

# Book Review: Hive Mind

*Posted on December 8, 2015 by Scott Alexander*

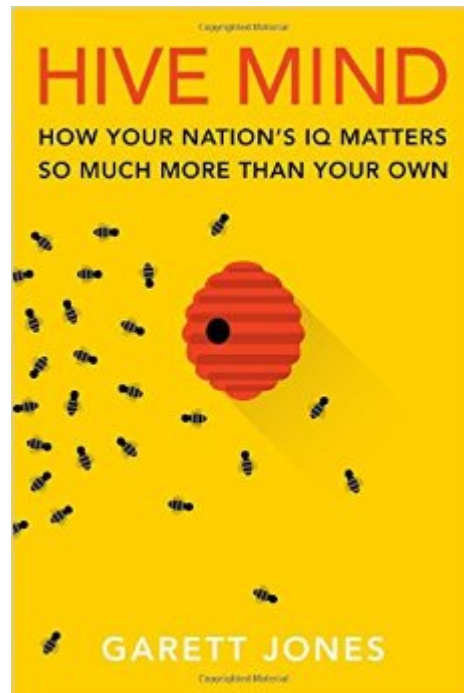


**Conflict of interest notice:** Author Garrett Jones sometimes reads this blog and is generally great.

\*  
\*\*

Garrett Jones' book [Hive Mind](#) is classic pop science writing: an intriguing hypothesis, a long parade of interesting studies presented as catchy anecdotes, and not too many follow-up questions.

Its subject (and subtitle) is “why your nation’s IQ matters more than your own”. The gap between rich and poor countries has proven surprisingly resilient, and conventional wisdom is finally getting its head around the idea that something more is going on than a couple of countries getting a head start and the rest of them needing a little time to catch up. Something more than just a temporary lack of capital must be separating the haves from the have-nots, and Jones thinks IQ must be part of the puzzle.



*I like my science writing like I like my coffee – COVERED IN BEEEEES!*

He starts with what he calls “the paradox of IQ”. IQ doesn’t matter *that much* on a person-by-person basis. Sure, it’s correlated with measures of success like personal income, but only weakly. On the other hand, IQ is a very strong predictor of national success – a country’s average IQ score correlates very well with whether it’s industrialized, rich, First World, and all those nice things. Jones writes:

Looking at how individual student test scores predicted those students’ wages later in life, they found that individuals with higher test scores earned only slightly more than average within a given country, but nations with higher average test scores grew exceptionally fast. Here again is the paradox of IQ: standardized test scores – whether we call them

IQ tests or math tests or something else – predict big national differences but only modest individual differences

I'll talk a little more about that claim in Part II of this review, but for now let's take it seriously and assume causation. Why would IQ matter more for nations than for people?

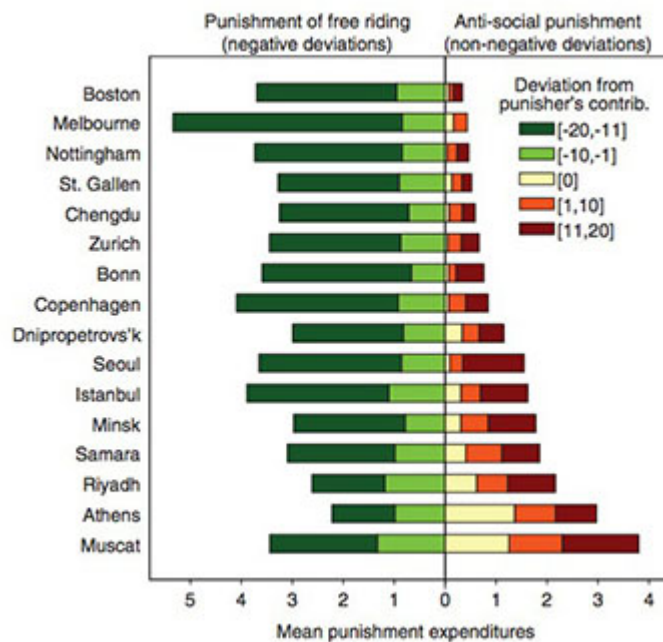
Jones' theory is that IQ is a measure of people's ability to cooperate in prisoner's dilemma style situations and seek non-zero-sum solutions. Countries where most people have high IQ will come up with mutually beneficial win-win institutions; those where most people have low IQ will be so busy taking advantage of each other and fighting over the pie that they'll never build the institutions necessary for economic growth.

First he reviews research showing that IQ is closely linked to time preference; ie the higher your tested IQ the more likely you are to prefer a big payoff later to a smaller payoff now. For example, in a German experiment a few years ago, participants were offered 100 euros now or X euros in one year; every fifteen IQ points corresponded to a €2.50 change in the value of X necessary for them to accept the latter, even after controlling for education, income, etc. The same thing seems to happen in real life, according to a great study that looked at a natural experiment in the US armed forces. When the military started downsizing after the Cold War, they offered enlisted personnel their choice of various different severance packages – some corresponded to a little money immediately, others to much more money over a longer period. Since the military keeps careful records of the IQ-at-time-of-recruitment of all of its

personnel, this was a perfect real-world opportunity to see what happened. The results conformed to theory: IQ predicted tendency to take the longer-term but more lucrative package. There are about twenty studies confirming this result now. And there are also studies showing *national* IQ corresponds with that nation's savings rate, and that individuals who are surrounded by patient frugal people will themselves act more patiently and frugally. If, as the old saying goes, building a good society is about "planting trees in whose shade you will never sit", the people of high IQ nations have a big head start.

Second, he reviews the research from experimental game theory. A series of experiments performed in (of all places) a truck driving school investigated a Window Game. Two players are seated at a desk with a partition between them; there is a small window in the partition. Player A gets \$5 and may pass as much of that as she wants through the window to Player B. Player B may then pass as much as she wants back through the window to Player A, after which the game ends. All money that passes through the window is tripled; eg if Player A passes the entire \$5 through it becomes \$15, and if Player B passes the \$15 back it becomes \$45 – making passing a lucrative strategy but one requiring lots of trust in the other player. I got briefly nerd-sniped trying to figure out the best (morally correct?) strategy here, but getting back to the point: players with high-IQ were more likely to pass money through the window. They were also more likely to reciprocate – ie repay good for good and bad for bad. In a Public Goods Game (each of N players starts with \$10 and can put as much or as little as they like into a pot; afterwards the pot is tripled and redistributed to all play-

ers evenly, contributors and noncontributors alike), high-IQ players put more into the pot. They were also more likely to vote for rules penalizing noncontributors. They were also more likely to cooperate and more likely to play closer to traditional tit-for-tat on iterated prisoners' dilemmas. The longer and more complicated the game, the more clearly a pattern emerged: having one high-IQ player was moderately good, but having *all* the players be high-IQ was amazing: they all caught on quickly, cooperated with one another, and built stable systems to enforce that cooperation. In a ten-round series run by Jones himself, games made entirely of high-IQ players had five times as much cooperation as average.



*Not technically from the book, but [nevertheless fascinating](#)*

Third, he reviews the so-called “O-ring theory of teams”, named after the spaceship part that malfunctioned during the *Challenger* explosion. The theory is: suppose that a spaceship requires a million different parts to work. This is more than just a million times harder than building a spaceship that requires one part to work. If you have a spaceship engineer who can build a part and be 99% sure she’s gotten it right, this is probably good enough for the one-part spaceship: a 99% success rate for a spaceship sounds pretty good. But if the spaceship uses a million parts and they all have to be perfect, your chances of success with a million such engineers is  $0.99^{1000000}$ , aka zero. You had better find some better spaceship engineers! This gives high-IQ societies a big leg up when they’re working on complicated projects; a low-IQ society may have some high-IQ individuals who can do good work on their own, but including even a single low-IQ individual on a spaceship will screw it up big-time. This theory implies that people will end up segregated by ability. Imagine you have four spaceship engineers, two of whom are good (99% accuracy) and two of whom are mediocre (50% accuracy), and you want to build two two-part spaceships. If you pair up one good and one mediocre engineer on each, each of your spaceships will have a  $0.99 * 0.50 = 49\%$  chance of success, for a total of 0.98 projected successful spaceships. If you have the two good engineers work together on one ship, and the two mediocre ones work together on the other, you’ll have a 98% success rate on the first one and a 25% success rate on the second one, for a total of 1.23 projected successful spaceships. You’ve gained a quarter-spaceship just by segregating your engineers by ability. The more high-IQ people you have, the easier this is and the more you can devote your economy to complex things

like million-part spaceships. The more low-IQ people you have, the harder this gets and the more your economy sticks to high-failure-tolerance but less lucrative products.

Finally, high-IQ people are smart (citation needed). They tend to know what policies are good and what policies are bad and vote for the good ones. Here Jones cites Bryan Caplan's [\*The Myth of the Rational Voter\*](#) a lot, showing that voters aren't very good at figuring out their own self-interest.

But he has a more positive spin: high-IQ voters *do* seem good at this. As a GMU economist, Jones' measure for "are people voting rationally" is of course "how pro-free-market are they?", and he finds that high IQ predicts pro-market attitudes pretty strongly and in fact better than years-of-education. In controlled experiments higher-IQ people were more likely to be able to admit that a test article contradicted their political bias, and in some countries (although not the US) high-IQ people are more likely to vote.

Then he ties all of this together into a kind of [\*stationary-bandit framework\*](#), where government starts with selfish warlords who want to exploit the populace.

"They say all government started w/ stationery bandits."

"Really?"

"Yeah. They had to steal enough nice paper to write a constitution on."

— [Scott Alexander \(@slatestarcodex\), December 8, 2015](#)

If you're a high-IQ selfish warlord, and your oppressive ministers are likewise high-IQ, you have enough patience to realize that if you leave the capitalists alone to do their thing instead of confiscating their wealth immediately, in a couple of years they'll have even *more* wealth you can confiscate. And if some kind of conflict comes up and threatens to lead to civil war, you are good at negotiating win-win solutions where everyone cooperates to increase the size of the pot. Jones lists a bunch of political situations that map to iterated prisoner's dilemmas – for example, do both parties respect election results, or does the loser try to start a fight over it every time they're forced out of government? Do bureaucracies try to run the country efficiently, or do they jockey for power against each other? Do military branches work together during operations, or does each one try to seize glory for its own leaders? If you have a high-IQ country, these problems have a way of just solving themselves – and sure enough, IQ scores correlate nicely with the Corruption Perceptions Index. And businesspeople know this, so they are happy to start complicated long-term projects in the countries with a history of tolerating such projects and not killing the golden-egg-laying geese.

Jones doesn't go too deep into policy prescriptions, but he does mention two consequences of his theory. First, he's a big fan of the Flynn Effect (secular trend of rising IQs) and thinks that countries ought to encourage this so that their national IQ gets higher and they can have more effective institutions – unfortunately, he doesn't know what's causing the Flynn Effect any more than any-



one else does, so this sort of reads as “keep doing the thing we don’t know how we’re doing”. He does think that eliminating lead will help (did you know sub-Saharan Africa was the last region to ban leaded gasoline, all the way in 2006?) and he has the usual hopes for nutritional, educational and health interventions.

But of course the part everyone’s talking about is immigration. This is *not* a major focus of the book. Jones actually spends more time talking about all the benefits of immigration than anything else:

About a decade ago, dozens of American economists signed an open letter in support of more immigration. The letter touched on many points: that less-skilled immigrants appear to push down the wages of US born citizens little if at all, that immigration helps rich country economies in ways that don’t show up in official statistics, and that the biggest beneficiaries of less-skilled immigration are the immigrants themselves, whose lives are often transformed from a nightmares of dollar-a-day poverty to a realm of modest comfort, health and safety. The diplomatically crafted letter, circulated by the Independent Institute, was signed by economists on the left and the right. I’ve always been glad I signed this letter: it sums up the great promise of immigration... for people who care about ending the deepest poverty, migration should be at the top of the list of potential cures.

But he does devote about one-and-three-quarters pages to his concerns:

The economics of less-skilled immigration to richer, more productive countries are reasonably clear: life-changing good news for the immigrant with only fairly small effects one way or the other on so-called “native” less-skilled workers. That’s true when we look at the short run or when we look across towns and cities within the same country. And crucially, these studies hold politics aside and assume that less-skilled immigrants don’t have an effect on a high-skill nation’s government institutions. But if there’s something we’ve seen in previous chapters, or something we’ve seen in Bryan Caplan’s work on the link between voter education and voter beliefs, if there’s something we’ve seen in the cross-country studies that find that higher national average test scores tend to predict lower average levels of corruption and in the philosophical debates over epistocracy, it’s that good politics appears to depend on reasonably well-informed citizens. With this we come to a central tension of immigration among the currently less-skilled: the possible – I emphasize possible – effect on long-run institutions. Will less-skilled immigrants tend to vote for policies that will weaken the wealth-creating opportunities they’ve enjoyed? Or will less-skilled immigrants and their descendants instead build up high levels of human capital, perhaps raising the average information level of voters?

The whole paragraph has the feeling of somebody being dragged over a bed of hot coals, from the insistence on referring to unskilled immigrants as “currently less-skilled” and natives as “so-called native less-skilled workers” to the odd proposal at the end

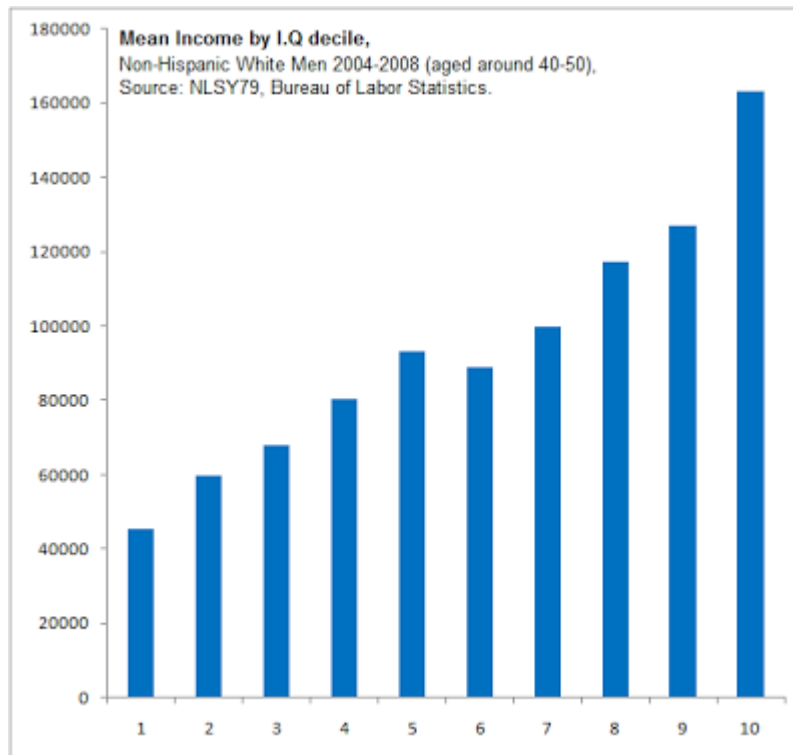
that maybe for some reason less-skilled workers will actually *raise* the average information level of voters, because *who really knows?* This book is emphatically not *The Bell Curve*. It's a book about science which is deeply annoyed that it might have controversial political implications and tries to avoid them as carefully as possible, generally successfully.

## II

There were some parts of this book that I did not find convincing, or that at least left me with further questions.

**First**, *Hive Mind* 's "central paradox" is why IQ has very little predictive power among individuals, but very high predictive power among nations. Jones' answer is [long complicated theory of social cooperation]. Why not just "signal-to-noise ratio gets higher as sample size increases"?

Jones' paradox was very similar to the question I asked in [Beware Summary Statistics](#), except I was wondering not about nations, but about abstracted IQ deciles:



On a personal level, IQ has modest predictive power. But if you average out thousands of IQ 90 people, thousands of IQ 100 people, and thousands of IQ 110 people, the IQ-income relationship will become very clear. At this level of abstraction, it is no longer fair to describe it as “modest”.

That first block corresponds to people of about IQ 80, the last block to people of about IQ 120. As you move from 80 to 120, income practically quadruples. And this is within the United States, where we’ve got all sorts of minimum wage laws and so on likely to dampen the effects.

Or to give a more natural example – Jews have 10-15 points higher IQ than WASPs in America, and make about twice as much money.

This happens even though most Jews do not solely interact with other Jews or make their own institutions – there are few opportunities for them to form a hive mind. Their individual IQ differences, once aggregated, seem to produce the strong effect.

There is much-larger between-country variance in income than between-individuals-in-country variance in income, but it doesn't seem obvious to me that the percent of between-country variance explained by national IQ is larger than the percent of between-individuals-in-country explained by personal IQ once factors like personal job choice (I could have been an investment banker, but I would rather be an artist) that countries don't have to deal with is abstracted out. If the amount-variance-explained between nations and between individuals were equal after adjusting for that factor, there would not be any need to posit hive mind-type effects.

**EDIT:** Above heavily edited for clarity and correctness after originally being much weaker argument in same direction. See [here](#). Some complicated discussion of this going on [here](#), see especially Pseudo-erasmus' comments

Although it may be that there's a national effect stronger than the aggregated-individual effect, I feel like this is something Jones should have had to prove, rather than relying on a "look, it's obvious!" based on unaggregated-individual numbers.

**Second**, fine. Let's assume he proves to our satisfaction that the national IQ-income correlation is sufficiently stronger than individual ones to require explanation. Now we get to my biggest gripe

with this entire book. *How do we know the direction is IQ → development rather than development → IQ?!* Jones lays out exactly the set of assumptions that make reverse causation most plausible. He dedicates an entire chapter to the Flynn Effect, how he thinks it's real, how he thinks it's a big deal, without mentioning whether the gains might not be on g. Time and time again, Jones hammers how countries' IQs increase as they develop further. Then he shows us a graph of IQ-development correlation and just assumes the causation is bidirectional. Well, why not just development → IQ?

This isn't just about me. I suspect Jones is right – though I'm not entirely sure of it – and sufficiently biased in favor of that position to be happy to follow it and see where it leads. I'm asking for anybody who reads this book without already being interested in IQ. *Hive Mind* is clearly pitched at a smart layperson audience, and any smart layperson who reads this book ought to have exactly that question, asked with exactly that many capital letters and explanation points. Any reader who doesn't immediately stand on a chair and shout “Where is the evidence against reverse causation?” is not a reader that Garrett Jones should want. But any reader who does that will not find an answer.

I'm just sayin', everyone that confuses correlation with causation eventually ends up dead.

— [Siberian Fox \(@SilverVVulpes\), September 14, 2015](#)

All I can say in his defense is that a good defense against this accusation would probably have to get very deep into the causes of IQ, exactly the subject Jones is carefully trying to avoid. I understand his reluctance to approach this subject and respect his strategic decision. All I can say is that it leaves a hole in his argument big enough to sail an oil tanker through.

**EDIT:** Jones responds [here](#)

**Third**, and this isn't such a problem as the others but it left me curious – how do we go from the short, few-player games that make up most of the book's experiments, to the multi-generation million-player games that make up real countries?

I have two concerns here. First, Jones says that:

The one study of which I'm aware that finds that higher-IQ individuals are more cruel and less cooperative is a study of a one-shot prisoners' dilemma, something much like the true criminal's prisoner's dilemma... this is the only setting I know of in which high scorers are more brutal than low scorers... in a one-shot environment, if it's either steal or be robbed, and if the players will never see each other again, then I'd expect higher-IQ individuals to figure out what setting they're in and act shrewdly, not cruelly.

He returns to this theme a few times. High-IQ people don't cooperate because they're nicer (which, indeed, personality tests for nice-

ness do not show). They cooperate because they're smarter and so they know cooperation really is a better and more win-win way to do things.

This is 100% true in an iterated prisoners' dilemma, but not necessarily true in a country. Suppose you're a president with a four year term. You can either pillage the country as best you can and take whatever bribes you can get, or invest in genuinely building a better country for your descendents. Assuming you are merely the sort of shrewd cooperator who cooperates on iterated prisoners' dilemmas but defects on one-shots, you'll pillage the country – it probably has term limits and you only need to pillage once to get very rich.

Likewise, suppose you're a mid-level bureaucrat in Washington, of the type that there are tens of thousands of. If you behave dishonorably, you can amass a small empire and make some money. If you behave honorably, then maybe America does very well as a country down the line, but that effect is aggregated over thousands of bureaucrats, so it's not like you're *really* growing the pot that much. Once again, if you are merely shrewd and not genuinely altruistic, you'll defect.

Jones tries to take the easy way out on the deriving-ethical-behavior thing here, saying that ethical behavior *really is* the most self-serving option in the long-term, and all you need is people smart enough to realize it. To that I can only say: no it isn't. In a game of two or three people where everyone sees everyone else's results, your contribution may grow the pot enough to be worth the short-



term losses from not defecting. In a game of thousands of bureaucrats or millions of citizens, not so much. There are ideas like TDT and superrationality that try to bridge this gap, but I think Jones tries to cross it without those ideas and is left floundering.

One more thing on this topic: maybe it was in the original studies and I just didn't look deep enough, but I wonder how much of this is just understanding the game. The Iterated Prisoner's Dilemma is kind of complicated, and if you're stupid you may not be able to grasp the logic behind why cooperation is sometimes the better option. If you explained everything very carefully to all participants, had them play a couple of games both ways so they got a feel for it, and had a Professor of Economics give a lecture on why cooperation was probably the best option, would high-IQ people still succeed more because of some innate cooperative tendency? Or would everyone else have figured out their secret and robbed them of their advantage?

People usually have a pretty good grasp of things that are going on in society. Jones compares marriage to a prisoner's dilemma (where the optimal C-D outcome is "you cheat but your spouse stays faithful"). But people understand the terms of marriage, cultural evolution has had a long time to come up with beliefs and mores about marriage that even people too stupid to come up with them on their own follow, and some kind of complicated new game may not be the best analogue to the marriage problem.



Jones ends the book with the following observation:

The best guess is that the cognitive skill of elites really does matter more than the nation's average score. When it comes to institutional quality, Potrafke and I found that the cognitive skills of the top 5 percent did the better job of predicting property-rights friendly institutions, although the nation's average score also did a reasonably good job as a predictor... for the time being it's reasonable to start with the belief that a nation's top performers matter more for the economy than a nation's average performers.

Well, *that's* interesting. All of this stuff about immigration and on how maybe we shouldn't have open borders, and it turns out that as long as the top five percent are smart, everything is okay.

I would really like to see more on this. If America has higher IQ than Britain, but the members of Parliament have higher IQ than the members of Congress, which country will do better? What about a colonial nation where the administrators are from a nation that has a completely different IQ than the population? What about countries that have multiple mostly-segregated populations with different IQs? How much does the IQ of the government matter versus the IQ of the population itself?

(and now I wonder if Jones has read La Griffe on smart fractions [ [1](#), [2](#) ])

Come to think of it, doesn't every nation have some pretty smart people at the highest echelons? Sub-Saharan Africa may be in the IQ doldrums, but we all know African economists, statesmen, etc whose work is top-notch. Doesn't Jones' call to raise national IQs with the Flynn Effect seem less pressing now? Haven't the elites of Third World countries already probably been Flynn-ified, since they usually get good food, good medical care, and good education? Should we worry the Flynn Effect won't help those countries further? Or should we hope that if we merely raise the IQ of a few people, that will be enough and we won't have to have a mass nationwide campaign? (calling all CRISPR enthusiasts...)

Overall, I thought this book showcased some really neat results, had some good economics in it, and was very readable, but I didn't come out of it feeling like its thesis was very proven.