kwokchain

Essays by
Kevin Kwok

Year One
April 2018 - April 2019

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Second Edition
with New Foreword by
Eugene Wei

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This book is dedicated to everyone who pushed me to write more and now has the misfortune of being subjected to it.

Progress cannot be stopped.

—Kevin Kwok

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Foreword

by

Eugene Wei

If you went back in time and told younger me that someday I'd be asked to write a foreword for an essay collection, a wave of relief would wash over me as I concluded that I'd make something of myself. However, if you then clarified that it was a collection of essays written on someone's personal blog, said collection having been printed by his roommates, I'd first ask what a blog was, in the hopes it was some sort of prestigious academic journal, and when you clarified that a blog was like a journal that anyone could start for free, my ego would come hurtling back down to Earth through the atmosphere, bursting into flames during re-entry.

And yet, here I am, feeling quite honored to write just such a foreword for just such a collection. Whether his roommates printed this collection out of love and admiration or out of jest, or likely all of the above, Kevin deserves your attention. Someday I'm certain to look back with fondness on this period when Kevin joined me in funemployment and we could spend many an hour discussing any number of topics. As this sampler demonstrates, the range of subjects on which he has unique insights is broad.

We've often joked about taping our conversations, and heavens knows my declining memory would benefit from it, but minus that, this collection captures some of the qualities of talking to him as he x-rays the world around him. Above all, he's a structuralist. His favorite references—loops, Caro, social capital—are all girders of his broader world view, one in which the configuration of the systems we exist in have

an outsized vote in the outcomes within those systems. Many people sense the world is rigged, but Kevin understands how. I'm often classified (by my own proclamation, it should be noted) as the cultural determinist in our group of friends. Much of what people consider cultural output, however, like films and novels, center around individuals and their narratives. However, I view the totality of that work as a system in itself, and spending time with Kevin has pushed me to dissect that system with more rigor. In this moment, when social media has seemingly reduced national discourse to a series of 280 character simplifications, in which we pelt each other with fortune cookies, Kevin's thinking zooms in while dollying out, what in filmmaking we call a zolly shot.

That Kevin lives in the age of the Internet is a great stroke of luck. Nothing in my lifetime is likely to match its birth for sheer impact on the human systems around us. That we can all follow along as Kevin puts his Geiger counter to the shock waves is a blessing.

Every generation has its shamans, and Kevin is one of ours.

– Eugene Wei[1]
October 13, 2019

1 twitter.com/eugenewei

Preface

by

Kane Hsieh

The first edition of this book, like many things, began as a way to troll Kevin. Well, it turns out that people actually want to read Kevin's essays, and demand for *kwokchain: Year One* far outstripped the supply we printed. That brings us here, to *kwokchain: Year One, Second Edition.*

The structure of headings and sections in essays is not always consistent on kwokchain.com, and this book tries to replicate the idiosyncratic structures as closely as possible. URLs linked in essays are implemented as footnotes, whose immedicacy I feel to be more similar to hyperlinks than endnotes'.

Introduction

by

Kevin Kwok

Kwokchain is an experiment to push myself to write more. My hope is that sharing these more publicly will lead to more interesting discussions. If you're reading this and I have less essays than you have fingers on one hand–I'm failing at this goal.

I'm particularly interested in understanding the underlying structures that shape industries and the core loops that drive companies. I formerly worked at Greylock Partners investing in marketplaces, autonomous vehicles, bottoms up productivity tools, and more. I also have a twitter[1], where I talk more and people understand me less.

"Kwokchain"?

This blog is not particularly focused on blockchain. And while I hope to cover supply chains, blockchains, and Markov chains—they don't really encompass the scope of topics I want to cover. But puns are hard to come by when your last name is Kwok, so here we are. It also helps that a good friend[2] had already bought the domain for me as a joke.

I'm hoping that a decade from now blockchain will either have faded from relevance and readers will appreciate my creative original name, or blockchain will be ubiquitous and readers will marvel at my prescience.

Neither will be true.

1 twitter.com/kevinakwok
2 davidluan.com

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Understanding how Uber & Lyft Grow in Markets[1]

April 9, 2018

Bill Gurley popularized the idea of expanding the market in his 2012 blog post *"All Markets Are Not Created Equal: 10 Factors To Consider When Evaluating Digital Marketplaces"*[2]. Number seven on his list is the idea that marketplaces can actually expand the Total Addressable Market size of the industries they operate in (known popularly as TAM Expansion). The idea is that by changing the price point, making it more convenient, or changing other parts of the value proposition of a product, companies could actually grow the industries they were part of. All marketplaces aspire to TAM expansion; few achieve it.

Gurley's 2014 essay *"How to Miss By a Mile: An Alternative Look at Uber's Potential Market Size"*[3] focused on the idea of TAM expansion as a core part of understanding the potential of marketplaces. Gurley wrote the essay to rebut a critic of Uber, who focused on the TAM of the ridesharing market to explain why Uber's valuation was too high. Gurley brought up a number of ways Uber might expand the ridesharing market.

Was Gurley right about Uber? Has it expanded the market size for taxis? And if so–how? Over the years there have been many arguments about whether Uber was truly growing the taxi market, or just killing the existing industry. It's hard to know what lessons to draw from Uber and other ridesharing companies—without seeing actual data about their impact.

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1 kwokchain.com/2018/04/09/quantifying-tam-expansion-uber-and-lyft-in-nyc

2 abovethecrowd.com/2012/11/13/all-markets-are-not-created-equal-10-factors-to-consider-when-evaluating-digital-marketplaces

3 abovethecrowd.com/2014/07/11/how-to-miss-by-a-mile-an-alternative-look-at-ubers-potential-market-size

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Editor's Note: The author included a Table of Contents in the original essay text so it is included here, updated with the correct pages for the book.

Introduction to NYC Taxi and Ride Hailing Data

It's rare that we get to quantitatively examine a case of TAM expansion as there is little publicly available data of examples of it. But thanks to the NYC Taxi and Limousine Commission and 538, we have the data to analyze the effect of ride hailing vehicles on the taxi market. And most of all, thanks to Todd Schneider, who has not only done significant work to clean and organize the data–but also graciously open sourced it all. With this data, we can examine date and pick-up location for all taxi or ride-sharing rides going back the last decade.

Market expansion is a poorly understood area. Some people think that it is rarely real, and startups mostly cannibalize existing markets. While others view it as an ephemeral property of companies that either happens to strike or not for a lucky few. Few have seen hard data on what market expansion looks like, so it's understandable that there is little shared understanding around it.

Looking at NYC data on the taxi and ride-sharing markets we can determine that the taxi market is expanding, with the important caveat of outer-borough rides contributing to the bulk of new growth. The data helps show a concrete example of what market expansion looks like—and that it's not a vague attribute of companies—but specific to the customer segments where the service solves the needs of customers that previously were underserved by the status quo services. Though not part of the scope of this piece, market expansion can be thought of as customer segmentation including segments that previously would not have been customers of the market given the prior levels of service and cost.

Uber and Lyft Expand the Taxi Market

Looking at how many Ubers and Lyfts blanket the streets of most major cities, many would assume that they have expanded the size of the taxi market. They're right.

Here's data on monthly rides in NYC of Taxi AND ride hailing trips combined. See if you can guess when Uber and Lyft started to take off.

Uber and Lyft started to have a real effect starting in 2014. Before then the NYC taxi market was relatively stable—averaging around 14 million rides per month consistently for the half decade leading up to 2014. Since 2014 the number of rides has begun to expand—and hit 25 million a month at the end of 2017. Gurley was correct that companies like Uber could expand the market, to the surprise of nobody who has walked in NYC or SF.

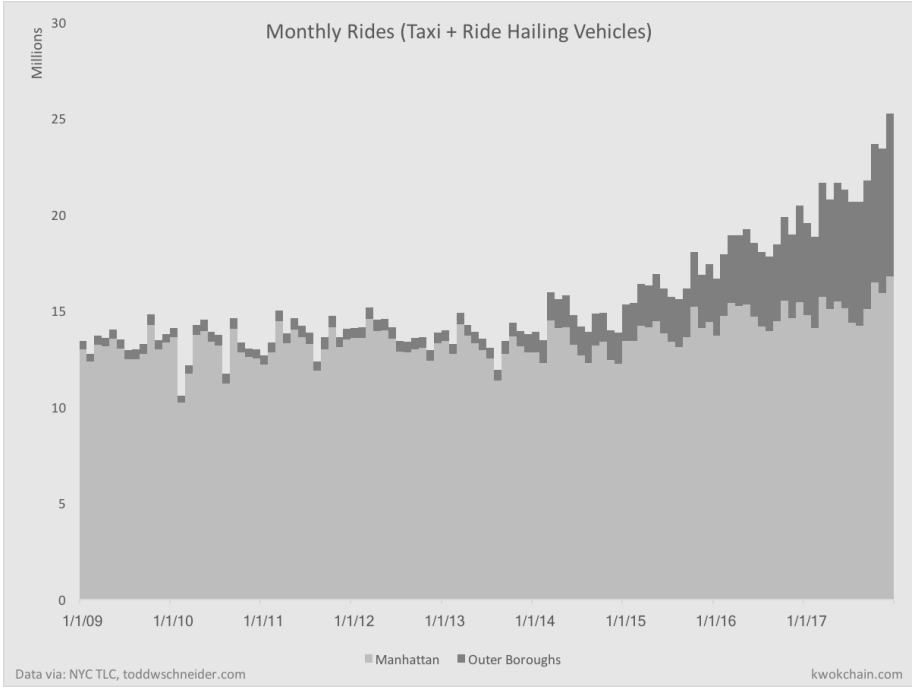
To understand what is driving this market expansion (in NYC at least), we need to cut the data a level deeper.

TAM Expansion driven by the Outer Boroughs

The most striking cut of this data is comparing Manhattan to the Outer

Boroughs. The New York Times has written about the impact of Uber in the outer boroughs[1]. And 538, which deserves much credit for their push to get this data released, has multiple articles analyzing the impact of Uber in Manhattan and the Outer Boroughs.

The data is striking on the different impact of ride hailing apps on Manhattan vs. the Outer Boroughs. Here's the same chart of monthly rides, but colored by trips begin in Manhattan[2] vs those in the Outer Boroughs[3]. When we talk about Uber and Lyft expanding the taxi market, it's largely a story of the Outer Boroughs. As Uber and Lyft have grown over the last 5 years, the Outer Boroughs have been responsible for most of NYC's increase in rides.



1 nytimes.com/2017/10/12/nyregion/uber-taxis-new-york-city.html

2 fivethirtyeight.com/features/uber-is-taking-millions-of-manhattan-rides-away-from-taxis

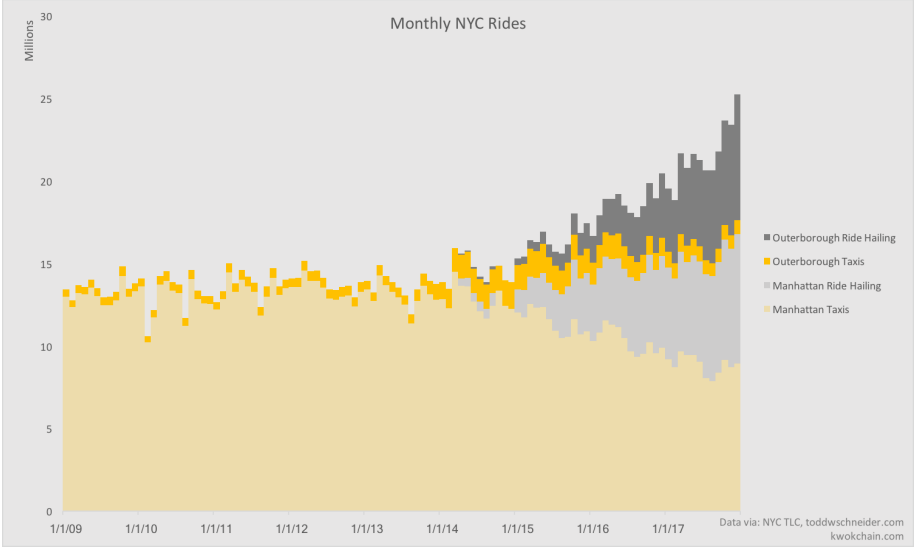
3 fivethirtyeight.com/features/uber-is-serving-new-yorks-outer-boroughs-more-than-taxis-are

Unmet Latent Demand in the Outer Boroughs

The next step is to cut the same data by Taxi rides versus ride hailing rides. The chart below keeps the separation of Manhattan and the Outer Boroughs but also color codes taxis yellow and ride hailing vehicles gray.

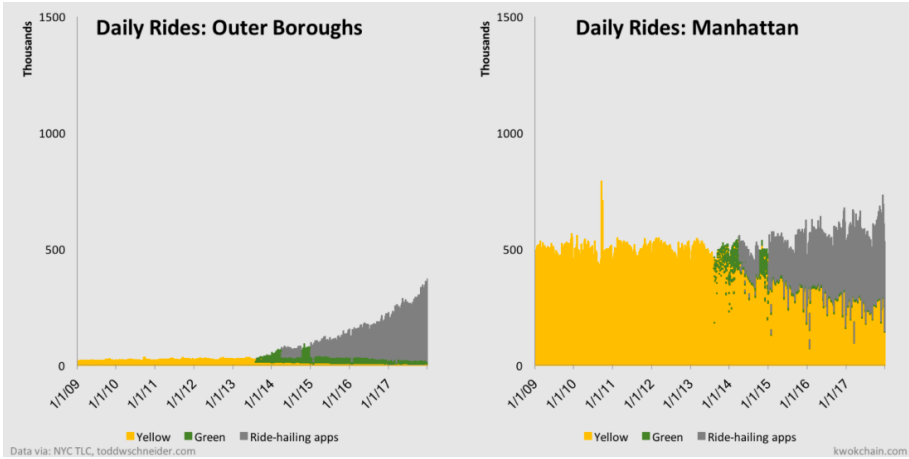
These charts show the larger picture of Uber and Lyft's impact on NYC. In Manhattan alone, Uber and Lyft have been taking real market share from taxis. More recently, they may be starting to expand the market.

It's a different story in the Outer Boroughs. While Yellow taxis are supposed to serve the Outer Boroughs, historically they've avoided them—opting for the high density of Manhattan where it's easier to find rides. Green taxis, which are cheaper and easier medallions to get but are not allowed to serve Manhattan, were specifically introduced to bring more supply of taxis to the outer boroughs. Looking at our data, we can see in retrospect that neither Yellow or Green taxis were able to serve anywhere near the true latent demand for ride sharing services.



Expansion of Taxi Market Shows No Sign of Slowing

Separating Manhattan and the Outer Boroughs into two charts side by side allows us to compare their relative scales and composition. I've done this in the chart below, while also separating out Yellow and Green taxis. Demand for rides in the Outer Boroughs is strong and approaching the daily scale of demand in Manhattan. And it's not slowing down. It may be obvious to us in a few years that the Outer Borough has always had greater demand for ride services, given its lower density and fewer subway connections—and that taxis weren't really meeting that demand. Supply met demand only after the ride-sharing apps came around.

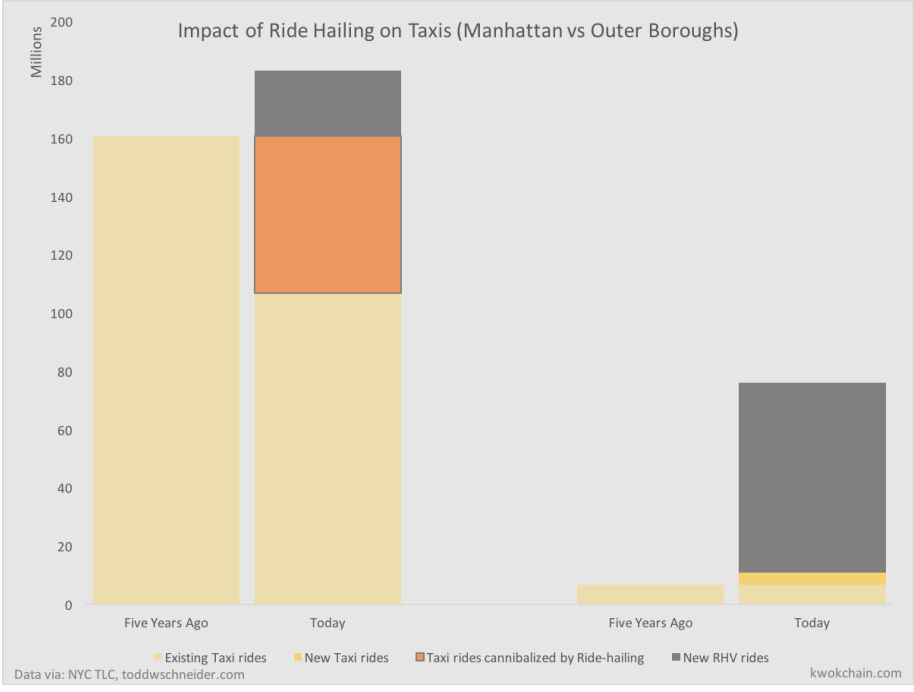


Uber and Lyft Both Grow and Cannibalize Markets

The data now lets us evaluate if Uber and Lyft are expanding the market or replacing the taxi drivers. We can begin by examining the impact ride-hailing apps have had on the taxi market over the last five years.

Below is a look at rides in 2012 and 2017 (the left is Manhattan and the right is the Outer Boroughs) colored by type of ride. Yellow are taxi rides, gray are ride-hailing rides, and orange are rides that used to be taxi rides but are now ride-hailing rides.

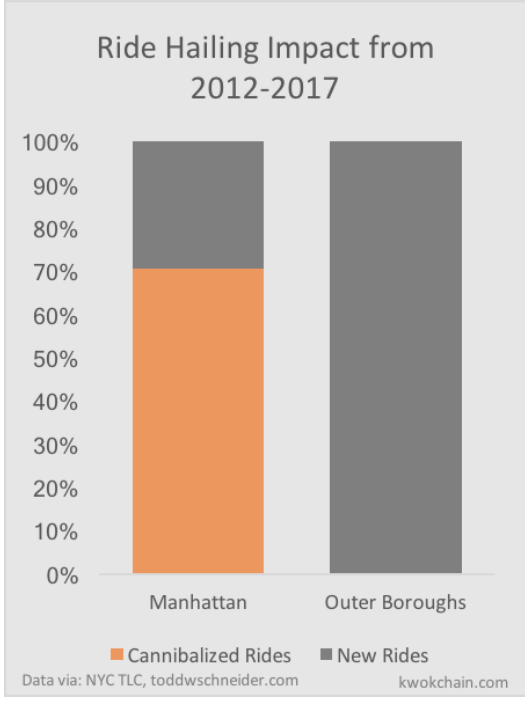
Though not perfect, this data gives a decent proxy for the industry. Over the last five years the Outer Boroughs have unambiguously seen an expansion of the market while the story is more complicated in Manhattan. While Uber, Lyft, and their competitors have expanded the market in Manhattan, they have also replaced many rides that would have otherwise been served by taxis.



With these charts we can look at what percentage of Uber and Lyft rides are net new rides as opposed to rides that might have been previously handled by taxis.

In Manhattan, around 70% of rides on ride-hailing platforms would likely have otherwise been served by taxis. While in the Outer Boroughs almost all rides are net additive.

Proponents and detractors of Uber and Lyft are both right. These companies both cannibalize AND expand the market. But the degree to which they do varies significantly along geography, density, and other factors. It should be noted that NYC is likely the city with the most robust pre-existing taxi market in the US. While we don't have that data, it's reasonable to expect data from other cities to look more like the Outer Boroughs than Manhattan. In general, ride hailing apps are likely to have cannibalized the market in a few dense cities in the US; and in the overwhelmingly non-dense parts of the US, they've expanded the market.



Final Thoughts

In his rebuttal to Aswath Damodaran, the top potential new use case Gurley suggested Uber had was:

> *Use in less urban areas. Because of the magical ordering system and the ability to efficiently organize a distributed set of drivers, Uber can operate effectively in markets where it simply didn't make sense to have a dense supply of taxis. If you live in a suburban community, there is little chance you could walk out your door and hail a cab. And if you call one of the phones, it is a very spotty proposition. Today, Uber already works dramatically well in many suburban areas outside of San Francisco with pick up times in less than 10 minutes. This creates new use cases versus a historical model.*

Gurley was right. The data shows that ride hailing apps have improved their improved promptness, reliability, and service-level of taxis while increasing coverage. And that has allowed the overall taxi market to significantly expand in less dense areas, like the Outer Boroughs. It's a demonstration that tech companies can use technology to find new levels of service while coherently handling increased scale of liquidity, unlocking discontinuous improvements of the customer experience.

Uber and Lyft realized two important things:

1. Mobile technology has made it possible to automate dispatching for all drivers more efficiently than possible before—leading to a centralization of dispatch.
2. Mapping software like Google Maps and Waze can embed expert local knowledge into the phone, allowing anyone to become a driver.

These developments gave them the pricing power, SLA, and thick supply to meet the needs of consumers in the Outer Boroughs, which were not well served previously.

Uber and Lyft understand the importance of segmenting markets. They were

among the first marketplaces to understand that they should treat different cities differently—even staffing local teams in each city to better address issues best solved locally. Many of the economies of scale and network effects in the ridesharing business exist within cities—but not between cities. Similarly, the data shows that there are important differences between urban cores and less dense areas even within the same city.

Useful segmentations in companies aren't just limited to geography. For example, many of Pinterest's metrics can be segmented by the different topics that pins are about. Choosing the right ways to segment a company's business to best understand the business and which areas are related and affect each other is key to figuring out how well a company is performing—and what areas are compounding.

Credits

I want to give a serious shout out to Todd Schneider's blog. The data used in my charts come from his painstaking work to not only pull, organize, and analyze the data—but also his gracious open sourcing of it all. I highly recommend reading his analysis, which covers a broad set of fields, and his blog in general. Todd posts infrequently, his essays are gold, and he always presents fascinating data.

Also want to thank Michael Dempsey[1], Saam Motamedi[2], Arjun Narayan[3], Dennis Tang[4], Dan Wang[5], and Eugene Wei[6] for their help with this post.

1 twitter.com/mhdempsey
2 twitter.com/saammotamedi
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5 twitter.com/danwwang
6 twitter.com/eugenewei

Post-scripts

[1] More rigor around the understanding and quantification of the probability and potential of TAM expansion for different marketplaces is an important area of work. There's interesting debates to be have on this subject–and subject for future discussions.

[2] Astute observers will point out that TAM (and TAM expansion) only exist relative to how one segments the market. There is no such thing as a free lunch. Or rather, there is a free lunch—as long as it's someone else's. For example, while Uber and Lyft appear to be growing the market for taxi rides in the Outer Boroughs. It is very likely that if you looked at the broader Transit market (including both taxis and public transit) that much of Uber and Lyft's growth has replaced rides that might have otherwise been on bus or subways. MTA data suggests this is true. TAM expansion is often the cannibalization of substitute markets. Further work is needed to understand what share of Uber's rides comes from taxis, public transit, or are net new rides.

[3] TAM expansion is key in marketplaces, beyond being a source of unexpected good fortune. Marketplaces typically improve the efficiency and liquidity of a market. However, improving the efficiency of a market naturally shrinks its size—so without an expansion of the market, marketplaces typically decrease the original market size. However, by unconstraining their markets and making possible new levels of service and cost, they may induce new use cases or market segments that were not possible or feasible before—expanding the market.

[4] Hopefully this piece is a small illustration of the benefits of looking at various cuts at one's data to understand what are the distinct segments and core loops that are really driving aggregate performance. While practitioners at startups and some at venture firms are able to look at real data, there is little real data available to the public. Would love to see more data shared publicly—we collectively advance in our understanding of marketplaces and network effects most when learnings are distributed publicly.

Editor's Note: the text hosted at kwokchain.com does not contain the reference markers for Post-scripts [1] through [4] at time of publication. When asked for clarification on what portions of the text the Post-scripts referred to, author Kevin Kwok replied "that would take too much time [to figure out], Kane". Therefore, we have no idea what parts of the essay the Post-scripts refer to; this book faithfully reflects that ¯_(ツ)_/¯

The Future is Forked[1]

May 1, 2018

Author's note: I originally wrote this essay a number of months ago. Since then there's been a bunch of discussion around governance thanks to essays from Fred Erhsam, Vlad Zamfir, Will Warren, and others. As well as debates within the Ethereum community. While I haven't addressed any of these recent events in this piece—or how my views on the subject have changed—I hope to in future essays.

There were two major forks or attempted forks of Bitcoin in 2017 cementing that forks are not rare black swans [1]. They're happening often, but most people know little about how they work exactly. While forks are powerful, they are still a work in progress—and each fork helps us learn something new about them and how they fit into the ecosystem.

Forks provide checks and balances within an ecosystem

Forks are a fascinating construct. As many[2] have[3] pointed[4] out, they are incredibly useful adaptive mechanisms which add a new dimension to the Exit, Voice, Loyalty[5] framework. In that 1970 essay, Albert Hirschman categorized the actions people can take when they disagree with the organizations they belong to, whether a company, government, or ecosystem: they can either leave the organization ("exit") or speak up and try to change it from within ("voice"). These actions are modulated by how loyal people feel to the organization.

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1 kwokchain.com/2018/05/01/the-future-is-forked

2 medium.com/@FEhrsam/accelerating-evolution-through-forking-6b0b-ba85a2ba

3 blog.ycombinator.com/crypto-evolution

4 continuations.com/post/167194394980/forking-vs-voting-in-blockchains

5 www.amazon.com/Exit-Voice-Loyalty-Responses-Organizations/dp/0674276604

Every response we have to organizations is some mix of exit, voice, and loyalty. For example, threatening to quit your job exercises voice; once you leave, it's exit. It's pretty rare to see novel combinations, which is what forks are. Forks are new and powerful schelling points[1] in how ecosystems operate. They combine voice and exit—and critically lower the friction to both significantly. **Since cryptocurrency ecosystems have no higher regulatory authority that can ultimately check them—it is crucial to have a feasible internal impeachment mechanism like forking.**

There are many things that help businesses based on network effects lock in their users. For marketplaces and social networks, competitors must start from scratch if they don't want to be part of the existing ecosystem. In contrast, **forks give stronger rights to those who want to challenge an ecosystem and make it easier to compete.** The threat of a fork holds the incumbent ecosystem accountable while also enabling more exploration of the landscape of potential outcomes. Unchecked, monopolies often stop innovating and responding to the harms they cause. For true monopolies, only the shadow of antitrust action keeps them honest—and even then, only to the minimum degree required. In crypto, there is no centralized regulatory body. It is the specter of forks that ensures developers innovate and remain responsive rather than resting on their network effects.

In my view, the primary brilliance of forks is not about creating a new blockchain, but about their ability to signal a credible check on developers—keeping them honest and aligned with the broader ecosystem [2]. I don't think it's innate to forks that they put the new chain and old chain on equal footing. In fact, it seems capricious to choose equal footing as the threshold. Forks are not a fixed atomic construct. There are many ways they can work—both their technical aspects and the community norms around them. These factors will change how they play out and tilt in practice. Whether they favor incumbents or challengers, how peaceful vs disruptive they are, etc. The technical and social norms that dictate these outcomes should be debated in depth, forks are certainly not perfected yet. For example, an interesting line of thought multiple researchers have worked on is how to

1 en.wikipedia.org/wiki/Focal_point_(game_theory)

address the susceptibility of the voice aspect of forks to sybil attacks. Some of the futures and prediction market ideas around this are worth reading up on. These and more factors will be a subject of future essay.

Forks discriminate between current and future users

Imagine your parents got divorced, but they forgot to tell you. You'd be upset right? That's what forks in the cryptocurrency ecosystem are like for new users.

A common misconception on forks is that because users and investors get tokens in both blockchains, they will be economically agnostic towards both. Users shouldn't have any biases and the merits of the two blockchains will determine their fate. The thinking is that developers, companies, and miners will compete over which blockchain wins—but the costs will be abstracted and users will be shielded, minimizing the disruption of forks.

This is not true.

Debates over specific blockchains aside, forks as they are currently structured are not agnostic from a user perspective. **Specifically, current forks separate the incentives of future buyers from current holders.**

Existing holders are given tokens in both blockchains. As long as they do not sell their tokens, they still are economically agnostic between the two blockchains. In fact, many have come out net positive from recent forks, as the sum of both chains have increased relative to the original pre-fork chain. Whether that should be an expected feature of chain forks, or an artifact of current markets, is an important but separate topic. [3]

These economics aren't true for new buyers. If they bought both the original and forked token it would be true. But this isn't how most new buyers view the market, nor is that their fault. Exchanges, wallets, and our whole ecosystem don't discuss or package up both tokens in this way. Our default is to

treat them as separate asset classes, so why should new buyers think otherwise? However, these forks are often directly competitive and each expects their success to come at the expense of the other. Thus, new buyers post-fork are unintentionally taking directional bets on the market, while old holders are agnostic to direction.

Existing holders and new buyers not being equal isn't inherently bad. It's not obvious it should be changed—many aspects of the cryptocurrency space tilt towards incumbency. However, we need to consider what our ecosystem's commitment to new users is and should be. Because it's one thing for forks to not be user neutral, and another for users to not be aware of it.

Users are unaware of this directional risk they take and must take on non-trivial complexity to understand it. While those fully enmeshed in the cryptocurrency world may often comment on how fast and inscrutable crypto's movements are, we forget we still have orders of magnitude more context and knowledge than new buyers. Even worse, we often take pride in crypto's complexity and ability to evade predictability. If you talk with anyone who has only recently started buying bitcoin, they have little visibility into the dynamics between different blockchains, much less different forks. They instead rely on following what high-profile companies and investors recommend. This is a useful and important function, but is often centralized with poor accountability. The legibility of these cryptocurrencies to new investors and users is important long term. **The more illegible the cryptocurrency ecosystem is to new investors and users, the more wary they will be of joining and the more they will rely on the advice of experts and the defaults of companies.** Removing these experts and brands is not what's most important; they have their place in the ecosystem. Rather, making the ecosystem legible so that customers can understand and hold these companies and experts accountable is key.

User legibility and attention will only grow more important as more projects try to build on-chain governance. But there are still many open questions about on-chain governance that should be discussed in the community. Many blockchain projects are being built with an assumption of an active and ed-

ucated electorate. But both attention and understanding are scarce resources that these projects will need to grapple with. Projects planning for on-chain governance may find their democracy is most akin to all the worst parts of the San Francisco Ballot Proposition system. Users are often not able to be an active, educated electorate—and even if they are, they often don't care to be. And while the cryptocurrency community is large with many active participants, its growth in complexity and rate of change outpaces the rate at which most can keep up. This leads to trust and centralization in the institutions they offload this responsibility to. Everyone developing in this ecosystem needs to either build with that as a vulnerability in mind and/or figure out how to decrease the friction of user comprehension and participation. **Unless we match crypto's growth in complexity with equal progress in making it legible and welcoming to new users—it will grow in natural centralization.**

When attention and legibility are scarce, defaults and brand matter

As long as people have scarce attention (this is an unsolved problem, and maybe an unsolvable one too), whoever owns the relationships with end users will have disproportionate influence via the defaults they set, whether implicit or explicit. Examples of this include:

1. Exchanges adding cryptocurrencies. The market cap of cryptocurrencies often goes up significantly when they are added to large exchanges. This is so common that many active traders try to find inside information or read between the tea leaves of Twitter posts to guess when a cryptocurrency will be added to an exchange. Market caps of cryptocurrencies will even rise on the rumor of being added to an exchange.
2. Investing in pre-sales and ICOs based off of prominent investors and advisors. Many investors in all rounds of cryptocurrency projects today have not read the whitepapers of the projects they want to put money in. They are instead basing their investment on the perceived credibility of the existing investors and advisors. This is not unique to crypto, but simply a statement of the ubiquity of human scarcity of attention and legibility.

I don't think these examples are necessarily bad or irrational. Sometimes it's not feasible to make things fully understandable and have all users be be active and engaged. When this happens, centralization is the tradeoff that balances everything wanted with the scarcity of attention. Scarcity always begets centralization, and cognitive scarcity is no different. Prominent exchanges, investors, and advisors are incentivized to maintain their reputations, so in the long run, it's not unreasonable for people to trust their recommendations. Or at least for the short run, to trust that others will trust their recommendations (creating a Schelling point).

As cryptocurrencies become more mainstream, 'normal' users will increasingly demand centralization as the solution to their scarcity of attention and legibility. They will not want to need to spend the cognitive cycles that many of us currently spend thinking about the ecosystem. They will want the benefits without much of the costs—and will turn to companies to provide them. It's why centralized exchanges have been one of the most financially successful parts of the ecosystem so far. Whether in proxy voting or how they represent forks to users, the decisions made by those entrusted by customers will have significant impact. But while the fundamental scarcity of human cognitive load is inevitable, cryptocurrencies has a few unique attributes are promising:

1. **The defaults aren't set yet.** One of the most exciting things about cryptocurrencies to me is that we have not yet solidified how the ecosystem is shaped and norms are set. All of us in the ecosystem are together helping shape what cryptocurrencies will look like. Eventually, like all industries, it will start to calcify. It's likely we'll look back and wish some things had played out differently. But the clay is still wet, and there are precious few spaces of importance where that can be said [4]. A subset of the ecosystem will end up making the choices that all future constituents will live with, and how we think about our decisions now should be informed byt hat.
2. **Moving the complexity-legibility frontier.** This problem can also be solved by improving the legibility of cryptocurrencies at any level of complexity. Crypto, due to its software nature and nascent stage, is well suited for this. There are few structures that have calcified, and software is mal-

leable and easy to experiment and improve. Cryptocurrencies are currently very complex and illegible, but software is easier to make legible than any other substance. There are many working on this at all the different areas of crypto—and they should be applauded for their work. Cryptocurrencies will be at their best not when they are viewed as complex and inscrutable, but when we make even the most complex topics accessible and intuitive to all.

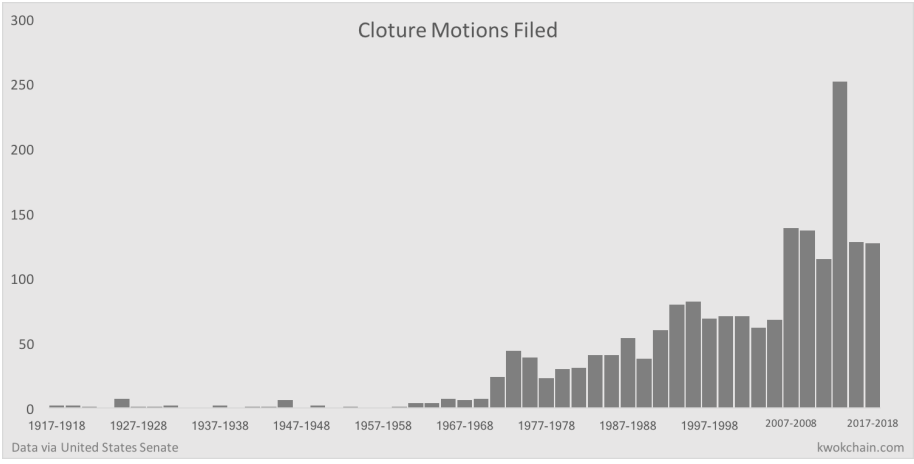
Credits

Thanks to Nader Al-Naji[1], Michael Dempsey[2], Keila Fong[3], Alex Hartz[4], Noah Jessop[5], Chris McCann[6], Kevin Simler[7], and Casey Winters[8] for their help with this post. And conversation with Will Warren[9] for getting me to start actually sharing these.

1 twitter.com/nadertheory
2 twitter.com/mhdempsey
3 twitter.com/keilafong
4 twitter.com/aehartz123
5 twitter.com/njess
6 twitter.com/mccannatron
7 twitter.com/KevinSimler
8 twitter.com/onecaseman
9 twitter.com/willwarren89

Post-scripts

[1] The prevalence of forks should cause people to adjust their priors. Forks are happening at a frequency that was not anticipated, and whenever this happens people should refactor their mental model. I believe two things are happening. The first is that forks were originally meant to be a check, not a tool. I think that forks as envisioned were meant to be like impeachment or the filibuster. Not meant to be used often (or hopefully ever), but a threat always looming to keep developers from misaligning significantly. However, like the filibuster they went from rare usage to common usage over time.



The second is that forks are the real frontier of the metagame. They are the place where blockchains are most susceptible to attack and where the least explicit checks have been created. Forks are where the rules of the ecosystem are implicit and not enforceable. This makes it the ideal environment for looking for where there will be an advantage to new strategies. Both those we'll look back on as innovation and those we'll look back on as attacks. Through this lens, we should expect the amount of forks we've seen. In fact, we should expect new strategies utilizing forks. Forks are very asymmetric in payoff currently. A way to tell that the metagame is present is by debate over what tactics are fair game or out of bounds. In cryptocurrencies this is particularly important because as a space it lacks most of the ways by which ecosys-

tems prevent the meta-game from moving up the stack. Will be interesting to see how it plays out and likely should be much further public discussion on this area.

[2] I've often wondered whether people's mental models for democracy match. Is democracy the goal, or the tool? We fall into the trap of believing democracy is the goal itself—and then are repeatedly surprised when we see democracies fail around the world. **Democracy seems more to be along the efficient frontier of a bunch of factors we care about in governments.** This is not a complete or ranked list, but things like accountability, legibility, effectiveness, enforceability, etc. are all factors that seem to matter in how we evaluate governments. And of course, not just when they are working well, but also what their checks are when they are not working well.

For example, imagine a dictatorship, but it had perfect visibility into the wants of its populace and citizens had a tamper-proof secret button that if 50% of populace pressed, a new dictator would be put into power. Would that be an inherently inferior government to current democracies? China is the government that comes to mind when considering this thought experiment. Though it's often thought of as not being held accountable, it can also be viewed as a government that promises growth in its people's standards of living or faces populist revolts. It's still an open question whether this is sustainable long term. A less controversial, but even more striking example is companies. Within the structure of our democracy, the primary subunit of activity and governance is the corporation, which is quite non-democratic. **Understanding the different factors that make us desire democracy for our countries but corporations for our businesses is crucial to understanding where cryptocurrency ecosystems will fall along the spectrum.** What is clear is that many of these institutions lack much of the technology to make their accountability censorship resistant and feasible.

Democracy as it currently exists is unlikely to be the platonic frontier of what matters in governments. Democracy as we know it is the version we have because of our inability to credibly guarantee certain accountability functions (coupled with the irreversibility of government misalignment). If blockchain

were to make these technically feasible, would we come to a different conclusion about the dominant structure of governance on top of it? After all, every human organization is topologically equivalent. The differences between them are a function of the underlying structural dynamics and the resulting differences in their specific features. So what does that mean for the structure of ideal blockchain governance? My guess is that it looks hybridized between companies and governments. Because of the lower tail risk and easier exit option, companies have settled on a governance structure significantly more centralized and akin to a dictatorship (but with legible metrics and easy exit ability). Maybe we'll find that the legibility and accountability of cryptocurrencies are more core than its decentralization at all levels. Again, topic for another time.

[3] Though the recent forks have been quite controversial, they've actually been surprisingly calm compared to what we'd expect. This is largely because most investors have learned a strange lesson from the last few forks: forks create free money. And it's true. Despite belief that dividing the network effect of a cryptocurrency would lead to a weakening[1] of the overall system, the opposite has happened in the last few forks. They have led to a net increase in the combined value of the two blockchains relative to the pre-fork blockchain. Here's an essay well worth reading by Vitalik on some potential causes for this[2]. It should be the subject of longer essays and debates, but here are a few factors that I think should be considered in this debate.

- Internal dissent is a net drag, so separating partisan factions leads to higher EV of both vs. them combined. Both because of a) belief that partisan fork will be more able to enact changes they have wanted (see North during Civil War) and b) sides that have strong partisan leanings have more incentive to come in to weigh scales now that they have mechanism to express their directional view
- Cryptocurrencies are net growing, so growth covers up all. This is particularly interesting, because it is turning zero sum games into non-ze-

1 cryptofundamental.com/power-laws-and-network-effects-why-bitcoincash-is-not-a-free-lunch-5adb579972aa

2 vitalik.ca/general/2017/07/27/metcalfe.html

ro sum games. But eventually they'll revert

There hasn't been much public debate about what factors cause a fork to be zero sum or net positive. There are a number of factors that affect this and forks are not created equal. And I'd love to see more people write on this.

[4] Privacy norms in the US are the example I think of regularly. There are three mental models people tend to weight when thinking about how privacy norms are shaped.

1. The government dictates privacy norms
2. The people dictate privacy norms
3. A small subset of people have the power to structurally influence privacy norms, and these people are chosen by a process that is either non-correlated or anti-correlated with whether we'd want them deciding privacy norms

I think many of those reading (and maybe this is more a statement on the skew of who reads my writing and would get to the footnotes) would feel that (3) is the group with the most influence on privacy norms. These are people like Mark Zuckerberg, Evan Spiegel, Larry Page, and others at their companies (and the executives, friends, employees, and investors who influence them). These people are chosen by whether their companies became the dominant company in their space—a filter I think we can agree is not primarily based on their views on privacy. Or if it is, it likely skews towards them not being constrained by privacy concerns. Though many disagree, I actually think by and large these founders and companies have been impressively cognizant of the influence and responsibility they have over our privacy norms, considering they don't have to be. Of course, similar to the point above on China, perhaps we are underweighting the implicit contract and norm regulation that the people have over this group. As seen in the recent Facebook privacy woes.

Cryptocurrencies feel very similar to me. At some point this fork that has happened between the cryptocurrency world and tech world will re-merge.

And when it does, some things that have won out in cryptocurrencies will become the architecture and the norms for important parts of our world. And we will look back and be thankful or rueful about how they were determined. I think if you ask anyone from the early days of internet and web protocol standards they'd have similar thoughts. Despite public rhetoric about the anarchical nature of crypto, I think many in the cryptocurrency community are very thoughtful about the potential implications of these decisions. Balancing them is tough, predicting how they will play out is harder. But it's important work, and I'm glad to be able to witness how it plays out.

Populism[1]

October 2, 2018

A good friend of mine, Steve Pulec, asked me what were theories of why Populism is growing.

> *Have you seen any good macro theories for increase in populism? I was discussing with some friends and not getting anywhere. From one friend:*
>
> *I don't know. Lots of people are throwing out ideas but none I see make sense. World economic inequality has been plummeting and populism has been spreading just as much in very equal countries as unequal ones. Globalization could be it a bit(especially anti-immigrant views) but that seems to be a little bit of a symptom more than a cause.*
>
> *So…. Has the internet changed things? Has Russia actually been much more wildly successful at spreading populism than we had ever thought? Has the internationalization of news media done something to cause this? I don't have a good single theory, but there has to be something causing this.*

In hopes of both spurring more conversation–and getting myself in habit of writing more online–sharing my answer here.

1 kwokchain.com/2018/10/02/populism

Re-centralization of personal and financial capital as industrial revolution ends

We have lived in the golden era provided by the industrial revolution in so many ways that we take for granted. One of them is that the industrial revolution was an innately distributed wave. It was a huge technological, productivity, and financial wave. But it required a large base of humans. This is because its returns to scale tilted towards many mid to large cities co-located with transportation and natural resource hubs. And labor was a major factor of production.

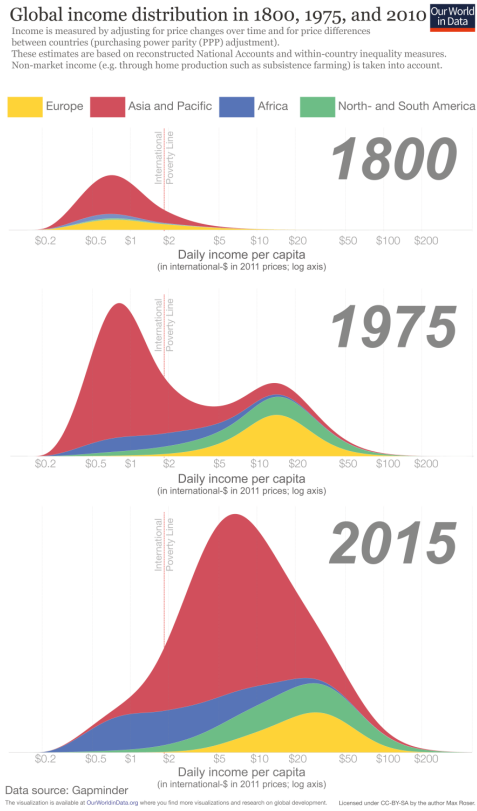
This was not the sole factor, but one of the major ones for why we see a middle class arise in the world. Before the industrial revolution we see far greater inequality, with elites capturing far more power and wealth. This makes sense, in fact very *few* industries or technologies lend themselves to distributed returns the way the industrial revolution did. For a modern example, one need only look at Hong Kong, which used to be a vibrant city with thriving middle class in the decades when it was huge industrial hub. But now that finance and real estate are its primary industries it's losing its middle class as the former is centralized and the latter is not only centralized but regressive too.

The question then, is whether we are living through the reversion to the mean. Was the industrial revolution the anomaly? If we look at our current technologies and industries it actually does feel like they are not particularly distributed in the requirements and value distribution. There are certainly exceptions to this (perhaps enabling companies like Stripe, GitHub, etc) but generally seems like tech trends towards centralization of value capture. Looking across other US industries we might say healthcare, fracking, and retail are among the more distributed currently).

If you believe these trends, then we should all be worried about the macro trend towards inequality and centralized value capture and the political instability it could cause.

Reversion of the US vs world

However, as your friend pointed out, in the world overall we're seeing inequality *improve*, so what gives? I think that another macro trend is the cause of this and obscuring the other trends underneath. The macro trend playing out here is WWII. My belief is that for the last 75 years, the US has been an anomalous market by absorbing value from the rest of the world. Immediately after the war most of the world's developed countries lay in ruin. And the US basically became Platform Americana. By rejecting the full stack nature of the European Colonial Approach and instead becoming a platform–the US struck a bargain with the rest of the world. It would provide the production, consumption, guarantee of trade routes, security, and financing for the world. Our middle class is a function of the value that was supposed to be generated in the rest of the world that we captured as the platform for world.



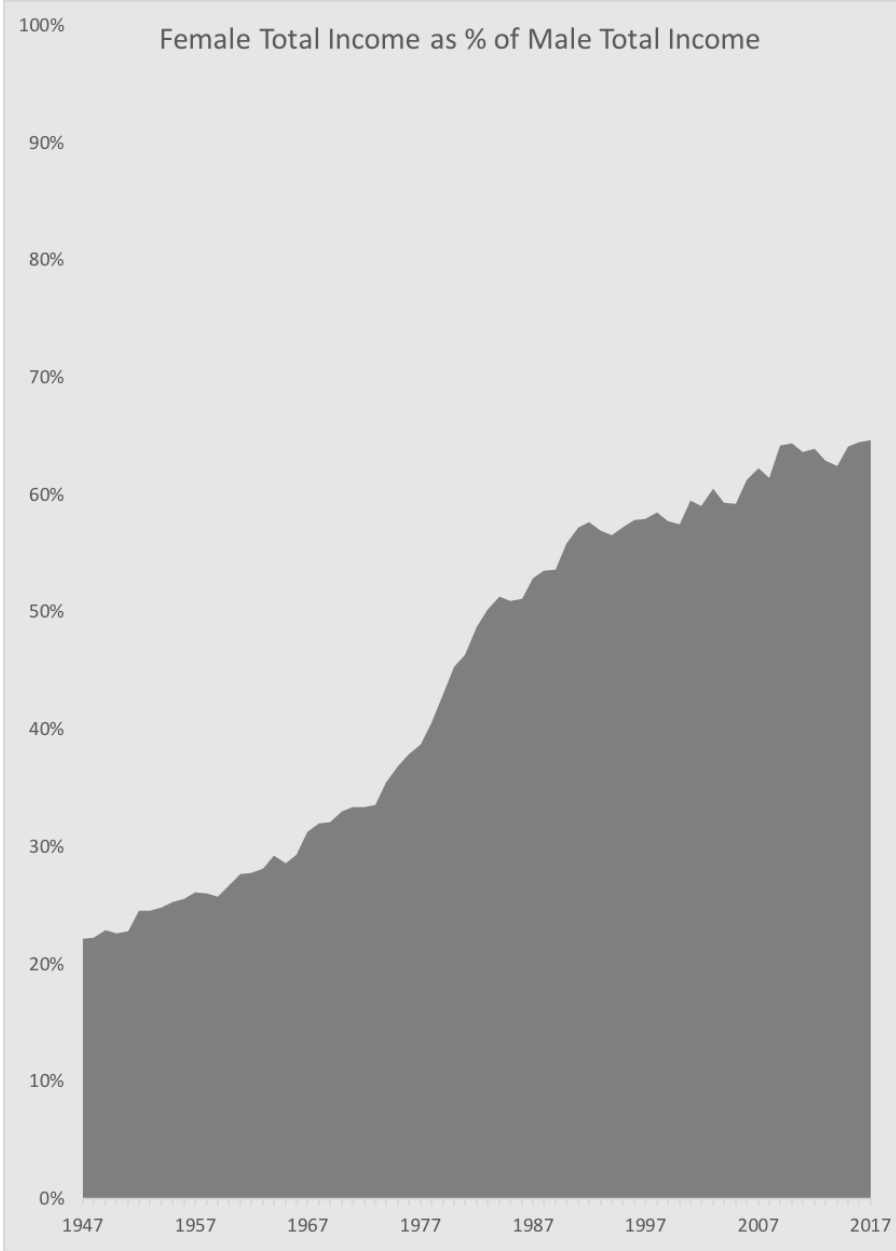
So as we see middle class in US shrinking, the middle class in other countries rises. To be in the US then, appears akin to sitting on a beach watching the waves flow back to the ocean. This net means we should not be surprised that US is becoming less equal. There is a structural gravity towards this direction we must fight against.

Less intuitively, it means it's hard to tell whether the dynamics of other countries are healthy or merely being hidden by the one time exogenous return of value the US had been capturing before.

Reversion of white males vs others + Macro trend of women entering workplacet

Additionally, I think we're seeing a similar dynamic as the US vs world middle class playing out among different demographic groups. Similar to US middle class, I suspect that we're experiencing the same phenomenon with blue-collar white males. The market they competed in was artificially weaker for centuries because of legal, cultural, and fiat norms around women not being in workplace, minorities being disadvantaged, etc. As those demographics become equal parts of market, we're seeing corresponding flow of value out from white male demographics–or at very least increased competition. Given the generational time frames this has operated on, it would feel like a structural negative-growth trend to them. Which is what we're seeing many feel. This is tough because it is simultaneously true that they don't have any right to this excess relative value capture while *also* true that for many their lives are feel comparatively tougher. This combined with loss aversion and the growth thesis (see last point) will make for hard choices.

Something contributing to this is the macro trend of women entering the workplace. I personally think this is a far more important macro trend that warrants being its own topic. So won't say much more on that here–but will put in this chart which I think is one of the most important charts. Period.


Female Total Income as % of Male Total Income
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1947
1957
1967
1977
1987
1997
2007
2017

The Internet and the Redistribution of Social Capital

Very poignantly for those of us who work in tech, I think we're seeing the mid-innings of the internet's impact as it starts to reshape our social capital/norms. The internet will do to social capital what has happened to financial capital over the last centuries.

Financial capital has become way more distributed over the last few centuries. Industrialization was but one cause of this. But the impacts of it have been gigantic. So many things are downstream impacts of the redistribution of capital and resulting power that we saw over last centuries. For example the fall of monarchy and feudalism can in part be traced to the rise of the non-real estate sources of wealth which changed power dynamics and distribution of power significantly. And of course, our capital markets have shifted so dramatically over last hundreds of years. In many ways for the better–we've unlocked (and continue to unlock) more meritocratic and productive deployment of capital.

But it wasn't easy. These new distributions of capital caused massive disruptions and turmoil as people figured out the physics of the new worlds they created, how to understand them, and how to harness them.

We are seeing the same thing happen with social capital today due to the Internet. Where social capital used to be local in nature and mediated via highly centralized intermediaries. It is now becoming more global in nature and distributed. As an example, any thing can go viral and be distributed *and then* reacted to by millions of people within hours. Many are uncomfortable with this, but I suspect that their discomfort either comes from 1) us living during the transition period where we don't know how to predict or handle these things yet. or 2) people with financial/personal capital being uncomfortable they can now be regulated.

In regards to the latter: Financial, Personal, and Social capital are all regulators of each other. So what we are seeing is Social Capital get 1) more distrib-

uted and 2) stronger relative to Personal and Financial capital.

The former means that it is inherently more populist and we are living through the transition state. and the latter means that it's impact relative to the other types of systems will be more magnified.

Growth is the only escape from zero-sum games

Finally I think we don't talk about growth correctly. The adage "Growth solves all problems" is not just true of companies. It's true of countries too. With growth, people believe in cooperation. They find common ground in the pursuit of mutual success and growth. Without growth, people become zero sum. If you personally don't think you are growing you start trying to roll back the blockchain until you can get back to a place where you felt you were growing. The world looks way more zero sum and all divisions and cliques re-emerge–like long dormant scars re-opening.

I'm disappointed that this narrative isn't more understood. It is the glue that binds the goals social and fiscal progress together. And the structural force that underpins how far we've come, how easily we can fall, and how much more we can do–but only together.

Conclusion

So in combination we have 1) a re-centralization of financial capital and personal capital, 2) reasons to believe that even if economics were net doing well there are certain countries (US) and demographics (white male) we might suspect are doing relatively worse than they were historically, 3) social capital becoming stronger and more distributed, and 4) people no longer believing in their personal growth–which is the source of all alignment.

All of these would point to the rise in populism we see.

Appendix

Others' views on this and related topics (I will update this to include other readings–so let me know of any good ones)

- Naval Ravikant: *American Spring*[1], *American Fall*[2]
- Peter Zeihan: *Accidental Superpower*[3]
- Tyler Cowen: *What the hell is going on?*[4]

1 startupboy.com/2016/01/15/american-spring
2 startupboy.com/2016/10/18/american-fall
3 amazon.com/Accidental-Superpower-Generation-American-Preeminence/dp/1455583685
4 marginalrevolution.com/marginalrevolution/2016/05/what-in-the-hell-is-going-on.html

Selection Bias in Poker[1]

November 9, 2018

In venture we often talk about the selection bias (both positive and adverse) in many areas—whether the companies in a specific incubator or if you offered blanket deal terms to every employee in a company, or any number of other scenarios. But because we rarely quantify them, it's hard to have know exactly what their impact is—or have an intuitive feel for how to calibrate and adjust for them.

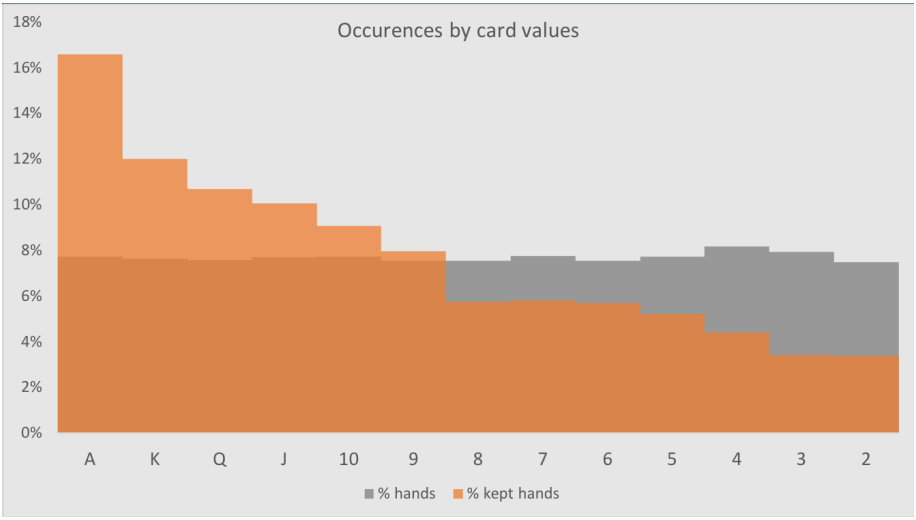
Was bored one night, and thinking about other areas with selection bias that'd be fun to take a look at. Preferably ones with quantifiable data to look at. And poker came to mind. We all have an intuitive sense that hands that get played in poker are better than the average hand dealt out. But most casual players likely can't estimate how much better one should expect hands not folded to be.

I looked at a dataset of ~7k hands of poker played, and focused on the hole cards (the two cards dealt to the player that only they can see). I wanted to see how the distribution of hands that players got differed from the distribution of hands they had where they stayed in at least until the next round of cards was dealt (versus those hands where they immediately folded). You can see data source and methodology at bottom of this essay. To be clear, lots of reasons this dataset shouldn't be taken as generalizable and precise statistics. But for my purposes, illustrative enough.

Of the ~7k hands in 26% of them the player stayed in and didn't immediately fold. The question is how do these hands that are kept vs folded differ.

1 kwokchain.com/2018/11/09/selection-bias-in-poker

Below is the percentage occurrences of each card rank as well as the percentage occurrence of each card rank among hands kept. As you would expect, all the ranks are dealt roughly equally. However, there is a wide range among hands kept—with higher value cards showing up significantly more than lower value cards. The Ace is kept over five times more than the Two is kept.

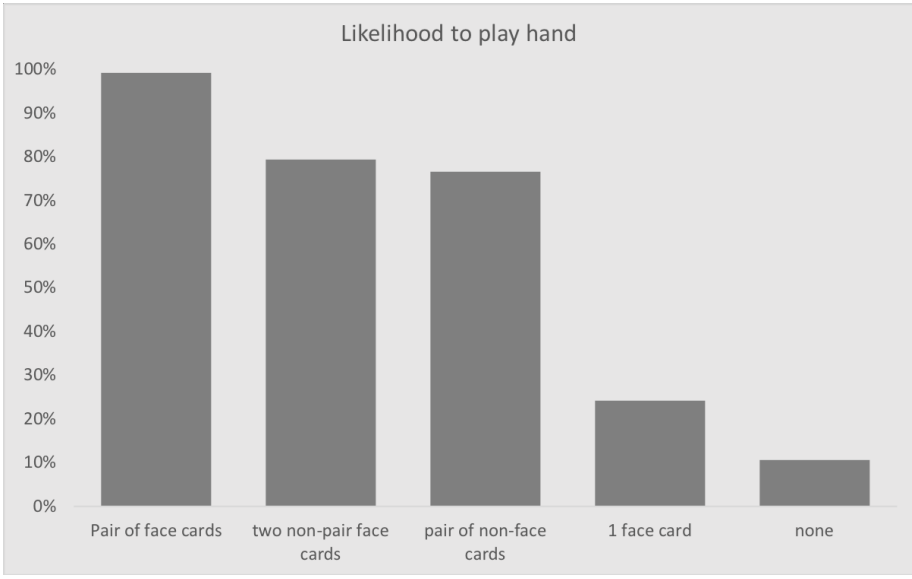


This analysis is not particularly useful because we don't think of each hole card in isolation. After all, having a matching pair of cards can be far more valuable than two higher but non-matching cards.

Instead let's look at some common types of desirable hands. Having face cards is great as is having a matching pair of cards. Even better is having a pair of face cards. Of course there are other attractive hands like a flush or straight draw—but for simplicity we'll focus on face cards and pairs.

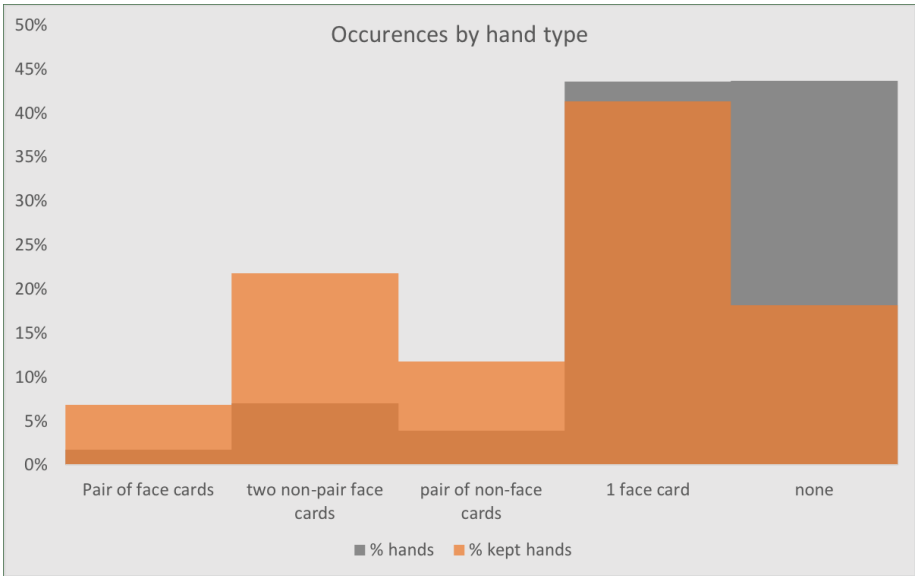
Below is the probability that if the player had one of these combinations of cards—they would then play it to at least the next round rather than fold.

Again these results are not surprising but help quantify our intuition. If a player has a pair of face cards they are virtually guaranteed to not fold. In our data set a pair of face cards was dealt over a hundred times—and only once did the player fold them. Similarly, when the player had two face cards or a matching pair of cards they played them over 75% of the time. On the other hand if they didn't have these—they were far less likely to keep their hand.



Most interesting is looking at the distribution of each of these types of hands among all hands dealt—compared to the distribution among hands kept.

While there is only a 13% chance for a player to get two face cards or a pair. Among hands played there is a 40% chance it's two face cards or a pair. Let that sink in. Even though there is a very low chance of someone drawing a pair or two face cards. There's almost even odds that anyone that doesn't fold has a pair or face cards. If you're playing with more than one person the chance definitely becomes greater than 50% that at least one player has it.



Again, nothing surprising. But interesting to be able to quantify the impact of the selection bias.

While it's hard in the real world to quantify selection bias. There's a lot more we could be doing to improve at this. And we should. It's hard to adjust for it—when we don't have a shared sense of exactly what impact it has.

Sidenote: Stack rank of hands by probability of being played

Turns out another useful thing is you can see a stack ranked list of each hand and the probability of it being kept vs folded. This is a pretty useful list for new players getting used to figuring out how strong their hands are.

Top 20 Hands	Kept vs Folded
AK same	100%
1010 different	100%
AK different	100%
AA different	100%
AQ same	100%
88 different	100%
KK different	100%
QQ different	100%
JJ different	97%
AQ different	97%
AJ same	94%
99 different	92%
KQ different	91%
KQ same	90%
66 different	86%
AJ different	86%
10K same	84%
10A same	84%
77 different	83%
109 same	81%

Bottom 20 Hands	Kept vs Folded
102 different	5%
5Q different	5%
59 different	4%
49 same	4%
48 different	3%
23 different	3%
28 different	3%
5J different	3%
103 different	3%
29 different	3%
34 different	3%
2Q different	2%
105 different	2%
24 different	2%
49 different	2%
27 different	1%
4Q different	1%
38 different	1%
102 same	0%
25 different	0%

Methodology

Surprisingly, getting Texas Hold'em data is harder than I expected. This is surprising since scraping poker sites or videos of poker seems very doable. Apparently, people used to scrape and buy poker data sets in order to get direct edge over other players by having the data on their *specific* opponents. Which may be part of the stigma or crackdown on datasets. And most free datasets have the actual hole cards obfuscated.

The dataset I used was 7k hands of poker from a Kaggle dataset. The data can be found here[1]. Since I needed to know the hole cards, all my data is from one player—since they only disclosed the hole cards of the player collecting the data.

Lots of reasons to not over generalize from this data. Besides the data being from one user, it also doesn't factor in hands where the player was big blind or there were no bets. These would likely skew the data even more towards only high value hands being kept.

But think the general trends it shows are illustrative.

Further studies

- How do these probability distributions differ depending on the number of players. We'd expect people to only play stronger hands the more players they are in a game.
- How do these probability distributions differ depending on how many blinds the player can afford to play.
- How do these probability distributions differ depending on whether the player is a pro vs amateur
- Probably more important is how we can get better selection bias data on other more important areas.
- Honestly, poker's great—but I'd much rather have statistics like this collected for Avalon! ESPN for Avalon. Looking at you Eugene.

1 kaggle.com/smeilz/poker-holdem-games

1MDB and Malaysia: Notes and Adjacent Thoughts[1]

November 20, 2018

I tweeted recently about how I thought the 1MDB scandal in Malaysia is massively under-followed. In the interest of elaborating on why–and encouraging more private memos to be shared–below is email I sent to some others on why I found the 1MDB scandal important, and some adjacent topics it made me think about.

I'm not going to give full overview of 1MDB scandal. It's an ongoing scandal in which the former Prime Minister of Malaysia, Najib Razak funneled billions of dollars into a government run fund 1Malaysia Development Berhad (1MDB) informally headed by a fellow conspirator and financier, Jho Low. Together they stole hundreds of millions of dollars from the fund, used it to buy votes in Malaysia and to party in Hollywood and NYC, and decided government projects based on their personal interests. And in their efforts to cover it up and not be held accountable, tried to subvert Malaysia's democracy and government, shifted the geopolitical direction of the country, and perhaps had a government prosecutor killed.

If you want to learn more about it you can read books like Billion Dollar Whale or articles in the WSJ, Sarawak Report, Economist, or others. This is current news story–so at this moment new developments are still coming out.

1 kwokchain.com/2018/11/20/1mdb-and-malaysia-notes-and-adjacent-thoughts

When covered in the US, it's usually covered because of the salacious details of Jho Low's partying in the US. This is noteworthy, but just one small part of a much more interesting peek into how things happen. Much more interested in getting a view into worlds of business and politics we rarely get–then salacious fodder that can fit in tabloids at the supermarket cashier.

Email memo below

———-

Some notes and adjacent thoughts on 1MDB

Secular shift and Maturation of Sovereign wealth funds. The 1MDB scandal involves Malaysia's sovereign wealth fund as well as Abu Dhabi's Mubadala, but we should zoom out to see the bigger picture. Across the world sovereign wealth funds are changing how they operate and we are starting to see its impact. From Saudi Arabia's $45B investment in Softbank's Vision Fund to Singapore's vertically integrated approach with Temasek, with it's hundreds of employees across 10+ offices around the globe. These aren't isolated events. Sovereign wealth funds are undergoing the same transition that foundations and endowments went through three decades ago. As they seek returns they are pursuing exposure to alternative asset classes, with the added strategic imperatives of their country. Bringing their hundreds of billions of dollars to market, they are the underlying force driving significant shifts across many asset classes. And their investments will have future geopolitical importance too. Yet few are discussing this macro trend.

High net worth family funds are also undergoing this shift. In both of these cases, the transition is typically being led by individuals within informal power structures with little oversight. This means that we're seeing high variance in the approaches and outcomes of each experiment. What sectors and deals these funds do can be highly subject to the personal beliefs and whims of a tiny handful of people and the advisors around them.

Small Man Theory of History. Historian's use to debate the Great Man Theory of History, Thomas Carlyle's theory that history was shaped by the so called Great men or women that through sheer force of will changed the world. While this has been largely discredited, perhaps we were looking at it the wrong way. Perhaps it is not the Great Man Theory that is true, but the Small Man Theory of History. That history can be shaped by the personal failings and whims of one person.

The 1MDB scandal is a good case study on this in regards to Malaysia and its former prime minister, Rajib Nazak. During the latter part of his tenure he shifted Malaysia closer to China over the US, for example joining Xi Jingping's Belt and Road Initiative[1] and promising far closer economic and political ties. But in truth this wasn't for Malaysia's benefit. Instead it was because secretly he knew of the impending blow up of 1MDB. The US refused to halt its investigations into his involvement in the scandal, angering him and making him cut off ties. And he siphoned off money that was supposed to be spent in Belt and Road Initiative projects to pay down debts owed by 1MDB and keep it afloat[2]. Because of his surprise loss and ouster from office, we have seen Malaysia reverse these positions, but if he had not lost we likely would have seen a significant political repositioning of Malaysia for no other reason than Razak's personal scandals. That is insane and shows how fragile our political systems are.

Competence and Efficiency. When I was growing up, I worried that the world was too efficient. How could there be any room for me to improve on the world–surely every company and organization must be run in a highly competent fashion? After all, the world has had hundreds of years to improve at running companies and governments well.

Following 1MDB will put to rest any fears or hopes you had that the highest levels of finance and government are all highly competent. There are countless

1 scmp.com/comment/insight-opinion/article/2094094/why-malaysia-supports-chinas-belt-and-road

2 wsj.com/articles/malaysia-suspects-chinese-cash-paid-troubled-funds-debt-1533067876

examples of the corruption and incompetence of the conspirators. Their brazen stealing of billions of dollars. Their profligate spending on partying and luxury goods. Their amateur use of fake email accounts. Their willful disregard for their fiduciary duty to their companies and people.

In many ways realizing this is very liberating. We should not be afraid of our ability to do good work. As long as we have good intentions and are willing to work hard, we're already in a very good spot. The bar is lower than we think. The world is not at 80% competence, it's at 20%. There is so much for us to collectively improve on.

Quacks. Lately we have had notable scandals like 1MDB and Theranos, where charismatic individuals talk their way into millions and billions of dollars from others. And perhaps we are all just a few good conversations away from a billion dollars. Of course, the tough part is having real ways to deploy that amount of capital and get a true return on it. And this is where these schemes all unravel.

We've abstracted Finance so much we think it's efficient. Many people hate finance, but few think of it as sloppy and inefficient. We think of finance as a sophisticated and efficient process. This is in large part because of how we've abstracted it into a clinically clean and precise High Finance. But this isn't the case. Finance has so much waste and corruption in it. It moves such magnitudes of capital that this loss is factored into the cost of doing business. Scandals like 1MDB give us a peek into this world. Into how easy it is to move money illegally. To bypass compliance teams with limited resources and scope of authority. When we talk about startups working to improve finance. Or crypto replacing parts of finance. We should remember we're not talking about a some highly performant system with perfect accountability and legibility. We are often talking about very human systems trying their best but unable to have the legibility possible to live up to our goals. Encoding these systems in software will allow us far greater visibility and accountability into these systems.

Economics of Dirty Money. Our intuitions of the economics of dirty money, whether money laundering or corruption, are typically miscalibrated. We are too used to understanding economics from the lens of normal businesses, where companies must focus on their margins. One thing that's hard to appreciate is how different your considerations are when unit economics aren't what drive the business model, but instead making the money 'clean'. For example, there's a reason once they reach a certain scale, all p2p transactional businesses get approached by the FBI about money laundering. The best customer is the one who doesn't care about your 20% take rate, they view it as a cheap cost for laundering their money.

Similarly, I hadn't appreciated the degree to which natural price dispersion in markets are fantastic for money laundering. I wonder how much of real estate markets in many cities are propped up for these purposes. And let's not even talk about the entire art market. All the strategies not possible in pubic markets are much more possible in these less regulated markets.

Money and Politics. Malaysia's Prime Minister, Rajib Nazak may have thought they'd make money on 1MDB's investments. Him and his wife certainly wanted to personally benefit from siphoning off money from the fund. But there was also an important political purpose to the fund. The fund doubled as a piggy bank he could draw on for political purposes. It was the equivalent of a virtually unlimited Super PAC that could be spent however to help his party get votes. So it wasn't just personal greed that drove his involvement, but very rational political calculi. Without meaningful regulation and enforcement of money in politics we will always make environments that welcome this kind of attack profile.

Burning the Commons and the Metastasization of Corruption. Jho Low definitely abused even what his co-conspirators thought he would do with the money. But to be clear, for conspirators it is a *feature* of the system that he pocketed massive amounts of money from the fund. After all, for anyone involved, if you want to criminally benefit from the system (whether for money, political purposes, etc) you want to make sure everyone else is *also* criminally benefitting so you know they are in the same boat with you. Cor-

rupt systems metastasize because of this property. It's why it's so important to be vigilant in destroying them. They aren't harmless, they make it impossible for honest people to thrive. We need stronger cultural and legal norms around punishing people who burn the commons.t

Hostages to Fortune. Jho Low's downfall was precipitated by his inability to hold back his frivolous and ostentatious spending. It was not enough to make incredible sums of money. He needed to throw the largest parties and become friends with celebrities. Yes, there were some business reasons for doing so, but it was primarily for his enjoyment. And drawing attention to himself was certainly terrible for his endeavors–as many of his co-conspirators warned him of.

In this case I like it because it helped him get caught, but in general am always surprised by people who let their personal failings constrain their ability to achieve their maximal work and impact. And this is not unique to Jho Low. So often we see politicians, founders, and all manner of people who cannot help themselves from giving 'hostages to fortune'.

Lee Kuan Yew has multiple speeches on this topic as it relates to the early days of the PAP. When they were fighting for the hearts and minds of Singapore against the communists, if they'd had corruption, sex scandals, or any other number of missteps the Communists would have used it to break the country's trust in them. It is hard enough to do important work, without getting in your own way. Independent of what we think of others decisions, we should judge them where they let their personal issues constrain their, and our, ability to do important work. Time and time again in history we see people hand others the rope with which to hang themselves.

The Fungibility of Money and Celebrity. Much of the coverage around 1MDB in the US has been focused on the celebrities caught in the orbit of Jho Low. Though I don't think it's anywhere close to the most important things of note from the scandal, it's not surprising the media and consumers in the US focus on who's partying or dating who. That said, books like Billion Dollar Whale that cover how Jho Low converted his money into friendships,

relationships, and business partnerships with celebrities is an indictment in–at least some part–of our celebrity society. In which the rich and the famous desire each other's social and financial capital respectively–and create a more fungible market between than two than one would guess could be done. At least that would be the polite way of describing it.

The US is Global News. Few in the US know about this scandal, yet it (and its downstream impacts) are the most important thing to shake Malaysia in decades. Nothing of this import could happen in the US without everyone globally knowing. Always striking to be reminded of this. And do wish more in the US would care.

The US is an Important Arbiter of Global Norms. On the other hand, despite little attention domestically, it's striking how much the US is the arbiter and one of main checks on these scandals in other countries. It was the WSJ that could break open much of the scandal because it was not subject to oversight by Malaysia's government. It was the FBI's Kleptocracy department that investigated and would not fold under pressure to Malaysia's pressure. And it was the US as the center of the finance world that was able to help resolve this. It's easy to forget the positive roles the US plays internationally, ensuring fair markets and responsible governments. This is not selfless of course, but out of self interest. But an America that cares about functional governments and markets so that it's interests can be represented is an America that can be a check for people who cannot themselves check their governments.

Those enforcing the Foreign Corrupt Practices Act and working at government units like the FBI's anti-Kleptocracy team have a thankless job. And many businesses argue these rules make it hard for them to do business in countries where bribery and corruption are the expected norms of business. But these are important for setting and maintaining international norms that allow for a healthy and functional market. If the US no longer cares or is able to be a check on the abuses of those in power in other countries, it would be unfortunate.

Malaysia and the UMNO. With Mahathir coming back to unite with rival Ibrahim to pull off an upset victory against the UMNO in the last election, reasonable heads are hopefully back in power in Malaysia. Lost in this return to normalcy is just how close Malaysia came to being set back decades if not a century by Najib Razak and the other 1MDB conspirators' actions. It was only because of the turnout and overwhelming action by citizens voting that it was stopped. With recent elections and referendums in the US, the UK, Brazil, and others it is easy to get disenchanted with democracy. Malaysia is a good example of how close it can come to disaster, and also the power and importance of voting and citizens caring and demanding better from their government.

It is also hard to calibrate on just how unlikely this was. Since its independence, Malaysia has been governed by a coalition (Barisan Nasional) led by one party, the UMNO. Seeing the UMNO's six decades of dominance brought to an ignominious end by a crisis like this is striking. And to be done by a former Prime Minister allying himself with the former disciple he jailed for years is even more so.

Common Knowledge and Hacking. Hacking and leaks had a significant role in bringing this scandal to light and keeping pressure on the Malaysian government, and other governments across the world, to hold the conspirators responsible. The original primary documents proving 1MDB's guilt were hacked by a disgruntled former associate. And many of the leaks to reporters were by government investigators working on the case, frustrated by the Malaysian government's attempts to cover up the scandal rather than actually bring its perpetrators to justice.

In the US we're bombarded by all the ways hacking can be used to subvert democracy and justice. But it is important to remember, that hacking and leaks have also, in the background, been an important force for shedding light on scandals. Hacking at its best, is a tool that can hold the powerful accountable. And make common knowledge the the harms they try to keep in the shadows and their burning of the commons.

These are not Black Swans. It may be nice to hope that scandals like this are freak occurrences by inordinately outlier villains. This would be naive. This is not some black swan event. Rather, we are getting a view into the type of corruption that happens regularly across the world–but few are ever brought public and punished.

I remember talking to my father about 1MDB, and him reminding me that this isn't surprising at all. And telling me many stories about similar schemes those working in the guts of Asian finance and business all had front row seats to over the last few decades. While these aren't rare, hopefully we are seeing increasing trend of them being exposed and made common knowledge. We have much more work to do.

Credits
Thanks to Sam Hinkie,[1] Jeff Lonsdale[2], Arjun Narayan[3], Dave Petersen[4], Dan Wang[5], and Eugene Wei[6] for their shaming me into sharing more blog posts and thoughts on this topic and post.

1 twitter.com/samhinkie
2 twitter.com/JeffLonsdale
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Aligning Business Models to Markets[1]

February 22, 2019

Why Shake Shack and Super Duper have great Service. And what that means for tech.

Danny Meyer opened Union Square Cafe in 1985. Since then, his Union Square Hospitality Group (USHG[2]) has expanded to nearly 20 restaurants, encompassing Michelin-starred fine dining at The Modern[3] to casual barbecue at Blue Smoke[4]. The USHG empire also spawned Shake Shack[5], now publicly traded with a market cap of almost two billion dollars and more than 200 locations. In his business memoir *Setting the Table*[6], Meyer attributes his outsized success to an uncompromising focus on employees that leads to differentiated service.

If Danny Meyer's employee-first approach is so effective, why haven't we seen more restaurant groups adopting it faster? Or even more service-first approaches?

This is an important question to ask, because it's the question we keep asking ourselves in tech too. Why do some companies seem to run better than others, and why can't others replicate them as well? Why do companies do well in their industries whether Fortnite in gaming, or Airtable, Figma, and Notion in productivity? Perhaps answering this for restaurants will shed light on it in tech.

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1 kwokchain.com/2019/02/22/aligning-business-models-to-markets/
2 ushgnyc.com
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4 bluesmoke.com
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6 amazon.com/Setting-Table-Transforming-Hospitality-Business-ebook/dp/B000OI0FCQ

Structurally supporting service

It's tempting to think USHG's approach hasn't become common because owners and employees don't care about service. While this may be true of some, it seems unlikely across the service industry.

Instead, to riff on Hanlon's Razor, "never attribute to stupidity or malice that which can be adequately explained by structural alignment of incentives." Providing a high level of service is a choice that must be supported by your business model. Few can afford the investment. But for those that can the dividends are significant.

Investing in your employees is expensive

[Thesis: turnover makes it hard to invest in training, which is a prerequisite for service]

The constraints of most restaurants' businesses make it hard to replicate employee-first approaches. Most restaurants don't have the employee retention or capital to improve their service significantly. The economics of their business don't allow them to invest more in service.

When Danny Meyer says customer service is important, a prerequisite of this is being able to hire high-quality people and invest significantly in training them. And most restaurants simply can't afford to do that.

Kenji Lopez-Alt[1] (author of The Food Lab) has a great interview on the Freakonomics Podcast[2] about the challenges of opening Wursthall, the restaurant he co-founded. In it he spoke about the difficulty of hiring, training, and retaining great talent:

1 twitter.com/kenjilopezalt
2 freakonomics.com/podcast/how-to-open-a-restaurant/

> *Finding good people is by far the hardest thing…finding great people is very hard. Even finding remotely reliable people. Even before we opened, when we were training staff, we must have lost probably 50%. 50% turnover over the course of a few weeks. Which is not abnormal.*

Imagine a startup with 50% churn. What could they even do? Forget how high the cost of recruiting might become. It would be impossible to invest in training employees, much less to maintain any standard of service. With an employee half-life of weeks, none of this is possible.

For many restaurants it's prohibitively expensive to train employees for months. They don't retain most employees long enough to justify the costs. According to an industry expert who's run chains at both the fine dining and fast casual ends of the spectrum, employee churn rates at restaurants can range from 50% annually at fine dining restaurants to 70% at causal places and 110% at fast casual chains. At those attrition rates, the employees are more likely than not to be gone by the time training is done. And since employees don't view most restaurants or chains as a place for their long-term careers, the more you train employees and help them build experience and skills, the sooner they will leave.

Could any restaurant take the leap of faith and invest in their employees? Perhaps, but it's a risky bet. It takes significant capital to do this, with no immediate payoff. And the cost are deeper than training: if you say customer service matters, then compensation and bonus structure must reflect that.

The farm club model of talent retention

[Thesis: providing advancement opportunities is one way of combating turnover]

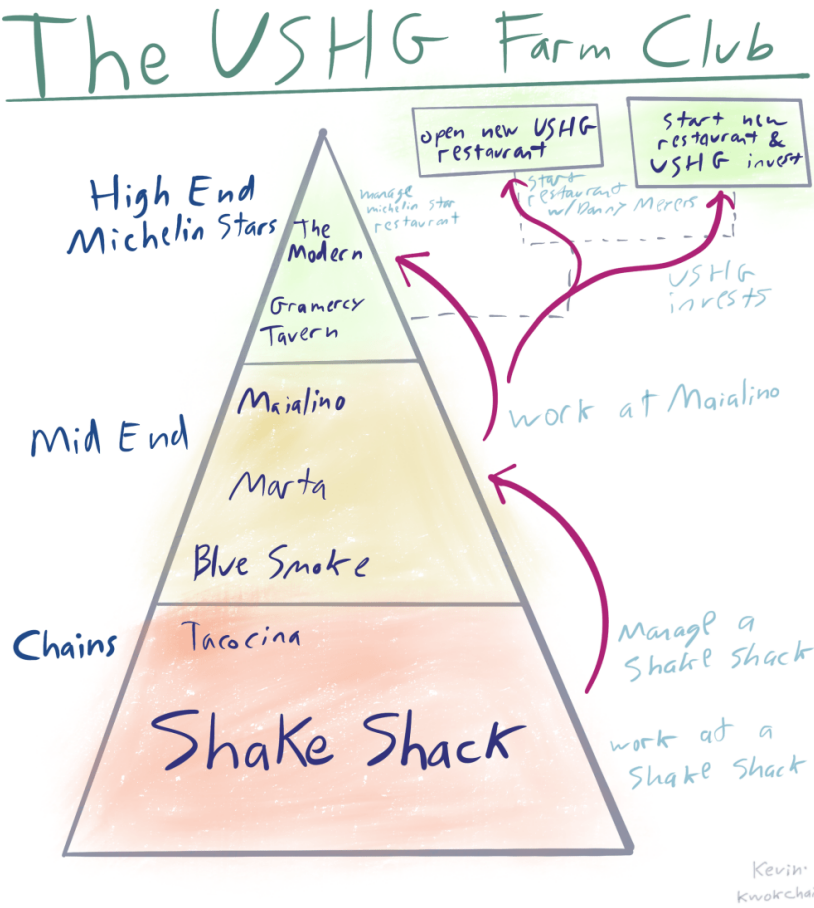
USHG is a constellation of very different restaurants and chains. At one end it has michelin star fine dining restaurants like The Modern and Gramercy Tavern. While at the other end it has the large chain Shake Shack. And many restaurants in between those two ends of the spectrum of pricing and scale.

Unlike many restaurant groups, this variety means Union Square Hospitality Group can hire people early in their careers–and plan for them to advance their careers from within USHG.

You can start working at Shake Shack, and then move on to managing their own Shake Shack or working in one of USHG's more upscale restaurants. This is true both on the business or chef sides of the business.

If you do well you could go on to run a restaurant in USHG's portfolio. Or if you wanted to open your own restaurant, you could open one with Danny Meyer as part of USHG–or start your own restaurant and have USHG as an early investor. In fact, another possibility is what the three michelin star restaurant 11 Madison Park did. It was a USHG restaurant that they sold to its general manager and head chef, who'd both worked at USHG for years.

By having a portfolio of restaurants at different scales and price points, employees are able grow their careers while staying in the family. And USHG is able to have high retention and invest more in its employees.


The USHG Farm Club
open new USHG restaurant
start new restaurant & USHG invest
High End Michelin Stars
manage michelin star restaurant
start restaurant w/ Danny Meyers
The Modern
Gramercy Tavern
USHG invests
Mid End
Maialino
work at Maialino
Marta
Blue Smoke
Chains
Tacocina
Manage a Shake Shack
Shake Shack
work at a Shake Shack
Kevin Kwok
kwokchain.com

Back of the House[1] is another prominent restaurant group, founded in San Francisco by Adriano Paganini in 2009. Its portfolio includes ten casual to mid-level restaurants, ranging from Belgian brasseries to Argentinian Steakhouses. And like the Union Square Hospitality Group, it also has fast casual chains, including a successful burger chain, Super Duper. Perhaps, most importantly Back of the House also has taken a farm club approach to growing talent to fuel their expansion:

> *The last big piece of the pie for Paganini is the big working family he's assembled over the past two decades. If you take stock of Back of the House's upper management, you'll find that many staffers here began as waiters and line cooks. Director of operations Jessica Spencer-Flores got her start as a server at Starbelly. Luis Flores, general manager of Uno Dos Tacos and his first own full-service restaurant Flores, was a manager at the very first location, in the Castro, of Super Duper Burger. Giovanni Joris, a former server at Lolinda, is now GM at A Mano. And Patricio "Pato" Duffoo, who started with Back of the House as the sous chef at Starbelly, is now the executive chef of Barvale.*
>
> *"This is what excites me—I see them grow and get better and smarter," says the boss. "We share a philosophy for providing customers with good value, and it's easy to see consistency across all our restaurants because it's what we all believe. It's not manufactured or forced."*

By having all these avenues to accommodate the career growth of its employees, groups like USHG and Back of the House have lower employee churn. This allows them to invest more in training their employees because they know they will be able to reap the benefits of their investment over a longer period of time. Long term, the amount invested in employees is dictated by the return captured by the company — similar to LTV/CAC and payback periods in the realm of user acquisition. These restaurant groups have found a better way to extend theirs.

1 backofthehouseinc.com

This business model has an advantage in attracting talent that compounds. As these restaurant groups are able to get higher returns from their employees and thus provide larger career growth for them, they can attract stronger prospective employees who might not have considered hospitality before due to the limited career growth opportunities. And this talent loop is particularly brutal on competitors, because talented employees at other restaurants that don't have similar growth opportunities will have an incentive to leave and join one of their portfolio of restaurants. In this way, those who do not have business models built for employee career growth will increasingly find it difficult to hire and retain great talent.

Why did the service focused model succeed now?

All of this explains why Danny Meyer's model for USHG has advantages, but why did it particularly show up when it did?

While I wouldn't go so far as to say it *wasn't* possible to do a similar strategy before. I think there are many trends that point to why we will increasingly see more restaurant groups converge on this approach. There are macro tailwinds that USHG rode. And they are identical to many of the tailwinds hitting tech as well.

The Internet has radically raised the bar for in-person service

The world is becoming increasingly demand driven. Consumers have more and better choices. And have become far more informed and educated about their options too.

There used to be a paucity of options, so just being in a neighborhood could drive demand. However, as the world urbanizes and transportation gets better, consumers have an abundance of options–and being a place consumers want to come back to becomes more important.

And due to the internet consumers have more ways to help them decide what are the best restaurants to go to. While before there were only a few ways to hear about restaurants, now there is Yelp, many food blogs, and all of your friends on social media.

Before, many restaurants could expect one time customers from those who happened to be in close proximity and needed a place to eat. Like the classic Times Square restaurant that caters only to tourists in the area who will never be back again.

Now restaurants are increasingly competing for informed consumers who deliberately choose where to go (or go to again). They are aided by sites like Yelp, that aggregate ratings and reviews of prior diners–making the experience of each customer matter more. The bad experience of one customer can deter many future ones if they leave a bad review. And similarly the small details that make the night of customers can now spread in their reviews to many others.

These shifts to the demand side of the industry have made restaurants care more about quality of service. Customers are able to go anywhere they want, so great restaurants are better able to retain customers. But customers also hold these restaurants to a higher bar.

The market has reacted to this by rewarding restaurants that are focused on service. Danny Meyer and USHG model are well suited to this shift in the hospitality market. The business model is more aligned than traditional restaurants with a market that prioritizes higher quality of service and customer and employee retention.

And while it started with social. It won't end there. With social media, it's not just service that gets noticed. Instagram has driven the rise in importance of ambiance and aesthetic to restaurants. How well your decor and food photographs impacts how far it can spread socially. Restaurants used to hate diners taking photos of their food–now they realize there's no better acquisition channel. There are many places that are almost entirely built around getting

social distribution. In the early days creations like Dominique Ansel's Cronut would get discussed on social media, but now there are many places that not only make unique creations–but optimize them for Instagram distribution. Like black ice cream or rainbow grilled cheese.

As the internet reaches each aspect of restaurants it makes them matter more. And this will restructure what it takes to be a successful restaurant.

Shifts in market dynamics cause new business models to flourish

Changing market dynamics, business models, and the resulting features of these companies are all tied together. Business models like USHG enable restaurants to invest more than others in service, not just talk about it. Structural changes in the demand side of the restaurant industry ripple downstream into the flourishing of new business models.

This is identical to what we see all over tech today. As the structures of markets change, the optimal business models change with them. Business models are how we align and reconcile the markets needs with the cost and human capital required to provide them. Alignment of markets and the costs to serve them is core. And as either side changes, so to do the business models that are dominant.

Case Study: Gaming (Fortnite)

Fortnite and the evolution of gaming is a good example of this. Why has Fortnite, a multiplayer-first battle royal game risen to be the most successful game–and could this have been predicted?

Gaming, like all industries, is shaped by its structure. Over the last decade fast, consistent internet connections have become ubiquitous for all gamers. This change has swept through all aspects of gaming in ways most players don't appreciate.

In a pre-internet gaming world, it is hard to update games over-the-air (OTA). This means that all games need to be shipped with assumption that the company won't be able to improve it further, which makes the process much less iterative than we've come to expect in tech.

This structure causes games to monetize via upfront game purchases. Since they can't update or improve the game after it is bought, and often don't have any way to maintain contact with the customer, it's very hard to justify trying to get customers to make recurring payments. With ubiquitous internet connectivity, companies are able to keep working on their games. **It's more similar to how a tech company keeps iterating on its product, than like making and releasing a movie.** And as companies keep adding value to their games, the best games can start to charge users recurring subscriptions.

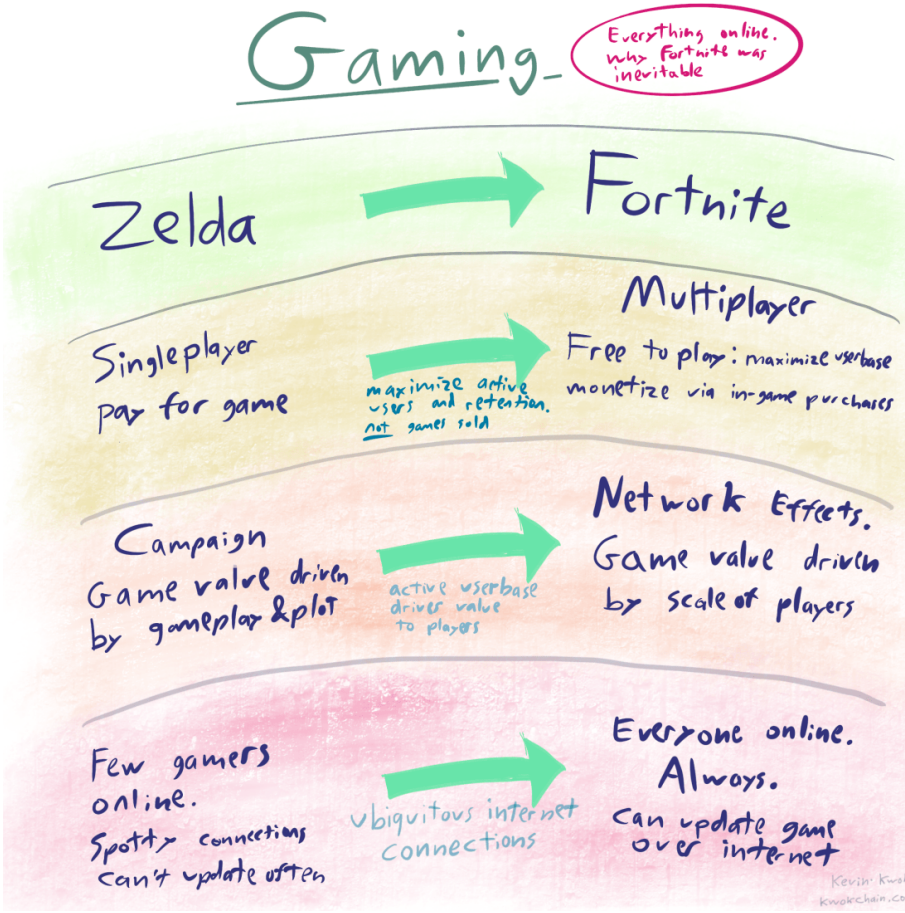
But over the last few years, a different aspect of ubiquitous internet connectivity has shifted the gaming industry. Gaming has shifted from primarily singleplayer to multiplayer-only games. Multiplayer only games didn't used to be possible. There weren't enough players with good enough internet access. But it has now become widely available. And as more games introduced multiplayer and started to understand the dynamics of it, the utility of the top games shifted from aspects like plot or the single-player campaign, and shifted to the multiplayer experience.

But this shift to multiplayer driving the utility of games means that gaming has become fundamentally network effect driven. The utility of a game is driven by how robust its active user base is. With scale there are more games, better matching, higher likelihood of playing with your friends, etc.

So the business model of games has shifted to match this. If you're optimizing for maximal active players and retention, then having people pay upfront, or even pay a monthly subscription, limits your user base considerably. Instead, it's better to have your game be free to play, and monetize via optional in-game purchases. This wouldn't even be possible in a world with physical distribution. But digital distribution has zero marginal cost and makes it viable. Fortnite used this business model change to great effect against PUBG,

which charged an upfront purchase fee.

Fortnite is the culmination of these structural shifts. But the shifts to gaming haven't ended. And the evolution will continue.



Case Study: Productivity Tools (Airtable, Figma, Notion)

These trends aren't unique to gaming. These same second order impacts of ubiquitous internet connectivity are hitting other industries in exactly the same way.

Take the wave of productivity products that are raising at huge valuation multiples in the last year, like Airtable and Figma. And the more waiting in the wings like Notion.

Their successes have much in common with Fortnite's rise. As these tools become online-first it's allowed them to be collaborative-first. The utility for them is increasingly driven by the network effects of collaboration within your teams–outweighing any other features they may not have compared to legacy products.

Similarly, by being browser based distribution and onboarding become super frictionless. When I send you designs in Figma you can see them immediately. With software like Photoshop the recipient would need to download, install, and sign up for Photoshop before they could see (much less interact) with the designs. And they use a freemium approach and pricing model that wasn't possible before. This pricing model is also key because it builds the network effects of the product in a bottoms up, product driven approach–that makes enterprise sales to those companies far more effective. And more importantly improves the sales velocity significantly.

If there were a particular area of tech most similar to USHG, it'd be the rise in startups focusing on retention and increasing share of customer wallet. As customers become more cognizant of their options and switching costs go down, companies that provide the best service are able to better compete for customers and then absorb more of their spend.

As the cost of forming startups decreases and capital availability increases we see a proliferation of options for consumers in any given category. This

market supply fragmentation provides users with more options–and shifts leverage in the market towards demand.

Similarly, this increased competition makes acquisition more efficient and competitive for startups. In order to maintain an edge, companies need a proprietary advantage such as better retention or monetization to be able to compete long term. For example, this is the trend we see in direct to consumer ecommerce. Originally as new paid acquisition channels like Facebook expanded, companies could easily enter the market with little competition. But as it became easy for many companies to start and use these same channels the acquisition costs rose. Only companies that have better retention or monetization are able to maintain their spend and even outspend and force out their competitors. This has driven the rise of new business model types like subscription ecommerce.

But at a more general level, whether the shift from enterprise to SaaS or the shift from listings to marketplaces to vertically integrated services. Our business models change as a function of the structure of their markets.

Summary

So why have restaurateurs like Danny Meyer and Adriano Paganini been able to succeed where others have struggled? Certainly one part is their personal conviction in customer service. It's allowed them to bet on investing in customer service where others wouldn't–even before it's proven to be correct. But adoption of this model by others has been relatively slow despite its success, so passion for service is unlikely to be solely sufficient.

Investing in employees is an asymmetric strategy for companies with the best retention and employee appeal.

Union Square Hospitality Group and Back of the House have not just realized that service is important and that requires investing in and retaining employees. They've structured their business models around being able to

invest in employees.

Instead of hoping they can out execute, they've understood the changing underlying structures of their markets, and aligned incentives and business models to thrive in them.

This isn't unique to restaurants. It's in gaming and productivity. And every other industry.

When we understand the structural shifts in our industries we can understand the second order impacts of them that ripple down to the business models and companies that thrive. And many of them rhyme more than we think.

Credits

Thanks to Keila Fong[1], Michael Dempsey[2], Lauryn Isford,[3] Eugene Wei[4], and Sam Hinkie[5] for discussing this topic with me and their help with this essay.

Also thanks to Dan Romero[6] for helping refine edits to this essay.

Endnote: The Second Order of Structural Systems

Finally as a note. Danny Meyer and the Union Square Hospitality Group are a good example of how we often discuss the first order cause of things, without understanding the structural systems shaping them. People reading *Setting the Table* often talk about being more customer focused. But they don't understand that it's not about trying harder. It's about setting up a their busi-

1 twitter.com/keilafong
2 twitter.com/mhdempsey
3 twitter.com/laurynisford
4 twitter.com/eugenewei
5 twitter.com/samhinkie
6 twitter.com/dwr

iness model to align with prioritizing customer service. And identifying spaces where that can happen.

We see this problem too often in many areas. For example, US politicians have often spoken about spreading democracy around the world. But without helping build the institutions that make democracy functional first, we often see countries have 'democracies' that are even worse and more corrupt than their prior governments. We must understand the underlying structural alignments of any area in order to understand how to build the right improvements to them.

Similarly, I recently read a question by Jack Altman on advice. My personal view on advice is that most people suffer from the same first order mistake. They say what they did that worked. But they don't elaborate on the underlying structural features of their situation that would need to be true for their advice to be applicable in a new situation. Everything is topologically equivalent–so as long as the structural dynamics are the same advice would be useful to apply. But we often see people say advice isn't useful, because nobody is discussing these structural alignments. It's like watching someone try to uproot a plant to the desert–without paying attention to what soil, sun, and watering conditions it thrived in. And then be shocked it died.

When we try to understand systems that work, we need to talk more about the systems that support them. Both in markets and within companies.

Appendix A: Real Estate and Cost of Capital Advantages

And this model also allows for another of USHG's less appreciated advantages, real estate. Many of USHG's original restaurants were opened in neighborhoods that were fast appreciating in value, like Union Square and Flatiron. These created a macro tailwind to his business. And while that cannot always be predicted, by building many restaurants under one group, they've been able to take advantage of their strong brand to get prime real estate. Many developer groups bring in restaurant groups with demonstrated quality and custo-

mer awareness to their new developments at preferential terms. Some of these include the multiple restaurants USHG has in Battery Park City or in the Modern Museum of Art in New York City. Similarly, Back of the House often opens their locations in fast rising areas of SF, like Nopa.

This model is a company loop, because as these restaurant groups trains better employees who stay longer and are able to improve the business, they increase their profits and brand and are able to reinvest in continuing to invest further in their employees.

Another advantage of the USHG and Back of the House conglomerate model is cost of capital. Conglomeratization provides access to more and cheaper capital for new restaurants. Investing in the average restaurant has a poor expected return. Investing in proven restaurateurs improves the odds. Even better if they have an established brand and operations that can improve the likelihood of success. Being a larger conglomerate also gives the groups more sources of capital they can raise from.

By having a shared base of capital, these firms are able to pursue a portfolio diversification model with established higher end restaurants providing more stable capital base, strong consumer branding, and career growth opportunities, while experiments in fast casual business models are higher risk but can provide outsized returns when they work (Shake Shack).

Appendix B: Costco Case Study

As an example from another industry, consider Costco. Their median tenure is 4.8 years, an incredible outlier within retail. For comparison, this is much higher than Target (2.2), Walmart (3.3), Walgreens (2.8), or the abysmal Ross Stores (1.2). They have a 5% annual attrition vs the 59% industry average. This is buttressed by their business model. Unlike all other retailers, they sell everything roughly at cost, and make the majority of their revenue from annual subscription fees customers pay to be able to shop at Costco. Customers love this model with 90%+ renewal rates. And with their limited number of

SKUs they are able to handle more throughput with less people, earning $600k+ per employee, around three times more than competitors like Wal-Mart or Target.

With their subscription revenue, high customer retention, and high revenue per employee, they're able to invest considerably in employee training and compensation. Costco employees make an average of $22 per hour, significantly more than the industry average of $12 per hour. The result is a very loyal employee base that stays for years, if not decades. This high employee retention allows them to have a very high quality of service and unusually knowledgeable staff.

Making Uncommon Knowledge Common[1]

April 9, 2019

The Rich Barton Playbook for winning markets through Data Content Loops

Preface: This is part of a longer private memo analyzing Zillow and its recent shift towards Opendoor's model. May publish rest of memo at some later point. But wanted to share first part, on Rich Barton and Zillow's initial rise.

Have had many recent conversations with people in tech who didn't know who Rich Barton is. So wanted to share this both as primer on him and on the cornerstone of his repeated successes.

When Michael Jordan returned to basketball from retirement—the first time, in his prime, not the second time of which we do not speak—the whole world watched in awe. Meanwhile, the tech world just saw the return of arguably the GOAT of consumer tech, the founder of three household names in Expedia, Glassdoor, and Zillow. And hardly anyone, even inside Silicon Valley itself, paid it any mind.

Rich Barton is hardly a household name. Perhaps this is because he's not based here, and makes relatively few investments. However, while there are more visible founders (like Bezos and Zuckerberg) who've built bigger businesses, market cap and notoriety aren't the only measures of a founder. And Barton is a strong contender for the title of best consumer tech founder because of his repeated success. He's founded three consumer companies each worth over a billion dollars with Expedia ($18.6B), Zillow ($8.8B), and Glassdoor (Said to have been acquired for $1.6B).

And he's back, having returned to the helm of Zillow as it pivots to respond to a new wave of fast rising competitors like Opendoor.

1 kwokchain.com/2019/04/09/making-uncommon-knowledge-common/

Repeatable success is key, especially in Consumer tech which is one of the hardest areas to succeed in. Companies that sell to large Enterprise customers are relatively well understood now, and even our understanding of SaaS metrics and business model decisions has matured a lot over the last decade. The Consumer tech sector, however, remains dark magic. The playbooks are far less developed—and no one's playbook has demonstrated the repeatability of Rich Barton's.

There are a few consumer investors who have multiple multi-billion dollar wins. But it's hard to name people who have founded three consumer companies worth over a billion dollars each.

To reliably successfully invest in consumer is a rare feat; to repeatedly found successful companies is virtually unheard of. Doing so suggests a founder has hit upon an underlying structural playbook that isn't yet commonly known, or successfully replicated. And while some of Rich Barton's techniques are commonly understood, his core strategy to catalyze his compounding loops is not.

So What's the Playbook?

If you're reading this, you've likely used Zillow, Glassdoor, and Expedia before. It's hard to look on the internet for anything related to real estate, jobs, or travel and NOT see one of Rich Barton's companies. Their ubiquity is stunning.

But it's not coincidental.

Rich Barton's companies all became household names by following a common playbook.

The Rich Barton Playbook is building Data Content Loops to disintermediate incumbents and dominate Search. And then using this traction to own demand in their industries.

Or as he puts it "Power to the People"

Much of what Rich Barton pioneered has now become mainstream. SEO/search is well saturated, and the importance of owning demand has been popularized by Ben Thompson's[1] many essays on (Demand) Aggregation Theory[2]. But the cornerstone of Rich Barton's playbook, Data Content Loops, are still underappreciated and rarely used.

Owning demand gives companies a compounding advantage, but needs to be bootstrapped. When a company is just starting out, it not only doesn't own demand, it has all the disadvantages of competing against others that do.

In order to grow their demand high enough to become a beneficial flywheel, Barton's companies use a Data Content Loop to bootstrap their demand and create unique content and index an industry online (homes for Zillow, hotels and flights for Expedia, companies for Glassdoor).

- **Expedia:** Prices for flights and hotels that before you'd have to get from travel agent
- **Zillow:** Zestimate of what your house is likely worth that before you'd have to get from broker
- **Glassdoor:** Reviews from employees about what a company is like that before you'd have to get from a recruiter or the company itself

These Data Content Loops help the companies reach the scale where other loops like SEO, brand, and network effects can kick in.

Barton's companies then use this content to own search for their market. This gives them a durable and strong source of free user acquisition, which enables them to own demand.

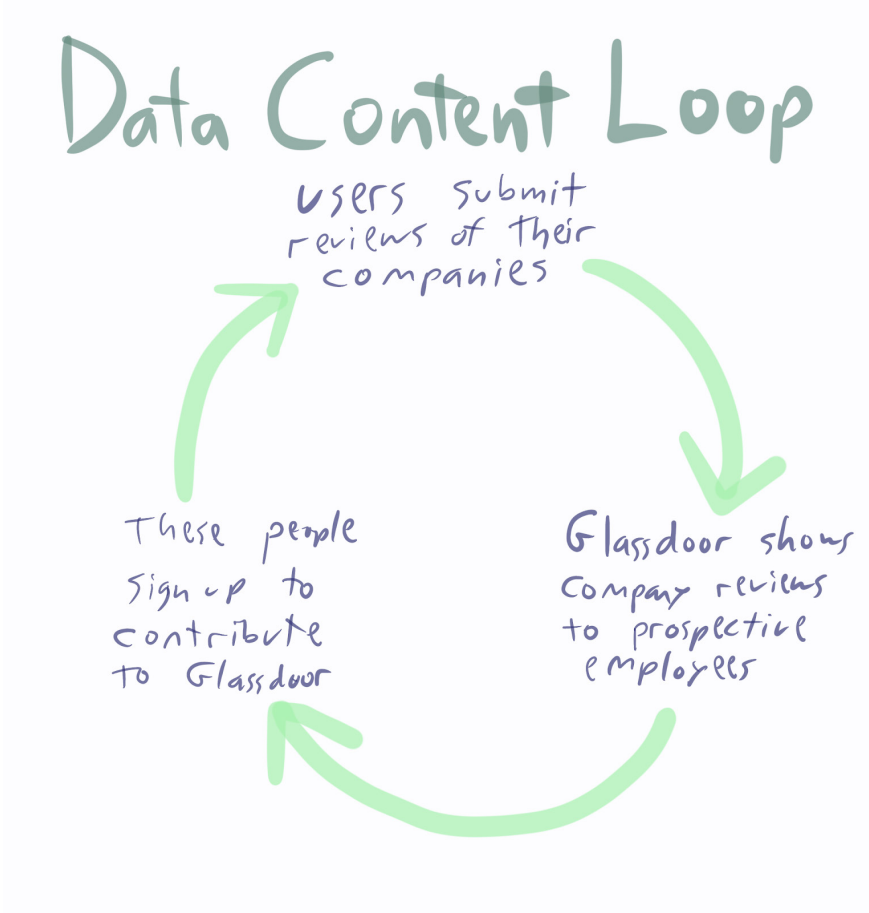
1 twitter.com/benthompson
2 stratechery.com/aggregation-theory/

Power to the People: Disintermediating Industries with Data Content Loops

Barton career can be summed up by his mantra "Power to the People". His companies take power from the incumbents and give it to consumers. Instead of trying to hoard information, they are on the side of consumers and giving them more data transparency.

Glassdoor revealed how employees really felt about companies. Zillow shed light on what any house was worth. Expedia let people see the prices and availability of flights and hotels without talking to an agent. These were knowable things that people have always talked about with each other. There are few topics adults love gossiping about more than work, real estate, or travel. And few categories as core to their net worth.

Rich Barton took these whispered conversations and made them public for everyone to see. Afterwards, everyone wondered why they were ever private.


Data Content Loop
users submit reviews of their companies
Glassdoor shows company reviews to prospective employees
These people sign up to contribute to Glassdoor

Part of the reason was that companies benefited from this credibility through obscurity. Real estate brokers have access to significantly more data about the specific houses and the general market via a set of data sources called the MLS. Historically, only brokers had access to MLS data, which gave them leverage over their customers and entrenched their importance as market makers. Similarly, lack of visibility into companies allowed bad ones to put on a good face until prospective employees had already joined. Only large companies could pay for data from compensation research providers, giving them advantage over the potential hires they negotiated with. Many incumbents are able to intermediate their markets and unfairly gain an edge from people's lack of knowledge. It's scary to be the first to buck this trend on your own.

Plus it is logistically difficult. Job applicants are unlikely to know a current employee at companies they are considering joining. And even if they did, it's unlikely they could trust them to tell them the unvarnished truth. Employees have little incentive to say negative things about their employer, unless very close with the person asking.

This sparse commons is a classic case of natural market failure. While some incumbents take advantage of the information asymmetry, most benefit from a third party that will handle the logistics things like:

- Verifying legitimacy of information being shared
- Maintaining privacy of participants
- Aligning incentives to get people to contribute to the commons
- Finding, ingesting, and curating third party data into the commons

Rich Barton's companies became public Schelling Points. They create common knowledge in their industries from information only middlemen had access to before, from public-but-hard to aggregate data, or from information collected from users themselves. These intermediaries, whether brokers or travel agents were misaligned. They controlled what information was shared with the public, but has an interest in withholding it. Instead of pushing increasingly more and higher quality information to the public, they maintained the status quo.

Creating common knowledge creates a network effect. All companies in Silicon Valley want to build network effects, but few have followed Barton's path despite its effectiveness. The more people use and trust Glassdoor, the more companies must take it seriously. And as users see more people contributing to Glassdoor, they can be more confident they'll stay anonymous when they add their review. There are virtuous loops in common knowledge.

Demand Rules Everything Around Me

Search

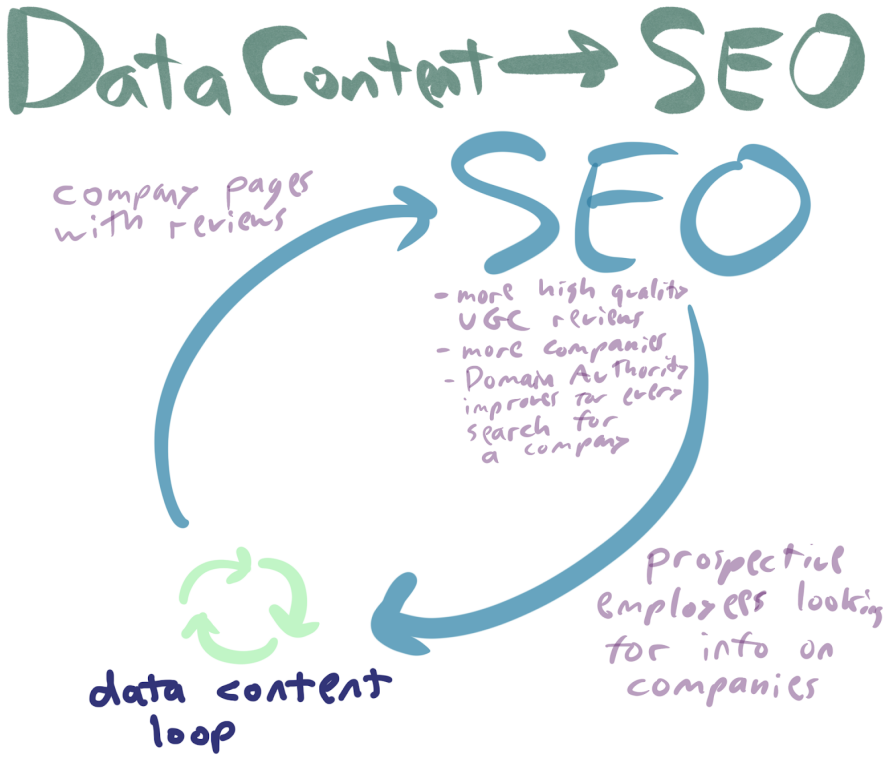
All of Rich Barton's companies have primarily used Search (and word of mouth) as their acquisition channel. Search is a great channel, since it can drive significant demand at low cost. Few companies can generate enough high quality web pages about their industries to fully capitalize on it, however.

The Data Content Loops of Barton's companies let them be the authoritative public source on a subject at scale and low cost. By having super relevant information about every hotel, home, or company someone might be interested in, Barton's companies become the ideal destination for consumers.

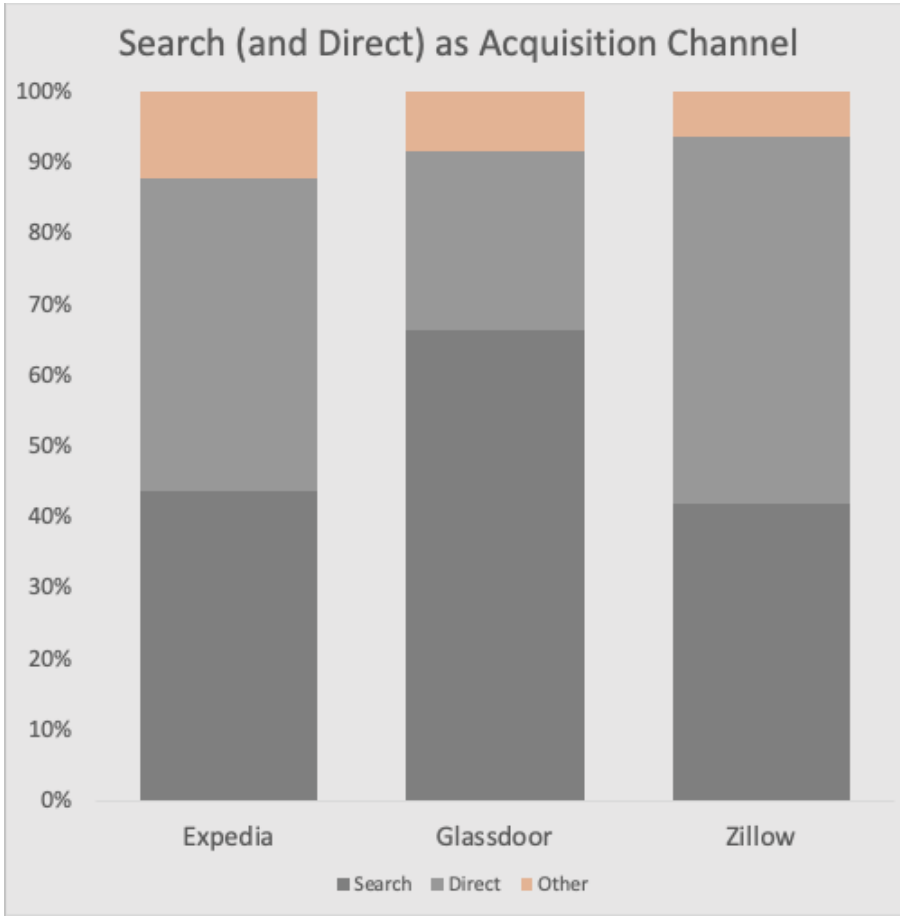
Over the years, he's refined this model. Expedia aggregated all the various hotel and travel options, but others had done that as well. However, Expedia and Booking.com were among the most aggressive to understand the importance of search. If you had the top spot in search, the next best thing was to acquire more sites so you owned the next top result, and so on. Use Travelocity, Orbitz, CheapTickets, or Hotels.com? All of them are owned by Expedia. And any site not owned by Expedia is probably owned by Booking.com. This approach, coupled with dominating the paid acquisition side as well, helped them dominate.

With Zillow and Glassdoor, Barton took this a step further.

Before Zillow and Glassdoor, if you wanted to look up information about a specific home or company, there wasn't a webpage for it. Barton's companies created the definitive page for each house and company. Using a combination of data from authoritative sources (like all the various MLS systems) and user-generated data, they created high quality content unique to each company or listing. Being among the first to do this let them do a huge SEO land grab, which has been hard to displace since.



If you look at the sources of traffic for Barton's companies, the vast majority of their traffic comes from search or direct. This makes their user acquisition far cheaper than any company that relies primarily on paid acquisition. It's this ability to get free acquisition at scale that made it possible to build companies in these otherwise difficult, low-frequency markets.



Becoming a Trusted Brand

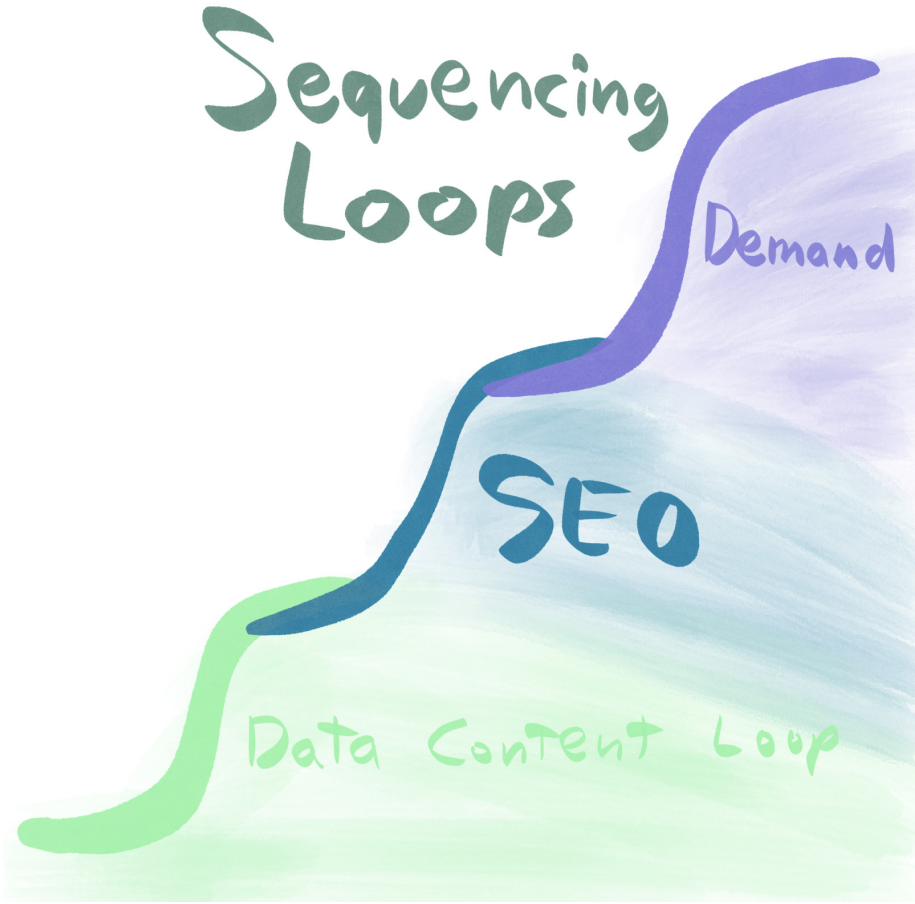
The ultimate purpose of the "Data Content Loops + SEO" strategy of Barton's companies is to own the demand side of an industry. Expedia wants to be the first place you go when you travel. Glassdoor wants to be the destination when you're thinking about companies to work for. And Zillow wants to be the place you go to look at real estate.

Barton's companies take industries that are low frequency and use their Data Content Loops and SEO to acquire users for free and engage them more frequently. While most companies in real estate have super high customer acquisition costs, Zillow is able to get potential sellers even before they are ready to sell, so Zillow is already there when the sellers are ready.

Owning demand ultimately becomes its own compounding loop since becoming a trusted brand builds its own network effects. Consistently building this reputation increases people's trust in them and makes them a go to destination.

Saturation and Sequencing

The Rich Barton playbook was particularly strong because it both understood how to find a wedge into a new market and how to transition that to a durable long term advantage at scale.



Data content loops are surprisingly underutilized by tech companies compared to how effective they've been. They have a natural invisible asymptote–and often diminishing returns on more data over time. Like Underutilized Fixed Assets for marketplaces, they can be used as kindling to catalyze demand and hit the minimum viable scope of more scalable demand loops.

Zillow as Case Study of the Barton Playbook

Zillow is a perfect example of the Barton Playbook. The data for estimating the price of houses had existed, and many brokers used the MLS systems to estimate it, but nobody had made that available to the masses.

Zillow changed that with their Zestimate.

By combining data from various MLS systems and other sources with their pricing algorithms, suddenly everyone could look up the value of their home. Even better, they could look up the value of their friends' homes. Within the first day of launching, Zillow had a million people trying to check out the Zestimate. That's an incredible feat that even today few have matched.

Envy is the best rocket fuel.

This data content loop lets them estimate the value of 100M+ houses. Driving anyone interested in the price of their home (or a home they're thinking of buying) to Zillow. And they continued to come back. Most users might not be selling their home, but they could all check the prices of their homes, and any home they saw. But the Zestimate didn't just drive users, it gave Zillow something far more durable.

The Zestimate became the kernel that Zillow used to create a webpage for every house. Zillow used its data content loop to become dominant at SEO for real estate. Try searching for your house on Google. I bet the first result is Zillow. And if not, it's certainly in the top 5.

Nobody had yet indexed all the homes in the US and brought them online. While sites like Apartments.com had started to do so for rentals, it wasn't until Zillow (and Trulia) that this was done for homes. There was fertile search real estate to grab and Zillow rushed out to claim it all using the Zestimate as its spearhead.

The Zestimate also had the network effect of becoming public common knowledge. It gave power to the people, and offered leverage against brokers. Armed with the Zestimate, sellers could push back on brokers who tried to pressure them to lower their prices. The Zestimate wasn't backed by anything so it wasn't secured, but it forced brokers to justify why the pricing they suggested deviated from the Zestimate. In many ways, Zillow became for homes what the Kelley Blue Book is for cars. And the more people used Zillow, the more powerful it became as an anchor in conversations with brokers. If you told your broker your friend told you the value of your house should be $1 million dollars, your broker would laugh it off. But if tens of millions of people are using Zillow and it tells you your house is worth $1 million dollars, the broker may still disagree but they have to take it seriously. Thus this data content loop has a demand side network effect that strengthens with scale.

Zillow used the advantages to own the demand side of real estate. Even before they decided to buy or sell, consumers went to Zillow. And when they were ready to become buyers or sellers, Zillow was there to help direct them to brokers.

Final Thoughts

One way the tech industry can be viewed, is a process by which we collectively push forward our understanding of industries and new business models.

Consumer will eventually be understood in many of the ways we've come to understand other business models like Enterprise and SaaS. Until then, founders like Barton with repeated successes are an early sign of some of the patterns and contours that can lead to repeatability.

While many of Barton's ideas–like owning demand–have become mainstream, his use of data content loops to catalyze demand for his companies is still underappreciated.

Core to building a scaled consumer business is the unpredictable path of bootstrapping initial demand. Data content loops are one of a few strategies we've seen work very well for this phase of companies. And as the world increasingly shifts from supply constrained to demand driven, strategies like data content loops that empower consumers are likely to continue to be very effective.

While the focus of this essay, data content loops and Power to the People, aren't the only beliefs Barton has advocated for.

Barton has been an early and loud proponent of the importance of:

1. Unconstraining talent in society
2. Raising the bar on ambition in companies

Both of which are very core beliefs among many of the people I respect the most. And also warrant much more discussion.

Aside: Ben Thompson has interview with Rich Barton. Which you should totally go read[1]. And in general should go listen to Rich Barton whether he's giving a talk[2], being interviewed[3] or on podcasts[4].

1 stratechery.com/2019/zillows-changes-ceos-an-interview-with-zillow-ceo-rich-barton
2 youtube.com/watch?v=cC3DnUk2ibU
3 youtube.com/watch?v=VVbK5LCpuWk
4 soundcloud.com/bloombergview/rich-barton-talks-about-his-startup-companies

The End of History?

Of course, Zillow's story didn't end there. It's now the incumbent with a new startup fast on its heels. To understand how this happened and why Zillow is moving aggressively to match them, we have to look at the the strengths and weaknesses of the original Barton Playbook and how Opendoor and new competitors' map to them.

Acknowledgements

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Also thanks to Sam Hinkie[5] and Eugene Wei[6] for discussing this topic and splitting it out for public sharing.

1 twitter.com/keilafong
2 twitter.com/tangaciousd
3 twitter.com/onecaseman
4 reforge.com/advanced-growth-strategy-series
5 twitter.com/samhinkie
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