

GREATER MALE VARIANCE (GMV) AND ITS CONSEQUENCES

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Abstract

Any sexually dimorphic species (i.e. where the males and females have different bodies), from insects to humans, will manifest the phenomenon of greater male variance, i.e. the statistical variance of some biologically measurable quantity will be greater for the males. In the case of human IQ scores, the male variance is about 10% larger than for females. The moment one becomes conscious of this very general biological phenomenon, one is forced to admit that human morons and human geni are males. The greater the “Z score” (i.e. the number of standard deviations from the mean), the higher is the proportion of males scoring that Z.

Since GMV is genetically determined (see below), the feminists will simply have to accept the fact that the geni of the planet are males. They can do nothing about it, so should stop making wild ignorant claims to the contrary. They are just showing their scientific ignorance and will be discredited as awareness of the GMV phenomenon spreads.

The last part of this essay shows that the predicted proportion of females to males at various high IQ levels matches fairly closely those of the real world, hence GMV

is a good quantitative theory to explain the (genetically determined) existence of the patriarchy (i.e. rule by males).

1. Introduction

A few years ago, the president of Harvard University, expressed his opinion in a public speech that perhaps the reason why women are so under represented in the sciences and engineering at full professorial level in an Ivy League university like Harvard, was that women's abilities in these subjects were inferior to men's. Feminist professors in his school went livid and the president later apologized.

This reaction by the feminist professors, and the subsequent apology, both disappointed and annoyed me. On both counts, the feminists and the president were showing their ignorance of a basic biological law of GMV (greater male variance), which I now state.

Definition of GMV

Any sexually dimorphic species (i.e. where the bodies of the males differ from the females) will manifest the phenomenon of greater male variance, i.e. the statistical variance of some measurable quantity will be greater with the males than the females over the population of that species. This is a wide spread phenomenon in the biological world, ranging from insects, through mammals, to humans.

In the case of human measurable intelligence, e.g. on IQ tests, the IQ score variance is about 10% higher for males, so the IQ probability distribution (“Bell”) curve for males is shorter and fatter than that for females. Since the variance difference is only 10%, this means that since the IQ tests are devised so as to give males and females an equal average (“mean”) score, male and female IQs will overlap for the vast majority of the population. This has as a consequence that the feminists may justifiably claim that women are just as capable, just as smart as men, and that this reality should not be ignored by ignorant social customs. Women should be given equal opportunities, since their abilities are equal, generally speaking.

2. Consequences of GMV

However, let us not throw the baby out with the bathwater. Let us look at the claim of the president of Harvard University. He was actually correct. If he had been better informed, he could have reprimanded his feminist colleagues, accusing them of ignorance of the phenomenon of GMV. If the feminists had also known about GMV, they would have shut up, and accepted what the president said as a fact, a biologically well supported fact. Hopefully in the future, such incidents will disappear, as people become better informed about the GMV phenomenon.

Why was the president correct?

One can take the male and female IQ variance scores and plug them into the Bell (Gaussian) curve formula, to calculate the proportion of men and women at a given Z score (i.e. the number of standard deviations from the average score).

If you don't know any statistics, the standard deviation is the square root of the variance, which is defined to be the average of the square of the differences of the population scores from the average (i.e. the standard deviation is the root mean square of the deviations from the average score). The variance is a measure of the "fatness" or "spreadoutness" of the Bell curve. Since the variance of males is greater, the male Bell curve is shorter and fatter, and the female Bell curve is taller and thinner.

So for a given Z score, one knows the proportion of men and women at a given IQ level. Let us now take the case of Harvard physics and mathematics full professors. In the US, the average theoretical physics full professor has an IQ of 170. At Harvard, this score would probably be more like 190, since the real geni score a little over 200. An IQ score of 190 corresponds to a Z score of 6.0 (with a male standard deviation of 15, and an average IQ score of 100, i.e. $Z(\text{male}) = (190 - 100) / 15 = 6.0$). The female standard deviation will be 10% less, i.e. 1.5 IQ points less = 13.5, so for a female to score 190, her Z score would be $Z(\text{female}) = (190 - 100) / 13.5 = 6.67$

When one plugs in these two Z scores into the male and female Bell curve formulas, one sees that the proportion of

females having a Z score of 6.67 is much smaller than the proportion of males having a Z score of 6.0

In fact, at each IQ score (and hence Z score), one can predict the proportion of men and women at that level, and then compare it with the proportion of men and women in jobs performing in the real world at that level. For example, one can compare the proportion of men and women getting a math PhD, or getting an assistant professorship in math, or a full professorship in math, or the Field's Medal (the Nobel Prize equivalent in mathematics). These theoretical proportions (that are derived from the male and female variances in their Bell curves) match very closely the real world proportions, so we are talking about a very good quantitative theory, the kind that physicists and science like best.

3. Political Consequences

The same GMV phenomenon exists with other measurable quantities that are important to people in their daily lives, e.g. ambition, aggressiveness, curiosity, etc. So it is therefore not surprising that the top performers in any of these areas will be male. This is confirmed clearly, if one consults a "Who's Who" (in the US). One will find that about 95% of the entries are male. 97% of the science Nobel Prizes have been won by males. 95% of national academies of science members are male. 95% of the presidents and prime ministers of countries are male. 95% of CEOs of Fortune 500 companies are males. I could go

on and on. It is clear that there is a lot of truth to the phrase that we live in “a male dominated world.”

Given this male dominated reality, the feminists will have to come to terms with it, i.e. accept it. If they don't believe it, then they can educate themselves. GMV is a broadly applicable phenomenon in the biological world, so the feminists can Google articles that they can read about the phenomenon and convince themselves. If they continue to push the “urban myth” that women are as *genial* as males, they risk being dismissed and ridiculed by science.

In fact, female inferiority at the genius level is an example of a general social and cultural phenomenon. Throughout most of history, in most cultures, women have been looked upon by both sexes as inferior. In an agricultural culture, the males were stronger and hence of greater value in the fields. In warrior cultures, the men were more aggressive and stronger, and hence were more valued.

In our modern, science based culture, intellectual brilliance is highly valued, so once again, women will just have to learn to accept their inferiority, yet again. With the rise of the recent round of feminism in the 70s, the feminists were making claims that were true in general, but not at the genius end of the spectrum. (Note that noone seems to care much that the utter morons are also males. Such males don't attract much attention, but they do fill up the foster homes. A male moron is too stupid even to sweep the streets. Note also, that the same matching of theoretical proportions of males to females at the very low end of the

IQ range, with the observed proportions in the real world, is also excellent.) So even in the modern world, men are dominant, because the geni are males, and genius is highly respected. Consider how valuable are the men who invent the transistor, the computer, the math, the 9 symphonies, etc?

The feminists may have a hard time accepting such negative truths, but if they don't, then they are going to annoy a lot of anti-PC males like myself, who despise having to listen to PC falsehoods that don't fit with scientifically verified realities. It offends my sense of intellectual honesty, and conflicts with a lifetime of scientific learning. I can imagine that the GMV phenomenon may be crushing for the collective feminist ego, but that's too bad. GMV is "the way of the world" and as such will just have to be lumped.

4. The Origins of GMV?

Where does GMV come from? The empirical fact of the matter is not in doubt. Ask any biologist. However the theoretical underpinnings of the phenomenon are less secure. As far as I can tell from googling, the most popular theory (and it does seem very plausible) is the following.

The default embryogenic design is female. If there are no male genes to switch the basic female design to male, the embryo will be steered into a female pattern. Since the vast majority of the genes needed to build a human baby are

female, the male chromosome need only be very small, containing only a few switching genes to divert the course of development from female to male.

If you know a little genetics, you will know that the human genome contains 46 chromosomes in each cell, half from the mother, and half from the father. There are 23 pairs of chromosomes, with each pair containing a chromosome from the father, and one from the mother, with both chromosomes of the pair responsible for the same set of protein building instructions, but only one (keeping things simple) of the pair gets used i.e. gets switched on to build the embryo and the baby. The chromosome of the pair that is switched on (and the other switched off) is called “dominant” and the chromosome of the pair that is switched off is called “recessive.” Evolution has selected the “fitter” (more favorable) genes to be dominant.

The geneticists will tell you that there are many more types of recessive genes than dominant genes. This now has interesting consequences. The female chromosome is called the “X” chromosome, and the male chromosome is called the “Y” chromosome. The “Y” chromosome is by far the smallest of the 23, and the “X” chromosome is about average in size with many genes on it. A female has two “X” chromosomes in her cells. A male has one “X” and one “Y” chromosome in his cells. Since the “X” chromosome is so much bigger than the “Y” chromosome, nearly all of the genes on the “X” chromosome in the cells of the male will be “expressed”, i.e. used to build proteins, to build the baby. So, with the male, all those recessive genes on his

“X” chromosome will NOT be switched off by dominant genes in a second “X” chromosome (the way they are in a female’s cells) for the simple reason, that the male’s cells does *not have a second* “X” chromosome.

So, over a whole population, the males will be expressing a greater variety of recessive “X” chromosome genes than the females. The females will have their recessive genes “masked” by the dominant genes on the other “X” chromosome, since the female cells have two “X” chromosomes. A greater variety of expressed recessive genes in the male cells results in a greater variance in the males of the population than in the females, hence GMV.

Has any research been done to test this theory? I would appreciate hearing from experts on this matter, so that I can update this essay with the material (links) they send me. My general view is that even if the above theory is in dispute, the empirical fact of GMV is not, and that is what really matters.

5. References

It is suggested that readers interested in reading more about the GMV phenomenon can Google, using the key phrase “greater male variance”. Some informative references I found on the internet can be found at these links.

1.

http://soberingthoughts.blogspot.com/2008_07_01_archive.html

2.

http://1.bp.blogspot.com/_otfwl2zc6Qc/SJBVWiTMEpI/AAAAAAAAFQA/9g1ckIdltQk/s1600-h/var.bmp

(This second reference contained the following interesting table. The variance ratio was defined to be the ratio of the male variance and the female variance. For math, in US grade schools, this ratio was about 1.1)

Grade	$d \pm SE$	Variance ratio	N
Grade 2	0.06 \pm 0.003	1.11	460,980
Grade 3	0.04 \pm 0.002	1.11	754,894
Grade 4	-0.01 \pm 0.002	1.11	763,155
Grade 5	-0.01 \pm 0.002	1.14	929,155
Grade 6	-0.01 \pm 0.002	1.14	886,354
Grade 7	-0.02 \pm 0.002	1.16	898,125
Grade 8	-0.02 \pm 0.002	1.21	837,979
Grade 9	-0.01 \pm 0.003	1.14	608,229
Grade 10	0.04 \pm 0.003	1.18	619,591
Grade 11	0.06 \pm 0.003	1.17	446,381

Effect sizes across grades for U.S. mathematics tests; results are similar across grades 2 through 11.

Postscript

Calculating the Proportion of Females to Males with Elite IQs

The point of this portion of the essay is to calculate, given the two male and female IQ variances (actually – standard deviations, where the variance is the square of the standard deviation), the proportion of females to males at elite IQ levels.

I went hunting for the female and male IQ standard deviations and eventually found the following values, which I needed to begin my little piece of research.

The link for these IQ standard deviations (male and female) was

<http://www.iqcomparisonsite.com/SexDifferences.aspx>

The female IQ standard deviation it gave was 13.55 and the male IQ standard deviation was 14.54.

From these two standard deviations it was a trivial matter to calculate the percentage difference $(14.54 - 13.55) * 100 / 13.55 = 7.3\%$ To find the variance percentage difference, the calculation was $(14.54^2 - 13.55^2) * 100 / 13.55^2 = (211.41 - 183.60) * 100 / 183.60 = 15.15\%$ which is quite a bit higher than the 10% mentioned above. I will work with this 7.3% standard deviation percentage difference, i.e. the two standard deviations (female and male) in the calculations that follow.

I will now calculate the proportion of females to males at very high IQ scores, for a range of scores, and then *compare* the predicted theoretical proportions (obtained from plugging in the standard deviations into the Bell curve (Gaussian normal curve) formula of females to males at a given IQ score to the real world proportions of females to males found at various professional levels in the intellectual world (e.g. at PhD student level, at professor level, at Fields Medal winner level etc.) If the match is good between the theoretical prediction and the real world, then the theory has

quantitative strength, the kind that mathematical physicists and scientists most favor.

I will calculate the proportions (female to male) at “elite” IQ scores of 120, 130, 140, 150, 160, 170, 180, 190, 200.

An IQ of 120 would probably be typical (this could be checked) of undergrad anthropology students. An IQ of 130 would probably be typical of undergrad math students. An IQ of 140 would probably be typical of masters math students. An IQ of 150 would probably be typical of math PhD students. An IQ of 170 would probably be typical of university math professors. (I know that the average IQ of theoretical physics professors in the US is 170, with a standard deviation of 15) Math professors at US Ivy League universities would probably have IQs in the range 180s-190s. Fields Medal winners probably have IQs around 200, the super geni. There have been no female Fields Medal winners ever.

Methodology

I used the following link to find the “Z score” (i.e. the number of standard deviations above the mean (i.e. average) IQ value of 100, assuming females and males have the same average IQ – in fact, IQ scores are constructed such that this is true.) The internet link to the “Z score calculator” that I used was

<http://www.danielsoper.com/statcalc3/calc.aspx?id=22>

and the link to another site that I used to convert a Z score into a percentile was

<http://www.measuringusability.com/pcalc.php>

This site allowed me to choose the number of decimal places (15) in the percentile, which enabled me to find the percentile with

great accuracy, which was needed with such large Z scores. (Actually using tiny Z scores was more convenient, because it allowed me to calculate the female/male (percentage) proportions more conveniently, due to the symmetry of the Bell curve.)

Here are the Z scores for the females (with standard deviation of 13.55, for the various IQ levels.

Females

(IQ = 120, Z = **1.47601476**), (IQ = 130, Z = **2.21402214**),
(IQ = 140, Z = **2.95202952**), (IQ = 150, Z = **3.69003690**),
(IQ = 160, Z = **4.42804428**), (IQ = 170, Z = **5.16605166**),
(IQ = 180, Z = **5.90405904**), (IQ = 190, Z = **6.64206642**),
(IQ = 200, Z = **7.38007380**)

Here are the Z scores for the males (with standard deviation of 14.54, for the various IQ levels.

Males

(IQ = 120, Z = **1.37551582**), (IQ = 130, Z = **2.06327373**),
(IQ = 140, Z = **2.75103164**), (IQ = 150, Z = **3.43878955**),
(IQ = 160, Z = **4.12654746**), (IQ = 170, Z = **4.81430536**),
(IQ = 180, Z = **5.50206327**), (IQ = 190, Z = **6.18982118**),
(IQ = 200, Z = **6.87757909**)

These Z scores were then converted into percentiles (i.e. the percentage of people scoring “below” that “-Z” score.

Females

(IQ = 120, Z = **1.47601476**, %ile = 6.996985433194),
(IQ = 130, Z = **2.21402214**, %ile = 1.3413705324705),
(IQ = 140, Z = **2.95202952**, %ile = 0.1578363207859),
(IQ = 150, Z = **3.69003690**, %ile = 0.011223613673239),
(IQ = 160, Z = **4.42804428**, %ile = 0.000481636854144),
(IQ = 170, Z = **5.16605166**, %ile = 1.2733603039E-5),

(IQ = 180, Z = **5.90405904**, %ile = 2.17861895E-7),
(IQ = 190, Z = **6.64206642**, %ile = 2.603118E-9),
(IQ = 200, Z = **7.38007380**, %ile = 2.3848E-11)

Males

(IQ = 120, Z = **1.37551582**, %ile = 8.4485662245511),
(IQ = 130, Z = **2.06327373**, %ile = 1.9543439576858),
(IQ = 140, Z = **2.75103164**, %ile = 0.29702651326952),
(IQ = 150, Z = **3.43878955**, %ile = 0.029223994305883),
(IQ = 160, Z = **4.12654746**, %ile = 0.001851531250396),
(IQ = 170, Z = **4.81430536**, %ile = 7.6230367174E-5),
(IQ = 180, Z = **5.50206327**, %ile = 2.100063257E-6),
(IQ = 190, Z = **6.18982118**, %ile = 4.0745618E-8),
(IQ = 200, Z = **6.87757909**, %ile = 5.9649E-10)

I now calculate the (percentage) proportions of females to males,
i.e. using the formula %ile_female*100/(%ile_female+%ile_male)

Percentiles

Male percentiles

(IQ = 120, 8.4485662245511),
(IQ = 130, 1.9543439576858),
(IQ = 140, 0.29702651326952),
(IQ = 150, 0.029223994305883),
(IQ = 160, 0.001851531250396),
(IQ = 170, 7.6230367174E-5),
(IQ = 180, 2.100063257E-6),
(IQ = 190, 4.0745618E-8),
(IQ = 200, 5.9649E-10)

Female percentiles

(IQ = 120, 6.996985433194),
(IQ = 130, 1.3413705324705),
(IQ = 140, 0.1578363207859),

(IQ = 150, 0.011223613673239),
(IQ = 160, 0.000481636854144),
(IQ = 170, 1.2733603039E-5),
(IQ = 180, 2.17861895E-7),
(IQ = 190, 2.603118E-9),
(IQ = 200, 2.3848E-11)

Summed percentiles (%ile_male + %ile_female)

(IQ = 120,
 $8.4485662245511+6.996985433194=15.4455516577451$),
(IQ = 130,
 $1.9543439576858+1.3413705324705=3.2957144901563$),
(IQ = 140,
 $0.29702651326952+0.1578363207859=0.45486283405542$),
(IQ = 150,
 $0.029223994305883+0.011223613673239=0.04044760797912$),
(IQ = 160,
 $0.001851531250396+0.000481636854144=0.00233316810454$),
(IQ = 170,
 $7.6230367174E-5+1.2733603039E-5=0.00008896397021$),
(IQ = 180, $2.100063257E-6+2.17861895E-7=0.00000231792515$),
(IQ = 190, $4.0745618E-8+2.603118E-9=4.3348736e-8$),
(IQ = 200, $5.9649E-10+2.3848E-11=6.20338e-10$)

*Percentage proportions (using the formula -
(%ile_female*100/(%ile_female+%ile_male))*

(IQ = 120, $100*(6.996985433194/15.4455516577451) = 45.3\%$)
(IQ = 130, $100*(1.3413705324705/3.2957144901563) = 40.7\%$)
(IQ = 140, $100*(0.1578363207859/0.45486283405542) = 34.7\%$)
(IQ = 150, $100*(0.011223613673239/0.04044760797912)=27.7\%$)
(IQ = 160, $100*(0.000481636854144/0.00233316810454)=20.6\%$)
(IQ = 170, $100*(1.2733603039E-5/0.00008896397021) = 14.3\%$)
(IQ = 180, $100*(2.17861895E-7/0.00000231792515) = 9.4\%$),

(IQ = 190, $100 \cdot (2.603118E-9 / 4.3348736e-8) = 6.0\%$),
(IQ = 200, $100 \cdot (2.3848E-11 / 6.20338e-10) = 3.8\%$)

To make these calculations, I used the link

<http://www.calculateforfree.com/sci1.html>

Summary

So summarizing, the percentage proportions of females to males at the various IQ levels are shown below.

(IQ = 120, **45.3%**), (IQ = 130, **40.7%**), (IQ = 140, **34.7%**),
(IQ = 150, **27.7%**), (IQ = 160, **20.6%**), (IQ = 170, **14.3%**),
(IQ = 180, **9.4%**), (IQ = 190, **6.0%**), (IQ = 200, **3.8%**)

Analysis (Theoretical Predictions)

At IQ 120 (undergrad students), nearly half should be female.
At IQ 130 (undergrad math students), about 40% should be female.
At IQ 140 (masters math students), about a third should be female.
At IQ 150 (PhD math students), about a quarter should be female.
At IQ 160 (hard science profs), about a fifth should be female.
At IQ 170 (math/physics profs), about a seventh should be female.
At IQ 180 (Ivy League math profs), about a tenth should be female.
At IQ 190 (Ivy League math profs), about 6% should be female.
At IQ 200 (Fields Medal winners), about 4% should be female.

How well do these theoretical predictions match the real world?

It seems to me, that these theoretical predictions match the real world pretty well. At today's universities in many countries, the proportion of females in the IQ ranges 120, 130 is about half. In my own experience in teaching master level computer science in China, about a third of my classes were female, as predicted.

From my own experience as a prof in one of the hard sciences (computer science) in my US computer science department, there were only two female profs, no female full profs, out of a total of 15 professors. The fact that a seventh of the profs were female fits the theoretical prediction quite well.

At the Ivy League level, the President of Harvard some years back remarked in a public speech that there were very few women in the maths/physics depts and that this may be due to a greater male variance (GMV). What he said fits the theoretical data. He should not have been criticized by the feminists, because he was correct.

The Fields Medal, which is equivalent to the Nobel Prize, but for mathematics, was first awarded in 1936 (until the recent establishment of the Abel Prize in 2003 which is now the real equivalent of the Nobel Prize for mathematics). There have been 52 winners so far (up to 2010). All have been male. That is reasonably consistent with the theoretical prediction that only about 4% of such winners should be female.

Criticisms

The above study is still rather crude. It could be tightened up with much better data. Psychologists/sociologists could undertake studies to measure much more accurately the proportion of females to males at *all* performance levels and see how closely the theoretical predictions match the *real world* data. Perhaps such comprehensive studies have already been done? (I am not a professional social scientist.)

PR vs. PC

But I think the case that “the geni are males” has been shown fairly clearly in this essay. I think the results of this little study are

strong enough to say to the feminists “Patriarchy (i.e. social domination by males, rule by males) is only a part of the problem. GMV also plays a considerable role, in which case patriarchy will not go away, it is built into our DNA.” The feminists will just have to “lump it” i.e. accept that fact.

Accepting it will not be such a big deal for women, since for most of the population, male and female abilities are pretty much the same. The overlap of the two IQ Bell curves is pretty much total. Its only at the two extreme fringes of the Bell curve (i.e. also at the bottom fringe, i.e. at the “moron” end as well, which is something I have not gone into much in this essay, but studies of institutions for the mentally retarded show the extremely stupid people are predominantly males) that male dominance manifests itself.

But since it is the genii who create and drive society, and that these genii are males (which is something that is not going to change) one can conclude that males will always be the more prestigious sex.

This theoretical study that predicts that the genii are males, matches the real world. 97% of science Nobel prizes have been won by males. 95% of entries in Who’s Who? are males. 95% of presidents and prime ministers are males, 98% of Fortune 500 Company CEOs are males, all 50+ Fields Medal winners are males, etc. The patriarchy is real and genetically determined. It will not go away, no matter how vitriolic the feminists become.

Studies such as the above, give ideological ammunition to the “PRers,” i.e. the “political realists,” in contrast to the “PCers,” i.e. the “political correct.” The PRers will now be more able to brow-beat the PCers by accusing them of being isscientate (i.e. being ignorant of science), which in this case, is being ignorant of the phenomenon of GMV and its consequences for the intellectual performance/status hierarchy.