

Survival of the FitBit-est: Why a Dataset that reflects only the Healthy and Wealthy May Benefit Us All

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It is a poorly-kept secret that wealthy individuals acquire technology earlier than non-wealthy individuals. While Internet access now allows anyone to learn about technological breakthroughs, emerging technologies are expensive to acquire, and wealthy individuals - defined as U.S. individuals whose earnings are in the top decile¹ - have access to capital. New technologies also cater to the needs and desires of the wealthy: One writer opines that relatively well-educated and affluent designers cater to their peers, creating a "design bias toward social elites."² Finally, prestige spurs wealthy individuals to acquire new technological tools as quickly as possible. Often, new or scarce technology becomes a status symbol signifying power and signaling a specific value system.

The FitBit, a wearable personal fitness tracker that logs physical activity, heart rate, and sleep patterns, has become one of the latest technological tools to be adopted by wealthy consumers. In 2014, over 45% of wearable-device users earned over \$100,000 per year. Indeed, corporate leaders and CEOs compare steps walked;³ groups of professionals compete online and in-person to reach activity goals. The

¹ In 2014, the top 10% of households in the United States earned \$121,360 per annum. Drew DeSilver, *The Many Ways to Measure Economic Inequality*, PEW RESEARCH CENTER, (September 22, 2015), <http://www.pewresearch.org/fact-tank/2015/09/22/the-many-ways-to-measure-economic-inequality/>.

² Paul Lamb, *Opinion, Left Out in the Cold: How Technological Innovation Favors the Rich*, COMPUTERWORLD, (May 22, 2010, 12:07 AM PT), <http://www.computerworld.com/article/2517892/web-apps/left-out-in-the-cold-how-tech-innovation-favors-the-rich.html>.

³ Adam Auriemma, *With Digital Fitness Trackers, CEOs Band Together*, WALL STREET JOURNAL, (March 12, 2014, 12:23 PM ET), <http://www.wsj.com/articles/SB10001424052702304020104579433150384811912>.

President of the United States wears a FitBit.⁴ Many of these users, by dint of their privilege, are also relatively healthy when compared to the general American population: “They’re not likely to be the people who need to lose weight.”⁵ Thus, the FitBit helps a small subset of generally very healthy people, who happen to also be wealthy, to further improve their health.

The data collected by FitBit includes not only basic vital signs and sleep patterns but detailed demographic and social information. The specificity of this data, and the longitudinal nature of this data, resembles in many ways the information collected in clinical research trials. This FitBit data, however, is collected much more easily than trial data. Barriers to access, including privacy and research transparency concerns, do not exist in the FitBit model. Participation is voluntary, which might at first blush decrease the value of the data collected; yet even intermittent FitBit users can, over time, generate enough data to allow researchers to spot trends and analyze predictively. And, this data is commercially available.⁶ The ease with which data miners may acquire FitBit data rivals the ease with which wealthy consumers may acquire a FitBit. Might liberal corporate use of this wealthy-healthy dataset lead to more new technology that further advances the health of this

⁴ Kieran Corcoran, *The First FitBit: President spotted with device to monitor heart rate, location, sleeping patterns and calorie intake (are you watching, Michelle?)*, THE DAILY MAIL, (March 18, 2015, 14:25 EST), <http://www.dailymail.co.uk/news/article-2999604/Obama-s-enormous-new-watch-Tech-savvy-President-spotted-Fitbit-device-monitor-heart-rate-location-sleeping-patterns-calorie-intake.html>.

⁵ Olga Khazan, *Fitness Trackers Only Help Rich People Get Thinner*, THE ATLANTIC, (January 12, 2015), <http://www.theatlantic.com/health/archive/2015/01/fitness-trackers-just-help-rich-people-get-thinner/384431/>.

⁶ *Love Your FitBit? Be Warned: Companies Sell Your Data*, THE DAILY BRIEFING: NEWS FOR HEALTH CARE EXECUTIVES, THE ADVISORY BOARD COMPANY, (April 23, 2014, 12:26 PM), <https://www.advisory.com/daily-briefing/2014/04/23/love-your-fitbit-be-warned-companies-sell-your-data>, quoting Parmy Olson and Aaron Tilley, *The Quantified Other: Nest and FitBit Chase a Lucrative Side Business*, FORBES, (April 17, 2014, 4:30 AM), <http://www.forbes.com/sites/parmyolson/2014/04/17/the-quantified-other-nest-and-fitbit-chase-a-lucrative-side-business/>.

wealthy population subset? In other words, technology may spread the wealth gap – is FitBit spreading the health gap?

A similar issue exists in the biosciences with genetic testing. Genetic testing, like wearable sensor technology, has yet to penetrate the middle-income consumer market. One barrier is cost: An affordable, and consumer-accessible, whole genome sequencing service still costs approximately \$1,000 per person.⁷ That price point limits whole genome sequencing access to those persons who are educated, or well-informed, and affluent when compared to the American population. Yet extensive research is being conducted to identify and isolate the gene defects of this small group, and advancements are being made that will certainly benefit those whose genomes and gene expression most resemble those of this small group.

Ethicists might decry the lack of representation in the sequenced genome pool. Certainly, broad representation might lead researchers to discover more unique gene sequences and genetic aberrations – such discoveries might lead to cures for illnesses that currently plague many of the world’s poor. But as noted above, sequencing, like emerging technology, is expensive. Its expense limits its access to those who can afford it. And third-party funding, whether commercially sourced or research-based, might raise ethical quandaries of its own. Questions of autonomy, self-determination, and consent arise when third parties attempt to test a demographic that lies outside the easy grasp of technology.

⁷ Susan Young Rojahn, *Does Illumina Have the First \$1,000 Genome?*, MIT TECHNOLOGY REVIEW, (January 14, 2014), <http://www.technologyreview.com/news/523601/does-illumina-have-the-first-1000-genome/>.

The DNA of Henrietta Lacks, a lower-income woman from Baltimore, provides a searing example of third-party involvement in genetic testing, where the subject did not provide consent. While Lacks' DNA has significantly increased researchers' understanding of the whole genome sequence, its exploitation-scarred origins cannot be overlooked.⁸ Even when third-party funding is conducted under the guise of non-commercial research, non-wealthy populations may still suffer from exploitation. The Havasupai tribe donated DNA to Arizona State University researchers for genetic testing that went well beyond the tribe's original consent.⁹ When data that reflects lower-income individuals and populations can only be gathered through third-party funding, the temptation to corrupt and exploit such subjects may be too great. And, as with the Havasupai, the discoveries that arise from such third-party funding may not benefit lower-income populations. It may actually harm them.

Where the FitBit is concerned, then, the collection and use of a wealthy-healthy data set may not be such a bad thing after all. Yes, extremely privileged FitBit users may be first to benefit from discoveries or advancements arising from FitBit data. Being first-to-benefit, however, would be fair as these users contributed the data. Early adopters of technology also pay more and enjoy less utility than users of that same technology once it has matured.¹⁰ So, to the extent that such discoveries benefit other people more than they benefit the individual user, early adopters would have given for the sake of the greater good. Secondly, wealthy users, by virtue of

⁸ Michaeleen Doucleff, *Decades After Henrietta Lacks' Death, Family Gets a Say on Her Cells*, NATIONAL PUBLIC RADIO, (August 7, 2013, 1:40 PM ET), <http://www.npr.org/sections/health-shots/2013/08/07/209807857/decades-after-lacks-death-family-gets-a-say-on-her-cells>.

⁹ Amy Harmon, *Indian Tribe Wins Fight to Limit Use of Its DNA*, THE NEW YORK TIMES, (April 21, 2010), <http://www.nytimes.com/2010/04/22/us/22dna.html?pagewanted=all&r=0>.

¹⁰ Casey Johnston, *Google director: Early adoption is for rich chumps*, ARS TECHNICA, (June 18, 2013, 1:32 PM CDT), <http://arstechnica.com/business/2013/06/google-director-early-adoption-is-for-rich-chumps/>.

their buying power, attract commercial interest, which spurs research dollars. The commercial value of this dataset will also increase the speed by which innovation happens. As researchers translate the data using predictive analytics, new scientific knowledge will be unearthed that will launch other commercial ventures, but could also inform public policies on local, state, or national levels. Third, a dataset reflecting wellness could provide a baseline by which data that follows could be judged - say, for instance, were FitBit to distribute free FitBits to specific subgroups in an effort to make the company's dataset more robust or representative of the national population. Finally, America is an aspirational country: We aspire to enjoy the freedom that accompanies great health and wealth. Thus, this healthy-wealthy dataset could open up new opportunities for longevity and disease-avoidance that could benefit all citizens regardless of social status. In fact, while wealthy FitBit users may benefit first, they may not benefit most, compared to lower-income members of society. If all citizens could theoretically benefit from the technological breakthroughs born of this dataset, it is conceivable that lower-income citizens, depending upon their individual health status and the effectiveness of public policies, could benefit the most from health and wellness best-practices. By counting the steps of a few, the FitBit could help us all.

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