations like Facebook and Twitter from liability of third-party content, including users. "to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation."[49] This legal protection allowed the content of the internet to flourish.

The Supreme Court decision in New York Times vs Sullivan, the court favored opinion commentators to discuss their view on public figures and issues with slight

[47] Kuszynski (1981).
[48] Sneed (1991).
[49] Telecommunications (1996).

risk of liability.[50] Inaccuracy or reckless disregard must be proven by a plaintiff which effectively gives news suppliers wide latitude with opinions,[51] shifting Q_s away from facts.

Free news has no objective quality assurance requirements whereas private information does, with the specifics of what, who, when, and how spelled out in a contract. "The law recognizes relatively limited property rights in generally disseminated information products, but it also implies only narrow assurances about their quality, thus contributing to ready access and broad use."[52] It is precisely this trade-off between quality assurance and easy to access/use that affects the news.

Each legal decision is tilted towards free and open access to information with few constraints on the creation and distribution of content. Other factors described in this paper come into play, with the most dramatic effect quality. This has profound social and economic consequences.

Appendix III. Facts Are Expensive

Primary research-based facts are expensive, often supported by basic scientific research. I was involved in drug development that spanned 13 years at a cost of hundreds of millions of dollars, only to learn that the drug, while safe, did not work. Other studies consistently show costs in the tens of millions.[53]

Primary common sources come directly from first-hand evidence. For example, a news story may be the product of a news organization with the costs of field reporters, fact aggregators, fact checkers, and editorial reviewers.

[50] Brennan (1964) was joined by a majority of U.S. Supreme Court justices including four concurrences.

[51] Interestingly, these protections are not given to *private* information suppliers. Malice need not be shown. Brennan (1985).

[52] Nimmer (1992).

[53] The costs of clinical trials in the United States are examined in Moore (2020).

Secondary sources, the acts of searching for primary facts and compiling them into a usable form, incurs some of the same costs as primary common sources. At some point, the facts are interpreted and summarized for the intended audience. This may drift into opinions where costs are very low.

If the drift goes too far towards low-quality Q_c, dishonesty takes hold and drives honesty out of the market.[54] Many technology-enabled niche news suppliers have a skewed news to make money from a small segment of uninformed consumers driving their content.

Dishonesty is limited when product or service quality can be verified. The seller knowing more than the buyer is a classic lemon market. It typically motivates sellers to know the quality so they can charge a higher price. But what if the seller cannot verify the quality of the product? What price can they charge? In both cases, the buyer may lose but may have no way of knowing. What is the impact of unknown loss due to dishonesty? Caveat emptor? Venditor (seller beware)? Lector (reader)? Auditor (listener)?

Huge volumes of inexpensive low-quality information hide a smaller amount of high-quality news.

News suppliers must navigate the fact-to-opinion cost continuum. Lower costs increase margins. If tilted too far towards sensational Q_c, the quality of the news can be questionable, much like a new paint job covering a car that may be rusting.

The 24-hour news cycle means short shelf life for news—facts or opinions—and suppliers discard content much like grocers discard old vegetables. Getting either fresh today is costly.

Re-use is profitable. Continue serving a topic for which your customer has a framework and appetite until they no longer consume. If it triggers emotions, it works and assures repeat business.

[54] Akerlof (1970, p488-500.

The costs to create the supplier's version of Q_c are also shifted to the news consumer by capturing their interaction behavior and by consumers freely giving their personal data. This data automates Q_c which modifies algorithms and data, more precisely targeting what the consumer is later presented. free news consumption generates data to guide and modify the entire free news supply chain using algorithms unknown to consumers and regulators, shifting control to the algorithm owners where they can drive external cost apportionment and revenue generation.[55] This might be a mechanism showing Q_c is satisficed and consumer surplus, $S_c > 0$.

Big technology companies have enabled automated refinement of news production and reduced the role of human editors. The evolution of AI tools is equally fraught with low-quality information.

Externalities may also increase costs by leading to the destruction of common pool resources when incentive structures leave no one in control.[56] However, Ostrom has shown that, with sufficient investment, people can manage common pool resources for the benefit of all when they agree on their goals and the group is not large.[57] Facts are expensive, which partially explains why publishers take content scoured from the internet, accelerated by generative language models.

Suppliers of high-quality products generally have high costs of research, verification, creation, and production which justify a higher price and associated legal protections, much different from the daily news. It is much cheaper for free-riders to take public domain information and spin opinion around it.[58] Free riding suppliers, including social media spreaders, generate low-cost, high volume,

[55] Described in Jolly (2014).

[56] Hardin (1968).

[57] When doing field work in management of shared resource systems, Ostrom found that small to medium cities are more effective monitors of performance and costs. Ostrom (2009).

[58] Nimmer (1992, p122).

questionable quality news. Pervasiveness can lead to believability and, as a high school teacher told my class, “If a million people say a stupid thing, it is still a stupid thing.”

News suppliers know consumers will accept low-cost junk news in large volumes, making it hard to remember what they consumed in the past. Short memories give newsmakers great latitude as facts are not relevant nor remembered nor recalled. Suppliers keep producing high volumes of news comparable to transactional piecework with factual quality eluding the consumer.[59]

Appendix IV. Opinions Have Legal Protection

Copyright law does not protect facts, only original expressions about the facts, in which humans are proficient. This motivates news suppliers to hire people to generate opinions, getting consumers emotionally engaged. If they release a fact which they spent significant effort to get, public domain rules apply and other news providers can spin their own low-cost expressions.[60,61]

Fair use of others’ expressions in all media—music, video, text, images—has been historically allowed “when it serves a valuable social purpose, the source material is transformed from the original and it does not affect the copyright owners’ core market.”[62] Fair use is a central issue in generative AI products which build their database by free-riding on the flood-stream of human creations.

[59] Incented piecework can have a negative impact on quality. See Hong, Fuhai et al, Testing the Theory of Multitasking: Evidence from a Natural Field Experiment in Chinese Factories, National Bureau of Economic Research, Nov 2013.

[60] Copyright does not protect facts and data, only how they are expressed. “Since facts do not owe their origin to an act of authorship, they are not original, and thus are not copyrightable … copyright protection extends only to those components of the work that are original to the author, not to the facts themselves.” From O’Connor (1991).

[61] Nimmer (1992, p115).

[62] Economist (2023).

Private information, produced for a specific target market, is usually governed by a contract specifying information quality and consumer recourse for product failure.[63]

Private information has both clear price and quality facts. The supply and demand dynamics are familiar. Companies will collect information, prepare a usable format, and charge for it. Their consumers expect reassurance from the company for the expected value. Public information product consumers have little recourse for recompense when news consumption causes damages, due to the perceived price of zero and no product quality claims made by the supplier. To dramatize, what are the expectations and rights of a consumer who has paid $50,000 for something versus a consumer who has paid nothing? Yet there is the consumer cost of thinking and acting on faulty information. A free car driven into an injury-causing wreck still causes damages even though nothing was paid.

In the absence of enforceable supplier-consumer contracts, there is little financial incentive for high-quality news with its short shelf life and fast-in fast-out news cycle.[64] More important is for the supplier to get the consumer engaged in continuous consumption and additional revenue generation. News suppliers know consumers will accept low-cost junk news in large volumes, making it hard to remember what they consumed in the past. Short memories give newsmakers great latitude as facts are not relevant nor remembered nor recalled. Suppliers keep producing high volumes of news like transactional piecework with factual quality eluding the consumer.[65]

A consumer is vulnerable because public information products lack consumer-supplier agreements. Trust is essential. Low-quality news shifts the risk to the

[63] Nimmer (1992, p4).

[64] Enduring information is commonly sold through enduring media and purchased with money, like a book.

[65] Incented piecework can have a negative impact on quality. Hong (2013).

consumer to verify facts, contrary to why they outsourced news production. Suppliers create a severe moral hazard by shifting the extrinsic costs of their actions to the consumer.

A supplier threat may come from other suppliers who attempt to match their consumers' Q_c by ignoring facts to build readership. This happened in late 2020 when a popular news outlet started reporting U.S. election facts instead of opinion.[66] Viewers quickly switched to news outlets that better matched their subjective Q_c components rather than accept facts.

Appendix V. Consumer Perceive News is Free

Consumers are constantly exposed to easily accessible news. They do not pay directly for much of it, making it seem that news is free. Unlike transparent advertising supported content—print, online, television, and radio—unseen secondary payment systems drive the economics of suppliers and the marketplace.

Consumers are clear about spending their money and time. They are less clear about the value of their data, mental health,[67,68] and the cost of regretted decisions.[69] Lost is the precision of paying with quantifiable money and time.

With free news, quality drives personal decisions about what we consume. Worldwide searches for 'best' have long surpassed searches for 'price' and the gap continuously gets bigger.[70] Quantifiable decision-making gives way to animal spirits.

[66] Flint (2023).

[67] Dhir (2018).

[68] Heid (2020).

[69] This is tragically illustrated by people accepting COVID-19 MDM who later get the illness and die, wishing they would have been vaccinated. Rosenblatt (2021).

[70] Google (2020).

Herbert Simon said it well: "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."[71] The absence of a simple formula for news consumption makes it difficult for the consumer to understand their costs and benefits.

In particular, consumers have little sense of the value of data given 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"[72] yet we willingly pay with personal data. Facebook has built their Immense business on the data generosity of billions of users.[73]

Media outlets have tried subscription models and pay walls with varying degrees of success.[74] A Pew Research Center report also showed that willingness to pay for news is low.[75] Only 16% of consumers pay for news yet 44% will pay for entertainment content.[76] Entertainment lowers the barrier to access much like a catalyst, so consumers may spend more time or even money on social media sites. Consumers willingly, perhaps eagerly, distribute entertaining content.[77] And that distribution channel is free for suppliers.

[71] Adapted from Simon (1978, p366).

[72] Neilsen (2019).

[73] Economist (2021).

[74] Chyi (2005).

[75] Pew (2011).

[76] Willingness to pay for entertainment is over twice that for news. Detailed in Stewart (2020), the World Economic Forum, results from China, Germany, India, South Korea, the United Kingdom and the United States about their media consumption and payment habits and preferences.

[77] Stigler (1961, p222).

Consumers are more willing to pay with their time until they quantify it, discovering the "negative consequence of monetizing leisure."[78] With a simple calculation of an average 142 minutes a day on social media at an average wage of about $30 an hour, the cost is $71 a day.

"Price dispersion is a manifestation—and, indeed, it is the measure—of ignorance in the market."[79] Now, with news price perceived as zero, I suggest quality dispersion is the primary measure of ignorance in the news market.[80] Critically, while more searches improve knowledge of prices, more searches may not improve knowledge of quality. Creating definitions of Q_s and Q_c is hard. Consumers get information for which they have no background to comprehend. Satisficing can help lower cost by ending the search when a good enough result is found. Maximizing utility in a classical sense is seldom relevant.

Stigler's paper also cites "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."[81]

Similarly, inexperienced consumers of news are at a marked disadvantage. They have no accumulated knowledge to distinguish high quality from low and will consume lower quality on average.

Similar to a company outsourcing work, the consumer pays suppliers to gather news for them.[82] But unlike a company, the consumer has no formal quality agreement with the supplier, thus taking greater risk with little recourse.

[78] Stillman (2021).

[79] Stigler (1961, p214).

[80] 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, different suppliers offer free news with vastly different qualities, such as sound bites omitting context and low-cost opinion substituting for facts.

[81] Stigler (1961, p218-219).

[82] Payment may be money, viewing ads, or data. Concepts derived from Coase (1937).

With time as the currency, the news purchase process can be difficult. Millions of web search results overwhelm consumers and the tyranny of choice sets in.[83] We cannot make sense of millions of results, so we save time and take the easy way out: click on one of the first few we see. Various studies—you can search for them—show about 90 percent of clicks are on the first page.

We may adapt our search strategy by avoiding search engines altogether. We revisit the same cable news, website, or social media site followed by more shortcuts, looking for familiar names and familiar topics. All trying to minimize the time cost of search and maximizing the qualitative value of results through subjective control of our Q_c.

Price sensitivity does not enter into the consumer's calculations. Supplier switching is based on quality sensitivity. <goes back to the Fox news 2020>

There is also a cost of rejecting information that is factual and accurate. Missing out on facts and the substitution of inaccurate information upon which a person forms beliefs and takes actions can be costly. Information rejection is a problem when scientific news meets the general public such as COVID-19. Most people have no knowledge base for pandemic disease transmission and control. They must rely on validated expertise or possibly pay the cost of illness or death.

Without consumer direct pay schemes, secondary payment agents become outsized influencers on suppliers. Without transparency, news consumer thinks news is free price and questionable quality.

[83] Roets (2012).

Appendix VI. Consumers cannot process the volume of news

Public information products are oversimplifications and omissions. There is too much information for anyone to consume and understand.[84] Therefore, the test of truth is also oversimplified to something like "I know it is true if it sits well with what I believe." Animal spirits guide us.

Truth is a mental composite of objective facts and subjective beliefs.[85] Beliefs can be held so strongly that independently verifiable facts may not change beliefs. This distinction enables news to claim truth yet be factually false, such as "I believe the Earth is flat." The power of beliefs to override facts means any supplier can claim truth without consumers knowing the difference.

Discovering how people build their Q_{cc} is challenging because Q_{cc} is a mental construct with little directly observable. There is a huge volume of internet data about *what* is viewed but not *why*. The *why* is a fertile research area.

Schroder quotes Cherubini and Nelson "'all forms of analytics have to confront … the limitations involved in using quantitative indicators to understand the messy and diverse realities of how people engage with journalism, why, and what it means."[86] When pushed to explain why they read some stories, study participants said it was intuitive, yet they could not explain it, other than to say "you want to know what's going on and how it's going to impact on you and your life and your job. That's what's important."

Our attention span is a finite resource. The flood of news exceeds our individual and collective processing abilities. Herbert Simon wrote "a wealth of information creates a poverty of attention"[87] which may lead to information snacking, essentially junk food for the mind. People read junk information for the same

[84] The high volume of information creates another problem. Not knowing – then finding out – may lead to the perception that someone, perhaps the government, is hiding something.

[85] This pragmatic definition differs from deep philosophical truth definition, which relies on epistemology.

[86] Schroder ibid, p9

[87] Simon (1969, p6).

reasons as eating junk food: it is inexpensive, easy to get, and provides instant gratification. It is also unhealthy and raises the question: how do people identify what to consume?

Humans have developed strategies to minimize cognitive processing loads and still satisfice.[88] While these strategies are beyond the scope of this paper, an illustrative selection provides some insight into how people take shortcuts while creating objective and subjective quality components in our personal Q_c.

Filtering news becomes essential with the 24-hour news cycle and its news-of-the moment.[89] There is simply too much information to process. Filtering may include reliance on brands, topics, and tribes.

Tribalism can be very strong, with personal decisions more heavily weighted toward ego, group belonging,[90,91] and self-interest. Whether or not group norms make sense, straying has consequences: being kicked out of the group or denied membership. Social media influencers are a type of tribal leader and research supports the sensationalism and lower quality of their content.[92]

Subjective value of news is influenced by Q_c. Views of money, time, or data given can all influence value perception. If you nudge people sufficiently, their subjectivity engages and they will behave as the supplier wishes. Michael O'Leary, CEO of Ryanair, is certain of this with low fares overcoming safety concerns, he says, "€9.99 fares will cure an awful lot of customer apprehension."[93]

[88] Pennycock (2019).

[89] For insight into the 24-Hour News Cycle see Hochfelder (2016) and Adcock (2023). Adcock reports on the business and financial drivers of opinion-commentators on most major free news outlets, under the guise of informing viewers.

[90] Bounds of group norms, sense of fairness, and reciprocal actions are components of group membership and a sense of belonging. Self-signaling reinforces who I am: a hat logo, a hairstyle, a tattoo.

[91] Bonding among people in groups increases cooperation and joint payoffs. Unity is key. Ostrom (2009).

[92] Market mavens have more followers, post more often, have less readable posts, use less distinct words and more uppercase characters. From Harrigan (2021).

[93] Economist (2020).

Six biases have been found by Google researchers as core to decision shortcuts:[94] *rules-of-thumb, authority bias, social imitation, immediacy, scarcity, and the power of free.* These six are built upon basic human behaviors, with roots in Maslow's work on human needs.[95]

Post-consumption quality assessment is a problem. With a car, we learn about quality by using it, the product cycle measured in months and years. Such learning is less clear with news which, unlike a car, changes rapidly with the whims of news cycles, leaving consumers to trust the source as a proxy for the quality of the products they deliver.

This creates a powerful incentive for news suppliers to create products that match emotion, the simplest component of Q_c. Because objective high quality news has higher costs—research, creation, production—than subjective lower quality news, Masherg's Law applies and low quality drives out high quality.

Classically, product price goes up or down to ensure supply and demand equilibrium. With news, however, perceived price is a constant zero. Driven by technology, supply continues to grow beyond the simplest demand definition: what one person can consume in 24 hours. There is no market clearing at all.

The inability to detect quality results in Masherg's Law where the flood of low-quality information drowns out the trickle of high-quality information. Critically, with Masherg's Law the consumer cannot tell the difference in quality. A consistent rigorous Q_c is too hard for consumers to apply. And with price perceived to be zero, there is no economic incentive to tell good free news from bad. Market failure is the result.

[94] Rennie (2020).

[95] Maslow (1943, p395).

Appendix VII. Suppliers Have Sophisticated Quality Definitions

Suppliers produce news products by matching Q_s with Q_c, thus creating a market driven by the animal spirits of Q_c. Both supplier and consumer are impacted by the ease of producing volumes of news inexpensively. Suppliers deliver it to mass or micro targets using harvested consumer data. Personal data is processed at very low cost by algorithms acting as information brokers to deliver free news. Automation refines the production process and reduces the role of human editors.

One Q_s component is to create consumer allegiance to the supplier. Each supplier protecting its self-interest is akin to the invisible hand, ever growing in the new global information commons. It is the modern equivalent of Garrett Hardin's grazing commons[96] where it is not the cows overgrazing a finite pasture but suppliers overloading personal finite attention spans, reducing our individual and collective abilities to process information. Masherg's Law assures the volume of news will exceed our capacity to pay attention.

Externalities may also lead to the destruction of common resources when incentive structures leave no one in control. However, Ostrom has shown that people can manage common resources for the benefit of all when they agree on their goals and the group is not large.[97] But this is nearly impossible for consumers given the elusive nature of Q_c so suppliers continue to produce floods of information.

With this, the supplier knows more about the news quality than the consumer. News quality asymmetry exists because suppliers have both Q_s and deep knowledge of Q_c, deeper than a consumer's knowledge of their own Q_c.[98]

[96] Hardin (1968).

[97] When doing field work in management of shared resource systems, Ostrom found that small to medium cities are more effective monitors of performance and costs. Ostrom (2009).

[98] TikTok only needs one important piece of information to figure out what you want: the amount of time you linger over a piece of content. Every second you hesitate or rewatch, the app is tracking you. WSJ (2021).

Suppliers define extensive information quality dimensions[99] using sophisticated methods unavailable to the consumer. Suppliers invest in big data analytics dynamically linked to automated marketing, targeting consumers in a way far beyond the ability and comprehension of the consumer.[100] For example, suppliers monitor the lineage and provenance of their data but seldom share that with consumers. Data quality is, once again, the domain of suppliers.[101]

News suppliers, however, have a substantial challenge. "In-depth qualitative studies of news preferences can complement surveys and online tracking to help news organisations address the complex balance of personal and civic concerns that their readers care about."[102] They define only partial Q_s because "the same news story can be read by different people as an 'international' story, a 'technology' story, or a 'financial' story." Attributes are not clear and difficult to verify. Both Q_s and Q_c are incomplete and dynamic.

Stigler claimed inexperienced consumers pay higher prices. [103] But with price of zero, inexperienced consumers get lower *quality*. With an underdeveloped Q_c, they consume lower quality information than more experienced information consumers. Determining quality requires knowledge and skills to counteract misinformation.

This leads to an important question for suppliers: does a constant influx of inexperienced new consumers drive quality down, owing to their lack of knowledge and simple Q_c?

In the free news world, suppliers know their payoff functions with some precision, consumers less so. Suppliers have existential motivation to understand

[99] Examples of information product quality tools, methods, and dimensions. These are far beyond a consumer's ability to assess quality, giving much advantage to the supplier. MIT (2012).

[100] Saidali (2019).

[101] Zhu (2014).

[102] Schroder (2019).

[103] Stigler (1961, 218-219).

their Q_s. Consumers might benefit from a well understood Q_c but instead operate very informally, unaware of their own quality components.

They seldom ask, "What is Fox News trying to do?" or "What is CNN trying to do?" Without questioning the supplier's Q_s, the consumer consumes without a critical eye. Perhaps it is too obscure, too elusive, and too difficult to understand. This is one problem with economic game theory applied to free news is that few buyers—the consumers of information—try to understand the payoff function of the seller.

From an economic perspective, the free news market is a game where the supplier has a clearly articulated strategy, and the consumer does not. The consumer does, however, have an unarticulated subjective strategy governed by their personal Q_c. The consumer does not know about nor question the structure of the game being played by suppliers. Adding to their disadvantage, the consumer has less information about the content of the game. The supplier has much more information about content and uses it for advantage.

This is partially and selectively revealed by the supplier only when it serves their goals, for example, Q_{s1}=conservative/liberal. Hidden from the consumer are Q_{s2}=financial goals, Q_{s3}=editorial process, Q_{s4}=fact omission, and Q_{s5}=story selection.

The consumer is also disadvantaged by the dynamic nature of news and lacks a mechanism to track topics to make sense of the daily, weekly, and monthly flow. The supplier controls content and likely *does* track its product flow, giving it an advantage over the consumer.

The principal-agent model can be used in a novel way. The principal is the consumer, hiring the supplier as the agent to produce news more efficiently than the consumer could on their own.

Again, Q_s is largely hidden from the consumer-principal except for, perhaps, brand[104] image. The consumer-principal only sees what the supplier-agent produces, not why or how, creating a moral hazard where the supplier-agent can behave with few consequences, producing just enough to maximize gains and minimize effort and expense. The supplier-agent of news has no risk for the consumer-principal's time costs, emotional costs, or societal costs. What can be shifted to externalities is shifted, giving the information equivalent of environmental pollution.[105] A money-based incentive solution is impossible because, to the consumer-principal, the price of the content appears to be zero.

The consumer-principal will decide and act based upon a belief that the supplier-agent respects their interests. They do, but only as far as needed to keep the consumption high. Unlike standard principal-agent agreements, there is no pay-for-performance and no agreed-upon metrics. Low-quality information shifts risk to the consumer to verify facts, contrary to why they outsourced news in the first place.

Public information news products lack consumer-supplier agreements. Private information, produced for a specific target market, is usually governed by a contract specifying information quality and consumer recourse for product failure.[106]

Private information has both clear price and quality facts. The supply and demand dynamics are familiar. Companies will collect information, prepare a usable format, and charge for it. Their consumers expect reassurance from the company for the expected value.

[104] Such as: America's Newsroom. The Most Trusted Name in News. America's NewsChannel. And so on.

[105] Historically a supplier would steer clear of crossing a line to risk losing consumers to other high quality suppliers. Currently many low quality suppliers are ready and willing to function below the line thus putting pressure on high quality suppliers – lower your standards or lose consumers to us.

[106] Nimmer (1992, p104).

Public information product consumers have little recourse for recompense when news consumption causes damages, due to the perceived price of zero and no quality claims made.

To dramatize, what are the expectations and rights of a consumer who has paid $50,000 for something versus a consumer who has paid nothing? Yet there is the consumer cost of thinking and acting on faulty information. A free car driven into an injury-causing wreck still causes damages even though nothing was paid for.

In the absence of consumer-supplier contracts, there is little financial incentive for high-quality news with its short shelf life and fast-in fast-out news cycle.[107] More important is for the supplier to get the consumer engaged for continuous consumption and additional revenue generation.

A supplier threat may come from competitors who attempt to match their consumers' Q_c as happened in late 2020 when a popular news outlet started reporting U.S. election facts instead of opinion. Viewers quickly switched to other news outlets that better matched their Q_c subjective components rather than accept facts. [108]

Similar to more roadways increasing capacity-consuming car traffic, more computing power, more bandwidth, and more opinions increase attention-consuming information traffic. Like indirect funding of freeways through taxes, suppliers use indirect compensation to increase consumption of news. News supplier pathways are paved with social media influencers supported by supplier-paid advertising. These unconstrained media influencers increase consumption more than an editorially guided news anchor. This flood of low-quality information again displaces the trickle of high-quality information, according to Masherg's Law.

[107] Enduring information is commonly sold through enduring media and purchased with money, like a book.

[108] Flint (2023).

New consumers enter the free news market continually and old consumers exit. The supplier must attract the inexperienced consumer by providing knowledge that fits Q_c in its early form and a growth path to a more sophisticated Q_c. They must make their products sticky to the consumer's evolution. This is done by both transparent and nefarious methods, the latter through algorithms unknown to the consumer.

This brings into question why suppliers survive by offering low quality information. The readiest answer is the lack of discrimination by inexperienced consumers, who may be either new to or disinterested in the dynamics of the information marketplace.

History views this more simply with price: "I had decided to get a new TV so I followed the ads in the newspaper to get an idea of how much it would cost. I noticed that the prices fluctuated quite a bit from week to week. It occurred to me that the challenge to economics was not why the prices were sometimes low (i.e., during sales) but why they were ever high. Who would be so foolish as to buy when the price was high since everyone knew that the item would be on sale in a few weeks? But there must be such people, otherwise the stores would never find it profitable to charge a high price. Armed with this insight, I was able to generate a model of sales. In my model there were two kinds of consumers: informed consumers who read the ads and uninformed consumers who didn't read the ads. The stores had sales in order to price discriminate between the informed and uninformed consumers."[109]

In that powerful illustration, price is easy to find and easy to track. Yet with more complex news quality and consumer price near zero, quality substitutes for price. When consumers cannot discriminate free news quality, there are more uninformed

[109] Varian (1994). Perhaps suppliers similarly discriminate between the quality demands of informed and uninformed consumers.

consumers. With the flood of low-quality free news, Masherg's Law drives market failure.

REFERENCES

Akerlof, George. 1970. The Market for "Lemons": Quality Uncertainty and the Market Mechanism, The Quarterly Journal of Economics, Vol 84 No 3, 499..

Adcock, Steve. 2023. How to Stop Letting the 24-Hour News Cycle Control Your Life.

Bator, Francis. 1958. The Anatomy of Market Failure, The Quarterly Journal of Economics, Vol 72, Issue 3.

Brennan, William. 1964. New York Times Co. v. Sullivan :: 376 U.S. 254, U.S. Supreme Court.

Brennan, William. 1985. Dun & Bradstreet, Inc. v. Greenmoss Builders :: 472 U.S. 749 (1985), U.S. Supreme Court.

Bursztyn, L., et al. 2020. *Misinformation During a Pandemic*, National Bureau of Economic Research.

Chyi, Hsiang. 2005. Willingness to pay for online news, Journal of Media Economics.

Coase, R.H. 1937. The Nature of the Firm, Economica, New Series, Vol. 4, No. 16.

Cybersecurity Infrastructure & Security Agency. 2023. Foreign Influence Operations and Disinformation.

Dhir, Amandeep et al. 2018. Online social media fatigue and psychological wellbeing—A study of compulsive use, fear of missing out, fatigue, anxiety and depression," International Journal of Information Management, Vol. 40.

Duhigg, Charles. 2012. How Companies Learn Your Secrets, New York Times.

Economist. 2020. The parable of Ryanair, The Economist.

Economist. 2021. Serfing the web: The new rules of the "creator economy," The

Economist.

Economist. 2023. A battle royal is brewing over copyright and AI | The Economist, The Economist.

Flint, Joe. 2023. Surge in Newsmax Ratings Shook Fox News, Then Faded - WSJ, The Wall Street Journal.

Google.2020. Google Search Trends 'Best' vs 'Price' 2004-2020. Google Research.

Hardin, Garrett. 1968. The Tragedy of the Commons, Science, Vol. 162, No. 3859.

Harrigan, Paul et al. 2021. Identifying influencers on social media, International Journal on Information Management.

Heid, Markham. 2020. Is Constantly Reading the News Bad For You? , Time.

Hochfelder, David. 2016. The Telegraph and the Origins of the 24-Hour News Cycle, Johns Hopkins University Press.

Hong, Fuhai et al. 2013. Testing the Theory of Multitasking: Evidence from a Natural Field Experiment in Chinese Factories, National Bureau of Economic Research.

Jolly, Jihii. 2014. How algorithms decide the news you see, Columbia Journalism Review.

Kuszynski, Joseph. 1981. Walter v. Bauer - New York - Case Law - VLEX 884933419, United States State Supreme Court (New York).

Maslow, A.H. 1943. A Theory of Human Motivation, Psychological Review, 50, 395.

MIT. 2012. Information Product Quality Table of Contents, Massachusetts Institute of Technology.

Moore, Thomas et al. 2020. Variation in the estimated costs of pivotal clinical benefit trials supporting the US approval of new therapeutic agents, 2015-2017: a cross-sectional study, PubMed U.S. National Library of Medicine.

Neilsen, Rasmus Kleis. 2019. A Long Slow Slog with No One Coming to the

Rescue, Neiman Journalism Lab.

Nimmer, Raymond and Krauthaus, Patricia. 1992. Information as a Commodity New Imperatives of Commercial Law, Law and Contemporary Problems, Vol 55, No 3.

O'Connor, Sandra Day. 1991. Feist Publications, Inc. v. Rural Tel. Serv. Co. :: 499 U.S. 340 (1991), U.S. Supreme Court, referencing Article I, § 8, cl. 8, of the U.S. Constitution mandating "originality as a prerequisite for copyright protection."

Ostrom, Elinor. 2009. Beyond Markets and States: Polycentric Governance of Complex Economic Systems, Nobel Prize Lecture.

Pennycock, Gordon, and Rand, David. 2019. Lazy, not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning - ScienceDirect, Cognition, Vol 188.

Pew Research Center Journalism Staff. 2011. News is valued but willingness to pay is low, Pew Research Center.

Rennie, Alistair et al. 2020. Decoding Decisions: Making sense of the messy middle, Google Think.

Riccardi, Nicholas, and Bauder, David. 2023. Court records show political pressure behind Fox programming | AP News, The Associated Press.

Roets, A. et al. 2012. The Tyranny Of Choice: A Cross-Cultural Investigation Of Maximizing-Satisficing Effects On Well-Being," Judgment And Decision Making. Vol 7, No 6, 689-704.

Rosenblatt, Kalhan. 2021. Florida radio and Newsmax host who opposed Covid vaccine dies of Covid complications, NBC News.

Saidali, Jihad et al. 2019. The combination between Big Data and Marketing Strategies to gain valuable Business Insights for better Production Success, Procedia Manufacturing.

Salim, Saima. 2019. How much time do you spend on social media? Research says 142 minutes per day, Digital Information World.

Schroder, Kim Christian. 2019. What do news readers really want to read about? Reuters Institute for the Study of Journalism, University of Oxford, February.

Shiller, Robert. 1981. Do Stock Prices Move Too Much to be Justified by Subsequent Changes in Dividends? The American Economic Review, 421.

Shiller, Robert. 2000. Irrational Exuberance, Preface, Princeton University Press.

Simon, Herbert. 1969. Designing Organizations for an Information-rich World, Carnegie-Mellon University, 6.

Simon, Herbert. 1978. Rational Decision-making in Business Organizations, Nobel Prize Memorial Lecture, 366.

Sneed, Tang, and Thompson (Circuit Judges). 1991. Winter v. G.P. Putnam's Sons, 938 F.2d 1033 (9th Cir. 1991), U.S. Court of Appeals for the Ninth Circuit.

Stewart, Kirstine and Kenny, David. 2020. Understanding Value in Media: Perspectives from Consumers and Industry, World Economic Forum.

Stigler, George. 1961. The Economics of Information, The Journal of Political Economy, Vol. 69, No. 3.

Stillman, Jessica. 2021. A Harvard Business School Professor's Simple Trick to Stop Wasting Your Life.

Summers, Larry. 1986. Does the Stock Market Rationality Reflect Fundamental Values? Journal of Finance, Proceedings of the 44th Meeting of the American Finance Association, 591.

Telecommunications Act of 1996. 1996. Telecommunications Act of 1996 Public Law 104, Congress of the United States of America, 110 STAT. 138, Sec. 230(b)(2).

Varian, Hal. 1994. How to Build an Economic Model in Your Spare Time, University of California – Berkeley, School of Information Management and Systems.

Wheaton, Ken. 2018. What consumer searches for '"best"' really mean, Think with Google.

Wall Street Journal Staff. 2021. Investigation: How TikTok's Algorithm Figures Out Your Deepest Desires, Wall Street Journal.

Zhu, Hongwei et al. 2014. Data and Information Quality Research: Its Evolution and Future, MIT Data Quality and Research, Taylor and Francis Group LLC.