# nano r2

# nc – kant

#### The metaethic is practical reason. Prefer:

#### First, value theory – the existence of extrinsic goodness requires unconditional human worth.

Korsgaard (Christine M., “Two Distinctions in Goodness,” The Philosophical Review Vol. 92, No. 2 (Apr., 1983), pp. 169-195, JSTOR) OS \*bracketed for gen lang\* //rct st

The argument shows how Kant's idea of justification works. It can be read as a kind of regress upon the conditions, starting from an important assumption. The assumption is that when a rational being makes a choice or undertakes an action, he or she [they] supposes the object to be good, and its pursuit to be justified. At least, if there is a categorical imperative there must be objectively good ends, for then there are necessary actions and so necessary ends (G 45-46/427-428 and Doctrine of Virtue 43-44/384-385). In order for there to be any objectively good ends, however, there must be something that is unconditionally good and so can serve as a sufficient condition of their goodness. Kant considers what this might be: it cannot be an object of inclination, for those have only a conditional worth, "for if the inclinations and the needs founded on them did not exist, their object would be without worth" (G 46/428). It cannot be the inclinations themselves because a rational being would rather be free from them. Nor can it be external things, which serve only as means. So, Kant asserts, the unconditionally valuable thing must be "humanity" or "rational nature," which he defines as "the power set to an end" (G 56/437 and DV 51/392). Kant explains that regarding your existence as a rational being as an end in itself is a "subjective principle of human action." By this I understand him to mean that we must regard ourselves as capable of conferring value upon the objects of our choice, the ends that we set, because we must regard our ends as good. But since "every other rational being thinks of his existence by the same rational ground which holds also for myself' (G 47/429), we must regard others as capable of conferring value by reason of their rational choices and so also as ends in themselves. Treating another as an end in itself thus involves making that person's ends as far as possible your own (G 49/430). The ends that are chosen by any rational being, possessed of the humanity or rational nature that is fully realized in a good will, take on the status of objective goods. They are not intrinsically valuable, but they are objectively valuable in the sense that every rational being has a reason to promote or realize them. For this reason it is our duty to promote the happiness of others-the ends that they choose-and, in general, to make the highest good our end.

#### Second, practical reason – ethical principles must be derived from the structure of reason:

#### [1] Regress – we can always ask why we should follow a theory, so they aren’t binding because they don’t have a starting point. Practical reason solves – When we ask why we should follow reason, we demand a reason, which concedes to the authority of reason itself, so it’s the only thing we can follow. o/w on bindingness – if ur fw isnt binding then there’s no reason for agents to act so even if the aff is bad it triggers permissiblity

#### [2] Action Theory – every action can be broken down to infinite amounts of movements, i.e. me moving my arm can be broken down to the infinite moments of every state my arm is in. Only reason can unify these movements because we use practical reason to achieve our goals, means all actions collapse to reason

#### Practical reason means we all have a unified perspective: What can be justified to me can be justified to everyone who is a practical reasoner. If I can conclude that 2+2 is 4, then I understand not only that I know 2+2 is 4, but that everyone around me can arrive at the same conclusion. These things are temporally consistent: I know that me adding two numbers now and taking that sum will not result in me adding the same two numbers in the future and getting a different sum. Our unified perspective does not change but rather stays consistent.

#### But, willing an action that violates the freedom of others is a contradiction: If I decide to kill someone, that action is not universalizable because that would justify other people killing me too. If I die, I cannot exercise my freedom to kill someone else. This is a contradiction: I both justify extending my freedom to kill others and limiting my own freedom.

#### Thus, the standard is respecting freedom.

#### Impact calc –

#### 1] Ethics are based on intent, but the state does not have intentions and cannot know the intentions of other agents. Instead, the state acts a procedural mechanism to punish those who violate rights claims. Those rights are derived from the structure of intent.

#### 2] The state does not have the authority to act to preempt future rights violations, because consequences of action are contingent and cannot be derived from the structure of the maxim on which one acts. Thus, the state does not have the jurisdiction to take them into account.

#### 3] There is an act-omission distinction –

#### [a] Infinite Regress – Ethics cannot hold agents accountable for an infinite number of untaken decisions, otherwise that would impair action because agents would simultaneously have an infinite number of obligations. [b] Illogical – we wouldn’t hold an agent who chooses a morally repugnant act equally culpable as an agent who chooses not to prevent a morally repugnant act, like saving a drowning baby from a pool.

#### Negate –

**[1] Property rights – putting limits on the economic uses of intellectual property creates a contradiction – the concept of property is violated if you aren't allowed to control how you use it.**

Pozzo**,**6 (Riccardo Pozzo, Riccardo Pozzo is an Italian philosopher and historian of philosophy., 11-18-2006, accessed on 8-12-2021, Scielo, "IMMANUEL KANT ON INTELLECTUAL PROPERTY", [https://www.scielo.br/j/trans/a/rLfb3yPN3p4KPsYpxp8LQCp/?format=pdf&lang=en)\*brack](https://www.scielo.br/j/trans/a/rLfb3yPN3p4KPsYpxp8LQCp/?format=pdf&lang=en)*brack)eted for gen lang\*//st

The error consists in mistaking one of these rights for the other” (Kant, 1902, t.6, p.290). The corpus mysticum, the work considered as an immaterial good, remains property of the author on behalf of the original right of its creation. The corpus mechanicum consists of the exemplars of the book or of the work of art. It becomes the property of whoever has bought the material object in which the work has been reproduced or expressed. Seneca points out in De beneficiis (VII, 6) the difference between owning a thing and owning its use. He tells us that the bookseller Dorus had the habit of calling Cicero’s books his own, while there are people who claim books their own because they have written them and other people that do the same because they have bought them. Seneca concludes that the books can be correctly said to belong to both, for it is true they belong to both, but in a different way. The peculiarity of intellectual property consists thus first in being indeed a property, but property of an action; and second in being indeed inalienable, but also transferable in commission and license to a publisher. The bond the author has on [their] work confers [them] a moral right that is indeed a personal right. It is also a right to exploit economically [their] work in all possible ways, a right of economic use, which is a patrimonial right. Kant and Fichte argued that moral right and the right of economic use are strictly connected, and that the offense to one implies inevitably offense to the other. In eighteenth-century Germany, the free use came into discussion among the presuppositions of a democratic renewal of state and society. In his Supplement to the Consideration of Publishing and Its Rights, Reimarus asked writers “instead of writing for the aristocracy, to write for the tiers état of the reader’s world.” (Reimarus, 1791b, p.595). He saluted with enthusiasm the claim of disenfranchising from the monopoly of English publishers expressed in the American Act for the Encouragement of Learning of May 31, 1790. Kant, however, was firm in embracing intellectual property. Referring himself to Roman Law, he asked for its legislative formulation not only as patrimonial right, but also as a personal right. In Of the Illegitimity of Pirate Publishing, he considered the moral faculties related to intellectual property as an “inalienable right (ius personalissimum) always himself to speak through anyone else, the right, that is, that no one may deliver the same speech to the public other than in his (the author’s) name” (Kant, 1902, t.8, p.85). Fichte went farther in the Demonstration of the Illegitimity of Pirate Publishing. He saw intellectual property as a part of his metaphysical construction of intellectual activity, which was based on the principle that thoughts “are not transmitted hand to hand, they are not paid with shining cash, neither are they transmitted to us if we take home the book Trans/Form/Ação, São Paulo, 29(2): 11-18, 2006 13 that contains them and put it into our library.

#### It doesn’t matter if it’s intellectual property – the concept of intellectual property is the same as physical property – property as a concept is something that a person owns and can control unconditionally given that it doesn’t violate someone else’s freedoms, so IP qualifies.

#### [2] Act-omission distinction – not giving someone is an omission, otherwise we would have infinite obligations to tell everyone everything – pharma companies can’t be held accountable for doing functionally nothing so the state has no obligation to enact rules on it.

# da

#### Rising R&D costs mean that pharma is on the brink of losing monetary incentive to innovate

Gassmann et al 16-- Schuhmacher, Alexander, Oliver Gassmann [Professor of Technology management at University of St. Gallen], and Markus Hinder. "Changing R&D models in research-based pharmaceutical companies." Journal of translational medicine 14.1 (2016): 1-11. (AG DebateDrills)

The costs for pharmaceutical R&D increased in the past decades significantly. Munos [[3](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR3)] reported an annual inflation-adjusted increase of R&D costs of 8.6 % for the period of 1950–2009 [[3](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR3)]. Other studies support this view: while the costs per NME were published to be USD 250 million before the 1990s, the average out-of-the-pocket costs per NME have been calculated to be USD 403 million (2000s) and USD 873 million (2010), respectively [[12](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR12), [28](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR28), [29](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR29)]. The low success rates and the respective costs of failed drug projects are causal for the high out-of-the-pocket costs. In addition, the use of new technologies to reduce the timelines and to increase success rates in drug discovery, such as combinatorial chemistry, DNA sequencing, high-throughput-screening (HTS) or computational drug design, may have further increased R&D costs just as larger clinical trial sizes and better clinical infrastructure. Split to the phases of R&D, Paul et al. [[12](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR12)] reported that drug discovery and preclinical development account for 33 % of the total cost per NME (USD 281 million), clinical development (phase I to submission) represents 63 % (USD 548 million) and submission to launch costs 5 % (USD 44 million) of the overall expenditures per NME [[12](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR12)]. In view of the long time intervals, these out-of-the-pocket costs add together in extraordinary high capitalized costs of reported of USD 1.778 billion (2010) per NME [[12](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR12), [19](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR19), [28](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR28)]. Such cost calculations do not include all expenditures associated directly and indirectly with drug R&D. Costs for basic research, phase IV trials, regulatory approvals in non-US markets or product life-cycle management need to be added. Exemplified by data from the 2014 CMR Factbook that 25.7 % of all costs of R&D are dedicated to the international roll-out and line extensions, the actual costs per new drug are higher than the analyzed USD 1.778 billion. Potentially, the results provided by Harper [[30](https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-016-0838-4#ref-CR30)] illustrate the real costs, as he analyzed the expenditures per NME launched by leading pharmaceutical companies to be USD 3-12 billion. And he investigated that the top pharmaceutical companies, defined as those that have launched more than four NMEs between 2002–2011, invested more than USD 5 billion per new drug.

#### Secondary patents are necessary to incentivize research of both initial active ingredients and follow on innovations, this controls the internal link to all of their innovation impacts—also competitor litigation controls the negative effects well

Foor 21-- Meredith Foor; JD candidate at University of New Hampshire; “INCENTIVIZING INNOVATION AND RECLAIMING BALANCE IN THE PHARMACEUTICAL INDUSTRY: A CASE FOR SECONDARY PATENTS”; HeinOnline; May 2021; <https://law.unh.edu/sites/default/files/media/2021/05/foor_final.pdf>. (AG DebateDrills)

Patents remain a primary focus for the pharmaceutical industry as a means to protect new drug inventions and to provide an opportunity to recover some of the expended upfront costs of the extensive preclinical and clinical testing phases.76 Primary patents are often robust and serve to initially protect the invention.77 However, this initial patent term is not enough to allow a patent owner to effectively recover from the upfront time lost from the initial filing date and the high likelihood of failure in bringing a new drug product from early stage development to market.78 The FDA’s Hatch-Waxman Act solution of allowing for a patent restoration term, adding up to an additional five years of patent life onto the natural end of the patent, seeks to remedy this initial time lost as a result of the regulatory approval process.79 However, this extension still may not provide for enough time or incentive for brand companies to expend such extensive resources on new product research and development when the chance of failure for bringing a new product through the FDA approval process is so high. This is where the use of secondary patents comes in. The name “secondary patent” leaves the notion in a reader’s mind that these types of patents are not as important as “primary patents.”80 This is not an accurate depiction of the relative connection between primary and secondary patents. Rather, the first patent filed for a product which often covers the new molecule or new active pharmaceutical ingredient is simply referred to as the “primary patent,” while additional patents covering other aspects of the same product or follow-on innovation are referred to as the secondary patents.81 The categorization of primary verses secondary patents arises solely out of the timeline of when the patents for a given drug product are filed and ultimately obtained. However, regardless of the informal category given to the various types of pharmaceutical patents, a patent will not issue unless it satisfies the requirements of patentability as determined by the United States Patent and Trademark Office (USPTO).82 In that sense, an application is required to meet all patentability requirements before the patent will be issued. Therefore, a secondary patent should not be deemed lesser than a primary patent in that respect. It is true that the subject matter of secondary patents may be deemed “weaker.”83 This categorization, however, is based on the idea that it is easier to invalidate and “invent around” these patents in comparison to the patent covering the very specific new molecule or active ingredient itself.84 The categorization should not take away the importance of secondary patents for brand companies or the subject matter covered in the patents. Opponents of secondary patents in the industry suggest that pharmaceutical companies use these patents as a means of extending protection on the initial product itself.85 This argument stems from the idea that secondary patents can essentially be used to double-patent, or patent the exact same invention twice.86 However, as the USPTO will not issue a patent unless the requirements of patentability are met, specifically that the invention must be novel, the existence of secondary patents is not equivalent to double patenting.87 There are also steps that competitors can take to invalidate a patent that it believes to be an attempt at patenting the same idea twice.88 In fact, competitors do take advantage of the opportunities afforded to them to invalidate patents. For example, they often choose to litigate. Because a majority of these litigation challenges target brand companies’ secondary patents, this suggests that competitors are effectively policing the improper use of secondary patents.89 Therefore, there is little evidence that double patenting is as significant an issue as some allege that it may be.

Continuing

Another misconception regarding secondary patents is the idea that the subject matter is but the same original invention covered by the primary patent with a simple and insignificant change.101 This is incorrect. Why would the USPTO grant a patent on an invention that was neither novel nor new, thus not meeting all criteria of patentability? Clearly, in a perfect world, the USPTO would not grant a patent on something that added no innovation to what previously existed. While, from an outside perspective, “pharmaceutical innovation can appear deceptively simple,” in reality, “the path to meaningful follow-on innovation is tremendously challenging, unpredictable, and more often than not results in failure.”102 In addition, breakthroughs have been made by essentially recycling old failed products and attempting to implement them in a new treatment field. Without some sort of incentive to allow for financial gain, why would a company undertake a highly expensive and challenging project that is prone to failure? Secondary patents play a critical role in encouraging companies to face the risk of uncertainty in exploring different applications and means of improving current or failed drug products because they allow brand companies a greater opportunity to recoup their costs, make a profit, and recycle their profits into new groundbreaking research and innovation.

#### The follow-on patents also are the only way that we discover miraculous cross-applications of drugs, which is the fastest way to solve emerging disease, which is especially important during a pandemic so it turns and outweighs case on probability

Holman 18—Christopher Holman; Professor of Law at University of Missouri-Kansas City; Why Follow-On Pharmaceutical Innovations Should Be Eligible For Patent Protection; Intellectual Property Watch; 9/21/2018; <https://www.ip-watch.org/2018/09/21/follow-pharmaceutical-innovations-eligible-patent-protection/>. (AG DebateDrills)

The attack on secondary pharmaceutical patents is based in part on the flawed premise that follow-on innovation is of marginal value at best, and thus less deserving of protection than the primary inventive act of identifying and validating a new drug active ingredient. In fact, follow-on innovation can play a critical role in transforming an interesting drug candidate into a safe and effective treatment option for patients. A good example can be seen in the case of AZT (zidovudine), a drug ironically described in the Guidelines as the “first breakthrough in AIDS therapy.” AZT began its life as a failed attempt at a cancer drug, and it was only years later that its potential application in the fight against AIDS was realized. Follow-on research resulted in a method-of-use patent directed towards the use of AZT in the treatment of AIDS, and it was this patent that incentivized the investment necessary to bridge the gap between a promising drug candidate and a safe, effective, and FDA-approved pharmaceutical. Significantly, because of the long lag time between the first public disclosure of AZT and the discovery of its use in the treatment of AIDS, patent protection for the molecule per se was unavailable. In a world where follow-on innovation is unpatentable, there would have been no patent incentive to invest in the development of the drug, and without that incentive AZT might have languished on the shelf as simply one more failed drug candidate. Other examples of important drugs that likely never would have been made available to patients without the availability of a “secondary” patent include Evista (raloxifene, used in the treatment of osteoporosis and to reduce the risk of invasive breast cancer), Zyprexa (olanzapine, used in the treatment of schizophrenia), and an orally-administrable formulation of the antibiotic cefuroxime. Pharmaceutical development is prolonged and unpredictable, and frequently a safe and effective drug occurs only as a result of follow-on innovation occurring long after the initial synthesis and characterization of a pharmaceutically interesting chemical compound. The inventions protected by secondary patents can be just as critical to the development of drugs as a patent on the active ingredient itself.

#### Externally, pharma collapses without strong IP protections

**Buckland 17** - Danny Buckland (award-winning journalist who writes about health, general features and news, shortlisted for the prestigious Mind Media Awards for his work covering mental health issues), April 26, 2017, “Patents are lifeblood of pharmas”, https://www.raconteur.net/legal/intellectual-property/patents-are-lifeblood-of-pharmas/ WJ

**Pharmaceutical companies are staffed by ranks of attorneys, and the intellectual property (IP) specialist is now a pivotal position in the research and development (R&D) cycle that keeps a company profitable** and new drugs flowing to patients. **Tighter regulatory frameworks** and even tighter purse strings controlled by healthcare systems **are putting the squeeze on pharma returns and limiting R&D budgets**. Figures from analysts Deloitte in 2016 reported projected return on investment was at a six-year low while development costs had risen by almost a third. The litany of market changes is vexing for the industry. **The generation of blockbuster drugs, with massive returns**, **has ended,** national healthcare budgets are receding, traditional management methods are being challenged and new players, such as electronics and software companies, are entering the arena. “**For pharmaceutical companies, the patent system is its lifeblood and it simply wouldn’t survive without it**,” says Simon Wright, a patent attorney with J A Kemp and chairman of the Chartered Institute of Patent Attorneys’ life sciences committee. “**The cost of getting a product to market is high and there is a high failure rate**, so you are not going to get investment unless you can protect your product and innovation. **Quite frankly, it would all collapse without good IP**.”

#### Biopharmaceutical research is the bedrock of our economy – even minor reductions in income result in mass unemployment and butterfly effects

**Sullivan 11** – Thomas Sullivan (Thomas Sullivan is Editor of Policy and Medicine, President of Rockpointe Corporation, founded in 1995 to provide continuing medical education to healthcare professionals around the world. Prior to founding Rockpointe, Thomas worked as a political consultant), July 12, 2011, Study Shows Importance of Biopharmaceutical Jobs For US Economy,” Policy and Medicine, http://www.policymed.com/2011/07/study-shows-importance-of-biopharmaceutical-jobs-for-us-economy-for-every-20-billion-loss-in-revenue.html WJ

**Biopharmaceutical research companies produce the highest-value jobs**, the types of jobs Americans want in the 21st century economy, the kinds of jobs that can drive future economic growth. **No other sector has the ability to drive innovation, create high-quality jobs and provide new life-saving medicines for patients.** According to a recent report from the Battelle Technology Partnership Practice (TPP), “nationwide, the biopharmaceutical sector supported a total of 4 million jobs in 2009, including nearly 675,000 direct jobs. Battelle is the world’s largest non-profit independent research and development organization, providing innovative solutions to the world’s most pressing needs through its four global businesses. TPP has an established reputation in state-by-state assessment of the biopharmaceutical sector, and has recently undertaken major impact assessment projects for the Human Genome Project, the nation’s biotechnology sector, and major bioscience organizations such as Mayo Clinic. TPP has also been active in provision of analysis to industry organizations, including the Council for American Medical Innovation, PhRMA and BIO-the Biotechnology Industry Organization. **Each job in a biopharmaceutical research company supported almost 6 additional jobs in other sectors**, ranging from manufacturing jobs to construction and other building service jobs to contract researchers and child care providers. Together, **this biopharmaceutical sector-related workforce received $258 billion in wages and benefits in 2009**. “Battelle also found that across all occupations involved in the biopharmaceutical sector, **the average wage is higher than across all other private sector industries**, due to the sector’s role as a ‘high value-added sector.” Specifically, the annual average personal income of a biopharmaceutical worker was $118,690 in 2009 as compared to $64,278 in the overall economy. Additionally, the **biopharmaceutical sector’s total economic output** (including direct, indirect and induced impacts) was $918 billion in 2009. The sector generated an estimated $85 billion tax revenues in 2009—$33 billion in state and local and more than $52 billion in federal. This impact **comprises $382 billion in direct impact of biopharmaceutical businesses and $535 billion in indirect and induced impacts** (an output multiplier of 2.4—meaning that every $1 dollar in output generated by the biopharmaceutical sector generates another $1.4 in output in other sectors of the economy). To put this export volume into perspective, 2010’s total biopharmaceutical exports of $46.7 billion compares favorably to other major U.S. exports including: automobiles ($38.4 billion in 2010 exports); plastics and rubber products ($25.9 billion); communications equipment ($27 billion) and computers ($12.5 billion). In addition, the U.S. Congressional Budget Office noted that, “**the pharmaceutical industry is one of the most research-intensive industries in the United States** and that pharmaceutical firms invest as much as five times more in research and development, relative to their sales, than the average U.S. manufacturing firm.” At over $105,000 in biopharmaceutical R&D per employee, **the sector is way ahead of the average across all U.S. manufacturing** which stands at about $10,000 per employee—and is far ahead of the second and third ranked sectors of “communications equipment” and “semiconductors, which respectively spend $63,000 and $40,000 per employee in R&D annually. PhRMA Statement on Battelle Report Consequently, Pharmaceutical Research and Manufacturers of America (PhRMA) President and CEO John J. Castellani issued a statement discussing the results from this report and the biopharmaceutical research sector’s impact on jobs and the American economy. Castellani asserted that, “at a time when the U.S. is facing a jobs crisis, evidenced by the terrible employment numbers from last Friday, **it is critical that our policymakers embrace dynamic and innovative business sectors such as the biopharmaceutical research sector and refrain from stifling job growth** **through shortsighted proposals** **such as government-mandated price controls** in Medicare Part D.” Specifically, the PhRMA CEO pointed to a new paper from the Battelle Technology Partnership Practice, which underscored the pharmaceutical sector’s tremendous contribution to America’s economy. Castellani recognized that, “**startling potential job losses would result from undermining the business foundations of biopharmaceutical companies**.” He noted that the Battelle report estimated “**that a $20 billion per year reduction in biopharmaceutical sector revenue would result in 260,000 job losses across the U.S. economy**” and a $59 billion reduction in U.S. economic activity. As a result, Castellani recognized that, “as the President and Congressional leaders negotiate an important agreement on the debt ceiling and the future of the nation’s economy, it is critical that the jobs crisis is not exacerbated.” For example, Castellani noted how “the President and some in Congress have proposed including government-mandated rebates in Medicare Part D as part of a debt ceiling agreement.” However, he recognized that “such a provision would have a dramatic negative effect on the economy and patients, and could undermine the success of the Part D program, which has very high beneficiary satisfaction and has cost far less than original government projections.” He pointed to the “**Battelle numbers, which clearly demonstrated that reducing the biopharmaceutical sector’s annual revenue by $20 billion would be a serious blow to employment**.” Castellani added that, “while the research is not specific to any one policy or event, proposals being considered, such as government-mandated Part D rebates, would be expected to have revenue impact of this magnitude.” Moreover, he noted that, “Part D is an unparalleled success, providing unprecedented access to life-saving medicines for seniors.” Accordingly, Castellani asserted that PhRMA does not “believe **policies that discourage R&D and cutting-edge science** and **that will inevitably slow the development of needed new medicines are fair for seniors waiting for new treatments against our most challenging and costly diseases**.” Battelle Report The Battelle Report quantifies the economic impact of the biopharmaceutical sector on the U.S. economy and jobs using input/output analysis, measures the direct and indirect impacts of the biopharmaceutical sector, and quantifies the economic impacts that would occur if biopharmaceutical revenues increase or decrease from significant changes in the business operating environment. The report also highlights some of the functional impacts of the sector—the wide-ranging benefits provided through the biopharmaceutical sector’s contributions to enhancing human health, improving life spans and sustaining the high quality-of-life that Americans enjoy—and assesses the contributions of the biopharmaceutical sector to key areas of importance to our economy— innovation, product exports and quality of jobs produced. The Battelle Report starts by recognizing that the biopharmaceutical sector has all of the characteristics for an ideal industry for economic growth and sustainability in the U.S. Specifically, the biopharmaceutical sector: Grows in output and employment even in tough economic times Provides high wage, good quality jobs Is innovative and deploys high-technology to generate comparative advantage for U.S. companies Generates significant exports that boost the U.S. economy Has a strong supply chain that drives further economic growth across the economy through “multiplier effects” Builds on America’s long-standing strengths and investment in fundamental and applied research Encourages capital flows to sustain growth, and is profitable to provide funds for reinvestment into the research and development (R&D) cycle; Generates federal, state and local taxes and other economic contributions that support public services Is sustainable and not a major drain on global resources Is geographically dispersed, providing opportunities for job creation and economic growth across many areas of the nation, not just a few selected places Produces a product of value to society, something that improves the quality of life for humankind, including Improved life spans (personal longevity) Improved productivity resulting from prevention and effective management of disease and chronic conditions; and Reductions in unnecessary hospitalizations resulting in potential cost-offsets elsewhere in the health care system. Fundamental to major progress in human longevity, reducing the marginalization of individuals from disease and disability, and generally improving our quality-of-life, biopharmaceuticals are a unique contributor to societal and individual well-being. Moreover, **the output of the biopharmaceutical sector is highly valued by society because the sector develops and manufactures a broad-range of unique products to treat disorders and diseases that, were they to go untreated, can ruin individual quality of life, personal abilities and productivity**. In many instances, biopharmaceuticals are central to helping to prevent and treat a range of public health issues, address pandemic risk and thereby support national economic security. For example, innovation in the biopharmaceutical sector, combined with the diagnostic and treatment skills of U.S. healthcare professionals, has contributed to a lengthening of the average life span of Americans. In 1900, the expected life span of an American at birth was just 47.3 years. With the advent of more modern medicines and advanced medical knowledge, life expectancy at birth has seen a steady increase rising to 69.7 years in 1960, and 77.9 years in 2007. In fact, the National Bureau of Economic Research reports that “there is a highly statistically significant relationship between the number of new molecular entities [drugs] approved by the FDA and increased longevity.” Furthermore, Lichtenberg found in a study of FDA data that “approval of priority-review drugs—those considered by the FDA to offer significant improvements in the treatment, diagnosis, or prevention of a disease—has a significant positive impact on longevity.” Additionally, the American Hospital Association (AHA) notes that “advances in medicine contribute to national economic growth by helping Americans recover more quickly from injury and illness, avoid lost or ineffective work time due to flare-ups of chronic conditions, and live longer with higher quality of life.” **Without effective medicines and treatments for illnesses, injuries, pain and chronic conditions, the productivity of the U.S. economy would clearly be greatly impaired**. **Biopharmaceuticals are a key contributor to a more productive and healthy America and U.S. economy**. Beyond direct employment in biopharmaceutical companies, the biopharmaceutical sector is the foundation upon which one of the United States’ most dynamic innovation and business ecosystems is built. A large part of the modern biomedical economy is built upon a robust foundation of biopharmaceutical companies that perform and support advanced biomedical and technological R&D, and act as the funnel and distribution engine for getting life-saving and quality-of-life-sustaining therapeutics to the marketplace. Providing R&D impetus and funding, capital resources, technology licensing opportunities, and a sophisticated market access and distribution system, the biopharmaceutical sector is of central importance to the much broader biomedical and life sciences economy. **Fueled by private investment capital, venture capital investments, and public/private collaborations, and enabled by the U.S. open market system**, the nation has been able to advance biomedical innovation, which in turn has led to new start-up companies, business growth and exports across the world. Conclusion Despite the tremendous success in the biopharmaceutical industry, emerging infectious diseases continue to present new challenges and a substantial volume of long-standing diseases such as cancer, diabetes, neurodegenerative diseases, psychiatric diseases, immunological diseases, etc. continue to demand novel treatments and improved therapeutics. There are millions of people suffering from diseases and disorders for which a therapy has yet to be found. **The need for ongoing biopharmaceutical research and development is simply enormous**. The only way the U.S. economy can stay ahead of international competition is by using advanced R&D and innovation to drive the growth of high value-added industries. By leveraging investment in federal lab, university and industry R&D, our nation is able to produce high-value, typically technologically advanced products that the rest of the world values highly. In recent decades, **life sciences have come to the fore as a leading driver of U.S. technological innovation and competitive advantage, and the biopharmaceutical sector is a key foundation of the life sciences innovation ecosystem**.

#### Bipoharma collapse causes economic meltdown – it’s far worse than previous recessions

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In recent history, **the U.S. economy has experienced the near catastrophic failure of two major market segments**. The first was the auto industry and the second was the housing industry. While each of these reached their breaking point for different reasons, they **both required a significant government bailout to keep them from completely melting down**. What is also true about both of those market failures is that, looking back, it’s easy to see the warning signs. What happens **if health care is the next industry to suffer a major failure and collapse?** It’s safe to say that **a health care meltdown would make both** **the automotive and housing industries’ experiences seem minor** in comparison. While that may be hard to believe, it becomes clear if you look at the numbers. The auto industry contributes around 3.5 percent of this country’s GDP and employs 1.7 million people. This industry was deemed “too big to fail” which is the rationale the U.S. government used to finance its bail out. From 2009 through 2014, the federal government invested around $80 billion in the U.S. auto industry to keep it from collapsing. **Health care is five times larger than the auto industry in terms of its percentage of GDP, and is ten times larger than the auto industry in terms of the number of people it employs**. The construction industry (which includes all construction, not just housing) contributes about 6 percent of our country’s GDP and employs 6.1 million people. Again, the health care market dwarfs this industry. It’s three times larger in terms of GDP production and, with 18 million people employed in the health care sector, it’s three times larger than construction in this area, too. **These comparisons give you an idea of just how significant a portion health care comprises of the U.S. economy**. **It also begins to help us understand the impact it would have on the economy if health care melted down like the auto and housing industries did**. So, let’s continue the comparison and use our experience with the auto and housing industries to suggest to what order of magnitude the impact a failure in the health care market would cause our economy. The bailout in the auto industry cost the federal government $80 billion over five years. Imagine **a similar failure in health care that prompted the federal government to propose a similar bailout program**. Let’s imagine the government felt the need to inject cash into hospital systems and doctors’ offices to keep them afloat like they did with General Motors. Since health care is five times the size of the auto industry**, a similar bailout could easily cost in excess of $400 billion**. That’s about the same amount of money the federal government spends on welfare programs. To pay for a bailout of the health care industry, **we’d have to eliminate all welfare programs in this country**. Can you imagine the impact it would have on the economy if there were suddenly none of the assistance programs so many have come to rely upon? **When the housing market crashed, it caused the loss of about 3 million jobs** from its peak employment level of 7.4 million in 1996. Again, if we transfer that experience to the health care market, we come up with a truly frightening scenario. **If health care lost 40 percent of its jobs** like housing did, **it would mean** **7.2 million jobs lost.** That’s more than four times the number of people who are employed by the entire auto industry — an industry that was considered too big to be allowed to fail. The loss of 7.2 million jobs would increase the unemployment rate by 5 percent. That means **we could easily top the all-time high unemployment rate for our country**. OK, now it’s time to take a deep breath. I’m not convinced that health care is fated to unavoidable failure and economic catastrophe. That’s a worst-case scenario. The problem is that at **even a fraction the severity of the auto or housing industry crises we’ve already faced, a health care collapse would still be devastating**. Health care can’t be allowed to continue its current inflationary trending. I believe we are on the verge of some major changes in health care, and that how they’re implemented will determine their impact on the overall economic picture in this country and around the world. **Continued failure to recognize the truth about health care will only cause the resulting market corrections to be worse than they need to be**. I don’t want to diminish the pain and anguish that many people caught up in the housing crash experienced. I think an argument can be made, though, that if **the health care market crashes and millions of people end up with no health care**, **the** resulting **fallout could be could be much worse than even the housing crisis**.

#### Extinction

**Tønnesson 15** Stein Research Professor, Peace Research Institute Oslo; Leader of East Asia Peace program, Uppsala University, 2015, “Deterrence, interdependence and Sino–US peace,” International Area Studies Review, Vol. 18, No. 3, p. 297-311

Several **recent works** on China and Sino–US relations **have made** substantial **contributions to the current understanding of how and under what circumstances** a combination of **nuclear deterrence and economic interdependence may reduce the risk of war between major powers**. At least four conclusions can be drawn from the review above: first, those who say that **interdependence may both inhibit and drive conflict** are right. **Interdependence raises the cost of conflict** for all sides **but** **asymmetrical or unbalanced dependencies and negative trade expectations** may **generate tensions leading to trade wars among inter-dependent states that** in turn **increase the risk of military conflict** (Copeland, 2015: 1, 14, 437; Roach, 2014). The risk may increase if one of the interdependent countries is governed by an inward-looking socio-economic coalition (Solingen, 2015); second, the risk of war between China and the US should not just be analysed bilaterally but include their allies and partners. Third party countries could drag China or the US into confrontation; third, in this context it is of some comfort that the three main economic powers in Northeast Asia (China, Japan and South Korea) are all deeply integrated economically through production networks within a global system of trade and finance (Ravenhill, 2014; Yoshimatsu, 2014: 576); and fourth, **decisions for war** and peace **are taken by very few people, who act on the basis of their future expectations**. International relations theory must be supplemented by foreign policy analysis in order to assess the value attributed by national decision-makers to economic development and their assessments of risks and opportunities. **If leaders** on either side of the Atlantic **begin to seriously fear or anticipate their own nation’s decline** then **they may blame** this on **external dependence, appeal to anti-foreign sentiments, contemplate the use of force to gain** respect or **credibility, adopt protectionist policies, and** ultimately **refuse to be deterred by** either **nuclear arms or prospects of socioeconomic calamities. Such a dangerous shift could happen abruptly**, i.e. under the instigation of actions by a third party – or against a third party. Yet as long as there is both nuclear deterrence and interdependence, the tensions **in East Asia** are unlikely to escalate to war. As Chan (2013) says, all states in the region are aware that they cannot count on support from either China or the US if they make provocative moves. **The greatest risk is not** that **a territorial dispute** leads to war under present circumstances **but that changes in the world economy alter those circumstances in ways that render inter-state peace more precarious**. If China and the US fail to rebalance their financial and trading relations (Roach, 2014) then a trade war could result, interrupting transnational production networks, provoking social distress, and exacerbating nationalist emotions. **This could have unforeseen consequences in the field of security, with nuclear deterrence remaining the only factor to protect the world from Armageddon, and unreliably so**. **Deterrence could lose its credibility**: one of the two **great powers might gamble that the other yield in a cyber-war or conventional** limited **war**, or third party countries might engage in conflict with each other, with a view to obliging Washington or Beijing to intervene.