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## Taxing the Cyborg

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*What role will tax play in realizing utopia? Or bringing about a dystopian future? The tax policy of recent decades shares much of the blame for the profound economic inequality of today. Tax has ripple effects—how it responds to present challenges shapes the future. One contemporary challenge is understanding tax’s role in the nascent regulatory regime of gene editing and modification. CRISPR—Clustered Regularly Interspaced Short Palindromic Repeats—is a pattern of DNA found in bacteria. Paired with “Cas” genes to form a CRISPR/Cas system, CRISPR essentially functions as a “cut-and-paste” tool, enabling the targeted modification of a genetic sequence. This Article considers how tax is poised to respond to CRISPR and similar emerging medical technologies with both therapeutic and so-called enhancement applications. Doing so exposes gaps in current tax law as applied to the body and biotechnologies. Some of these gaps are doctrinal; for example, the existing § 213 medical expense deduction doctrine is ill-prepared for the interpretive challenge CRISPR presents. But beyond the comparatively narrow doctrinal gaps lie more structural weaknesses. By imagining a world in which CRISPR gene editing is fully realized, we can better appreciate flaws in how current tax policy conceptualizes the foundational concept of a taxpayer’s ability to pay, as well as how it treats human capital. Taxing the cyborg, it turns out, will be no easy task.*

#### INTRODUCTION

The year is 2092. After the success of mRNA vaccines in combating the global COVID-19 pandemic, technologies relating to gene editing, transmission, and therapy rapidly expanded.<sup>1</sup> Leaders of global powers were slow to respond with a substantive regulatory regime.<sup>2</sup> In the absence of such regulation, scientists continued the rapid development of the technology with minimal oversight, and private

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<sup>1</sup> Jon Cohen, *An mRNA Vaccine with a Twist—It Copies Itself—Protects Against COVID-19*, SCIENCE (Apr. 21, 2022, 6:35 PM), <https://www.science.org/content/article/mrna-vaccine-twist-it-copies-itself-protects-against-covid-19> [<https://perma.cc/K4LB-ZDBR>]; Walter Isaacson, *mRNA Technology Gave Us the First COVID-19 Vaccines. It Could Also Uproot the Drug Industry*, TIME (Jan. 11, 2021, 5:10 AM), <https://time.com/5927342/mrna-covid-vaccine/>; Norbert Pardi et al., *mRNA Vaccines — A New Era in Vaccinology*, 17 NATURE REVIEWS DRUG DISCOVERY 261 (2018); JENNIFER A. DOUDNA & SAMUEL H. STERNBERG, A CRACK IN CREATION: GENE EDITING AND THE UNTHINKABLE POWER TO CONTROL EVOLUTION, xi–34 (2017).

<sup>2</sup> Gina Kolata, *W.H.O. Experts Seek Limits on Human Gene-Editing Experiments*, N.Y. TIMES (July 12, 2021), <https://www.nytimes.com/2021/07/12/science/gene-editing-crispr-who.html> [<https://perma.cc/98B2-LSZG>].

commercial applications began to appear in wealthy countries. In addition to creating new, highly effective cancer therapies and eradicating sickle cell disease,<sup>3</sup> gene editing proliferated in the fertility and assisted reproduction industries, going far beyond existing genetic counseling and embryo selection processes. The “designer babies” of science fiction are now entering the workforce.

Coming back to the present day, as such technology continues its rapid progression to the future briefly described above, varied legal questions arise. This Article explores the questions at the intersection of tax and existing and emerging technologies that enable modification of genetic code.<sup>4</sup> The first in this space, this Article describes how current law will apply to such technologies, and then anticipates and interrogates the role that tax may play in shaping the further development and proliferation of such technologies. Going beyond the doctrinal, this Article argues that considering tax and the cyborg<sup>5</sup>

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<sup>3</sup> For examples of current and anticipated applications on which this imagined future is based, see, for example, *Q&A on FDA Regulation of Intentional Genomic Alterations in Animals*, U.S. FOOD & DRUG ADMIN., <https://www.fda.gov/animal-veterinary/intentional-genomic-alterations-igas-animals/qa-fda-regulation-intentional-genomic-alterations-animals> [<https://perma.cc/V7HA-EY8G>] (public facing discussion); Linda Geddes, *Scientists Create Tomatoes Genetically Edited to Bolster Vitamin D Levels*, THE GUARDIAN (May 23, 2022, 11:12 AM), <https://www.theguardian.com/science/2022/may/23/scientists-create-tomatoes-genetically-edited-boost-vitamin-d-levels> [<https://perma.cc/72MQ-PPL3>] (applications); Terry Gross, *CRISPR Scientist’s Biography Explores Ethics of Rewriting the Code of Life*, NPR (Mar. 8, 2021, 1:38 PM), <https://www.npr.org/transcripts/974751834> [<https://perma.cc/JUN2-ECCS>] (interviewing Walter Isaacson); Rob Stein, *First Sickle Cell Patient Treated with CRISPR Gene-Editing Still Thriving*, NPR (Dec. 31, 2021, 5:05 AM), <https://www.npr.org/sections/health-shots/2021/12/31/1067400512/first-sickle-cell-patient-treated-with-crispr-gene-editing-still-thriving> [<https://perma.cc/D76Q-JT6Y>].

<sup>4</sup> In a rapidly evolving area of science, the terms used to describe different methodologies change with the science. For the purposes of this Article, gene editing will be used to encompass the array of mechanisms available and in development, including not only CRISPR but viral vector techniques. Further, while the scientific literature distinguishes between cell therapy, gene editing, and gene therapy, for the purposes of this Article, gene editing is used to encompass all three unless otherwise stated. For a primer on the distinctions between the methods, see *Patient Education*, AM. SOC’Y GENE & CELL THERAPY, <https://patienteducation.asgct.org/gene-therapy-101/different-approaches> [<https://perma.cc/AVK3-FXXM>] (“Gene therapy, cell therapy, and gene editing are fields of biomedical research with a similar goal in mind: To treat disease by targeting the cause of the disease.”); DOUDNA & STERNBERG, *supra* note 1, at 14–22.

<sup>5</sup> See Donna J. Haraway, *A Cyborg Manifesto*, SOCIALIST REV., Mar.–Apr. 1985, at 65, reprinted in MANIFESTLY HARAWAY 3 (2016). Invoking the “cyborg” has different meanings to different audiences. In one iteration, the cyborg is a melding of technology and the human body common in science fiction spaces. The second iteration—the cyborg of social theory—was made famous by Donna Haraway’s *A Cyborg Manifesto*. In that influential essay, Haraway challenges the assumed dividing lines between human beings and nature, between natural and artificial, male and female, and nature and culture. This

illustrates the thinness of two essential concepts in tax: human capital and ability to pay. In an era of immense income inequality and in the face of technology that may exacerbate such inequality, a better foundation is needed.

Although this Article contemplates a variety of technologies, the focus is on one called CRISPR—short for “clustered regularly interspaced short palindromic repeats.”<sup>6</sup> CRISPR is, quite simply, an immensely impactful way to edit genes.<sup>7</sup> By manipulating what is essentially a bacterial immune system, scientists can target specific genes, cut the sequence, and, depending upon the desired therapeutic result, stop at the cut or effect the insertion of a new sequence into the genetic code of a cell. In brief, CRISPR can manipulate genetic code in unprecedented ways. Though not the only means of changing genetic code, CRISPR is revolutionary for both its relative simplicity and its capacity for precision. Its applications range from agricultural (e.g., engineering plants and animals for disease resistance or other traits deemed advantageous) to therapeutic (e.g., curing single-mutation diseases such as sickle cell disease) to enhancement (e.g., so-called designer babies).

At first blush, the intersections of tax and the cyborg may seem minimal. With the notable exception of two provisions—the § 104 personal injury exclusion and the § 213 medical expense deduction—tax policy does not often contemplate the body *per se*. And while both sections exist as part of the broader health care finance infrastructure in which tax plays a role, one could be forgiven for thinking that tax does not need a robust understanding of and orientation to the body. That view is, this Article argues, incorrect. Considering how tax law and policy will wrestle with CRISPR yields two important insights: (1) the underappreciated role of conceptions of the body in shaping tax and (2) the underdeveloped nature of tax law’s understanding of the body. CRISPR, then, serves as both mirror and magnifying glass.

This Article proceeds in three Parts. Part I provides a working knowledge of CRISPR itself and the multidisciplinary literature that

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Article appeals to both visions, taking instruction from Haraway’s cyborg as it is used to push back against dichotomous thinking, as well as considering the cyborg in a more literal sense as an individual physically altered by technology.

<sup>6</sup> For an accessible, not-too-technical discussion of CRISPR, see HENRY T. GREELY, *CRISPR PEOPLE: THE SCIENCE AND ETHICS OF EDITING HUMANS* 33–48 (2021), and DOUDNA & STERNBERG, *supra* note 1, at 3–116.

<sup>7</sup> The cut-and-paste analogy is a common one throughout technical and nontechnical literature and media on CRISPR. *See, e.g.*, GREELY, *supra* note 6, at 41; SAHOTRA SARKAR, *CUT-AND-PASTE GENETICS: A CRISPR REVOLUTION* (2021).

has developed to consider how it (or similar technologies) may reshape individuals and society. Part II discusses the Internal Revenue Code provisions that expressly contemplate the body and the scope of the (albeit limited) existing literature on the body in tax. Part III contemplates tax and the body in 2092. It begins by applying existing doctrine to uses of CRISPR that are currently in clinical trials. It then expands to consider applications of increasing interpretive complexity. Doing so enables a better understanding of how tax may be shaped by emerging technologies, and it also reveals the thinness of the concepts of human capital and ability to pay in tax. This Article concludes by offering paths for continued work to develop a more robust understanding of and orientation to the body in tax.<sup>8</sup>

## I

### GATTACA REALIZED<sup>9</sup>

Revolutionary.<sup>10</sup> Transformative.<sup>11</sup> Posthumanist. Transhumanist. Utopian. Dystopian. Discussions of gene editing are charged—and for

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<sup>8</sup> This Article is the first part of a book project tentatively titled *Imagining the Body in Tax* that explores the varied conceptions of the body in tax law and policy and how those ideas have shaped the same.

<sup>9</sup> GATTACA (Sony Pictures 1997). For those unfamiliar, *Gattaca* is a film starring Ethan Hawke, Uma Thurman, and Jude Law. The film is set in a future in which genetic testing and engineering has created a caste system with divisions between altered and unaltered individuals. The film wrestles with themes such as difference, inequality, and discrimination, pushing viewers to consider the challenging bioethics of genetic engineering and testing.

<sup>10</sup> Popular and technical discussions of CRISPR regularly use adjectives such as revolutionary to capture the scope and profound nature of the import of this technology for medicine. See, e.g., Rob Stein, *He Inherited a Devastating Disease. A CRISPR Gene-Editing Breakthrough Stopped It*, NPR (June 26, 2021, 11:15 AM), <https://www.npr.org/sections/health-shots/2021/06/26/1009817539/he-inherited-a-devastating-disease-a-crispr-gene-editing-breakthrough-stopped-it> [<https://perma.cc/B3QJ-R43S>].

<sup>11</sup> The author of the 2021 biography of Jennifer Doudna—a leading scientist advancing the discovery and understanding of CRISPR—*The Code Breaker*, Walter Isaacson summed up the view of many in a 2021 interview on NPR’s Fresh Air:

I think in our modern times, we’ve had three great revolutions. The first was the physics revolution, and it sort of starts at the beginning of the 20th century with Einstein’s papers, and it’s based on that fundamental kernel known as the atom. And from that, we get the atom bomb and space travel and G.P.S. and, you know, semiconductors. Second half of the 20th century was also based on a very small kernel of our existence called the bit, meaning a binary digit, and it meant that all information could be coded in zeros and ones and binary digits. And that leads you to the internet and the microchip and the personal computer. And so that gives us the digital revolution, which dominates the second half of the 20th century. Now we’ve come to another particle, a fundamental particle of our existence, which is the gene. And in the beginning of this century, in 2000 or so, we sequenced the

good reason. Whether one is unabashedly excited, tentatively optimistic, or vehemently opposed to gene editing, there is near universal agreement that the implications of the technology are profound. As the science has developed, so too have the philosophical and bioethical literatures on how and whether it should be embraced and the implications of widespread use of such technology on what it means to be human.<sup>12</sup> Less developed is the literature on legal and regulatory regimes to govern and shape the use of the technology.<sup>13</sup> This Part provides necessary background information on the technology itself and its current and predicted uses, as well as a sense of the ongoing debates over the technology in other, better-developed literatures.

### A. Gene Editing and CRISPR

CRISPR systems derive from bacteria. An acronym for “clustered regularly interspaced short palindromic repeats,” the DNA sequence so named essentially works as part of the bacterial immune system.<sup>14</sup> The

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entire human genome. And now with Jennifer Doudna and the things that she and her colleagues have invented, we found ways to rewrite that genome. And so this part of the 21st century, I think, will be a biotech revolution, a life sciences revolution, in which we’ll be able to rewrite the code of life.

Gross, *supra* note 3.

<sup>12</sup> See SCOTT SOLOMON, *FUTURE HUMANS: INSIDE THE SCIENCE OF OUR CONTINUING EVOLUTION* (2016); MAXWELL J. MEHLMAN, *TRANSHUMANIST DREAMS AND DYSTOPIAN NIGHTMARES: THE PROMISE AND PERIL OF GENETIC ENGINEERING* (2012); AFTER THE HUMAN: CULTURE, THEORY, AND CRITICISM IN THE 21ST CENTURY (Sherryl Vint ed., 2020).

<sup>13</sup> Britta C. van Beers, *Rewriting the Human Genome, Rewriting Human Rights Law?: Human Rights, Human Dignity, and Human Germline Modification in the CRISPR Era*, J.L. & BIOSCIENCES, Jan.–June 2020, at 1, 7 (“‘Globally’, as Françoise Baylis writes, ‘the political consensus on heritable human genome editing—such as it is—inclines toward an outright ban, and if not a ban, at least a moratorium.’ Interestingly, the oft-heard expression that the law inevitably lags behind technological developments proves false in the case of HGGE. Most existing legal bans and restrictions have been effective for quite a while. Indeed, from the very first debates on the regulation of biomedical developments, the possibility of genetically designing children played a vital role within the public imagination. Moreover, in that context, human rights and human dignity are often invoked as main frame of reference.”). To gain a sense of the scholarship that does exist on regulation of such technologies, see generally Michael R. Dohn, *Preventing an Era of “New Eugenics”*: An Argument for Federal Funding and Regulation of Gene Editing Research in Human Embryos, RICH. J.L. & TECH., Winter 2018; Wesley W. Chen, *Human Germline Gene Editing: Engineering an Unstoppable Train*, 28 S. CAL. INTERDISC. L.J. 523 (2019); Christi J. Guerrini et al., *DIY CRISPR*, 97 N.C. L. REV. 1399 (2019); Rachel Saady-Saxe, *An Analysis of State Interests in Regulating Germline CRISPR Use*, 12 ALA. CIV. RTS. & CIV. LIBERTIES L. REV. 77 (2020).

<sup>14</sup> JAMES T. BRADLEY, *RE-CREATING NATURE: SCIENCE, TECHNOLOGY, AND HUMAN VALUES IN THE 21ST CENTURY* 120 (2019).

repeating CRISPR sequences flank DNA sequences called spacers. In bacteria, the spacers hold copies of short bits of DNA from viruses to which the bacterium was exposed. The CRISPR system—the DNA sequence, the RNA transcription of that sequence, and a CRISPR-associated enzyme (Cas)—then enables the bacteria to target viral DNA and cut it up, effectively neutralizing it.<sup>15</sup> Stated differently, the CRISPR, through RNA mediation, tells the Cas “what to cut, where to cut, when to cut it and how to cut it and the Cas is the molecular scalpel that does the cleavage itself.”<sup>16</sup>

What is the connection between a bacterial immune system and gene editing? A targeted, genetic cut-and-paste system, CRISPR can be used to edit DNA by either simply cutting out particular sequences or by cutting and replacing a sequence.<sup>17</sup> Scientists can use CRISPR to target certain sequences by controlling the RNA sequence that directs the Cas—the cutting enzyme.<sup>18</sup> In doing so, scientists can make the cell’s existing DNA repair system work for them, telling the CRISPR system where to cut *as well as how to repair the cut*.

A commonly used example that helps better conceptualize the CRISPR system is sickle cell disease—an early target of CRISPR gene editing technology:

In cells, the guide RNA in the CRISPR could be chosen to find a stretch of DNA that reads GTGCACCTGACTCCTGTG. An associated protein [the cutting enzyme] would cut out these 24 bases, but the whole complex [the CRISPR system] could include a different stretch of 24 bases, say GTGCACCTGACTCCTGAG, identical except for the next-to-last nucleotide base, which has changed from a “T” (thymine) to an “A” (adenine). Through one of several DNA repair processes, the cell will take the new DNA and

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<sup>15</sup> GREELY, *supra* note 6, at 37–39. There are many readily accessible discussions of CRISPR. See, e.g., Robert Frederick, *Understanding the CRISPR Craze*, AM. SCIENTIST (Sept. 20, 2017), <https://www.americanscientist.org/blog/from-the-staff/understanding-the-crispr-craze> [<https://perma.cc/MLH8-EHDT>]; *What Are Genome Editing and CRISPR-Cas9?*, MEDLINEPLUS, <https://medlineplus.gov/genetics/understanding/genomicresearch/genomeediting/> [<https://perma.cc/8XLV-JL7N>]; TIMOTHY M. PERSONS, GOV’T ACCOUNTABILITY OFF., GAO-20-478SP, CRISPR GENE EDITING (Apr. 2020), <https://www.gao.gov/assets/gao-20-478sp.pdf> [<https://perma.cc/VTL2-9FUY>].

<sup>16</sup> Many succinct discussions of how the technology works can be found. See, e.g., American Scientist, *Understanding the CRISPR Craze*, YOUTUBE, at 8:50–9:05 (Sept. 20, 2017), [https://www.youtube.com/watch?v=asTBv9t\\_4O8](https://www.youtube.com/watch?v=asTBv9t_4O8) [<https://perma.cc/UN9L-MFJ3>].

<sup>17</sup> GREELY, *supra* note 6, at 41–42; DOUDNA & STERNBERG, *supra* note 1.

<sup>18</sup> Ekaterina Pak, *CRISPR: A Game-Changing Genetic Engineering Technique*, HARV.: SCI. IN THE NEWS (July 31, 2014), <https://sitn.hms.harvard.edu/flash/2014/crispr-a-game-changing-genetic-engineering-technique/> [<https://perma.cc/Q23K-HEXV>]; Doudna & Sternberg, *supra* note 1, at xi–34.

put it in the place of the old DNA, thus permanently changing the cell's DNA.

This isn't a random example. That stretch of DNA is the first 24 bases of a version of the hemoglobin-beta gene found in millions of people. This gene provides the instructions for making a part of the hemoglobin protein in some people. . . . The edit, putting an A in the penultimate position in place of a T, turns that into the common version of the gene, found in people who do not, and cannot, have sickle-cell disease. So CRISPR might be used to change DNA of people with sickle-cell disease to a version that would give them normal hemoglobin.<sup>19</sup>

In this application, CRISPR modifies somatic cells, meaning the changes aren't heritable.<sup>20</sup> But CRISPR may also be used to modify egg and sperm cells, thereby creating heritable germline changes.<sup>21</sup> Both applications have critics, but germline changes are the most controversial and a point of focus for this Article.

The relative simplicity of CRISPR is part of the appeal.<sup>22</sup> It also belies the decades of work that went into understanding the system since its discovery in the 1980s.<sup>23</sup> Still in its infancy, the technology may have wide-ranging applications from agriculture—for example, boosting a crop's resistance to disease—to human medicine.<sup>24</sup> Human trials of CRISPR-mediated gene therapy have begun,<sup>25</sup> and new

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<sup>19</sup> GREELY, *supra* note 6, at 42. See also DOUDNA & STERNBERG, *supra* note 1 (discussing the technology and likely applications, including sickle cell treatment). See *infra* Part III for further discussion of the likely tax treatment of this therapy.

<sup>20</sup> ANTHONY J. F. GRIFFITHS ET AL., AN INTRODUCTION TO GENETIC ANALYSIS 467–69 (7th ed. 2000); *What Are Genome Editing and CRISPR-Cas9?*, *supra* note 15.

<sup>21</sup> GRIFFITHS ET AL., *supra* note 20; *What Are Genome Editing and CRISPR-Cas9?*, *supra* note 15. Such applications are currently banned in most countries though. Part III, *infra*, discusses a famous use of the technology to modify embryos in China.

<sup>22</sup> Merlin Crossley, *What Is CRISPR Gene Editing, and How Does It Work?*, CONVERSATION (Jan. 31, 2018, 2:04 PM), <https://theconversation.com/what-is-crispr-gene-editing-and-how-does-it-work-84591> [<https://perma.cc/FG8R-F6LA>] (“The scientific world is captivated by this revolutionary technology, since it is easier, cheaper and more efficient than previous strategies for modifying DNA.”); Frank Hille & Emmanuelle Charpentier, *CRISPR-Cas: Biology, Mechanisms and Relevance*, PHIL. TRANSACTIONS R. SOC. B, Nov. 5, 2016, at 5–6 (describing function and application).

<sup>23</sup> GREELY, *supra* note 6, at 33–47 (discussing the development of the research that led to the creation and naming of CRISPR); Michael Tabb et al., *What Is CRISPR, and Why Is It So Important?*, SCI. AM. (June 22, 2021), <https://www.scientificamerican.com/video/what-is-crispr-and-why-is-it-so-important/> [<https://perma.cc/9W4N-3SG7>].

<sup>24</sup> Tabb et al., *supra* note 23.

<sup>25</sup> Tina Hesman Saey, *CRISPR Enters Its First Human Clinical Trials*, SCI. NEWS (Aug. 14, 2019, 8:00 AM), <https://www.sciencenews.org/article/crispr-gene-editor-first-human-clinical-trials> [<https://perma.cc/83HX-BJUY>]. The trials highlight both the potential of the technology and the still early stage of its use. Off-target changes in gene therapy trials with



iterations of the technology are emerging at a rapid rate.<sup>26</sup> CRISPR, it seems, is here to stay and poised to expand. It stands as an important part of targeted, precision medicine and, potentially, what's commonly described as genetic enhancement.

Both the most important questions and challenges for tax arise within the applications of CRISPR in human medicine. To consider these questions, it is helpful to keep two distinctions in mind: (1) the (albeit fluid and contested) line between therapeutic care and enhancement and (2) the difference between somatic and germline cells. As will be explored in Part III, somatic and germline uses raise different interpretive questions, and the distinction between therapeutic and enhancement care is malleable. But a working knowledge of both is surprisingly easily developed and necessary to understand the doctrinal and policy questions presented, so a brief discussion follows.

Therapeutic uses may be applied to either somatic or germline cells. But the first therapeutic uses of CRISPR to proliferate are likely to be the most straightforward: changes to somatic cells where editing or deleting a single gene yields a beneficial effect. Sickle cell disease is one example; training a patient's immune system to better fight cancer cells is another.<sup>27</sup> Applications in somatic cells, whether in vivo or ex

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other mechanisms have occurred, prompting the end of at least one trial in early 2021. Jocelyn Kaiser, *Gene Therapy Trials for Sickle Cell Disease Halted After Two Patients Develop Cancer*, SCI. (Feb. 16, 2021), <https://www.sciencemag.org/news/2021/02/gene-therapy-trials-sickle-cell-disease-halted-after-two-patients-develop-cancer> [https://perma.cc/RAX4-3VS4] (“A company has stopped its clinical studies of a promising gene therapy for the blood disorder sickle cell disease after two people who participated developed leukemia-like cancer. Bluebird bio is now investigating whether a virus it uses to deliver a therapeutic gene caused the cancers, reviving old concerns about the risks of this approach. It's also possible the cancers stemmed from chemotherapy the patients received to prepare their bodies for the gene's delivery. ‘This is really a sad development whatever the cause,’ says Donald Kohn of the University of California, Los Angeles, who has led gene therapy trials for sickle cell and other diseases.”); Kelly Servick, *Gene Therapy Clinical Trial Halted as Cancer Risk Surfaces*, SCI. (Aug. 11, 2021, 10:40 AM), <https://www.sciencemag.org/news/2021/08/gene-therapy-clinical-trial-halted-cancer-risk-surfaces> [https://perma.cc/253C-LQCT]. This trial targeted a rare condition known as cerebral adrenoleukodystrophy and involved ex vivo modification of bone marrow with a gene-delivering virus. But the trials continue with one previously paused trial restarting later in 2021 after it was determined the gene therapy was unlikely to have caused cancer.

<sup>26</sup> Jared Carlson-Stevermer et al., *CRISPRoff Enables Spatio-Temporal Control of CRISPR Editing*, 11 NATURE COMM'NS, Oct. 7, 2020, <https://www.nature.com/articles/s41467-020-18853-3> [https://perma.cc/WU5H-GP4V].

<sup>27</sup> Mark Schwartz, *Target, Delete, Repair*, STAN. MED., Winter 2018, <https://stanmed.stanford.edu/crispr-for-gene-editing-is-revolutionary-but-it-comes-with-risks/> [https://perma.cc/T2DG-N2RR] (“It's like having one typo in a book containing 6 billion letters,” says Matthew Porteus, MD, PhD, an associate professor of pediatrics at Stanford, and a scientific co-founder and advisory board member of CRISPR Therapeutics, a company that

vivo, enjoy broad support<sup>28</sup> and are the likely pathway to normalizing the technology. The next logical progression is then germline edits for monogenic or similar conditions, such as Huntington's disease.<sup>29</sup> Such application of the technology also shares broad support, but that support wanes when the care is perceived as enhancement rather than therapeutic.<sup>30</sup>

Attempts to distinguish therapeutic uses from enhancement abound, and the distinction itself evades clear boundaries, bound up as it is with moral philosophy, bioethics, and shifting medical knowledge. Independent of the ethical quandaries, at least two sources of technological complexity arise for any CRISPR applications that are particularly salient for germline changes. First, CRISPR itself can cause "off-target" changes:

CRISPR–Cas9 and prime editing both work by cutting DNA at a specific point in the genome. CRISPR–Cas9 breaks both strands of the DNA double helix and then relies on the cell's own repair system to patch the damage and make the edits. But that repair system is unreliable and can insert or delete DNA letters at the points where

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uses CRISPR technology. "We spent six years trying to repair that one mutation using older gene-editing technologies, but with CRISPR, we finally had a tool that was much easier to use and far more efficient."); ALASDAIR MILTON, KPMG, "ONE AND DONE" GENE THERAPIES 8–11 (2021), <https://advisory.kpmg.us/content/dam/advisory/en/pdfs/2021/cell-and-gene-therapies.pdf> [<https://perma.cc/4E6J-NFMR>] (discussing monogenic and polygenic conditions); David Cyranoski, *CRISPR Gene Editing Tested in a Person*, 539 NATURE 479 (Nov. 24, 2016), <https://www.nature.com/articles/nature.2016.20988.pdf> [<https://perma.cc/6ZGN-QQHP>].

<sup>28</sup> Heidi Ledford, *CRISPR Babies: When Will the World Be Ready?*, 570 NATURE 293, 296 (June 20, 2019), <https://media.nature.com/original/magazine-assets/d41586-019-01906-z/d41586-019-01906-z.pdf> [<https://perma.cc/Z4YB-CUDJ>]; Shwartz, *supra* note 27 ("Clinical trials of CRISPR like the one Porteus is proposing have broad public support, in part because using CRISPR in adults and children would alter their DNA, but not that of their offspring.").

<sup>29</sup> Ledford, *supra* note 28, at 294 ("Public opinion on gene editing to prevent disease is largely positive. But Carroll's reticence is common among scientists. When news broke last year that a Chinese biophysicist had used genome editing in an attempt to make children more resistant to HIV, many scientists were quick to condemn the move as premature and irresponsible.").

<sup>30</sup> *Id.* at 296 ("Public surveys often find support for heritable genome editing—if it is shown to be safe and used to treat genetic diseases. A UK survey conducted by the Royal Society found that 83% of participants were in favour of editing the germ line to treat incurable disease. But many drew the line at editing for 'enhancement': 60%, for example, were opposed to the idea of using heritable gene editing to improve intelligence."); *see also* MEHLMAN, *supra* note 12 ("People may be alarmed at first by these new technological capabilities [referring to enhancements in contrast with therapeutic care], transhumanists admit, but eventually they will get used to them.").

the genome was cut. This can lead to an uncontrollable mixture of edits that vary between cells.<sup>31</sup>

This fact raises safety concerns over the predictability of the technology and its potential unintended effects.<sup>32</sup>

The second source of complexity highlights our still evolving understanding of genetics. Not only may a condition be influenced by multiple genes, but the growing field of epigenetics explores how environment shapes expression of genetic code. Pushing back against genetic determinism, epigenetics (and postgenomic work of which it is a part) upsets the conventional understanding of genes and the genome as a unidirectional system.<sup>33</sup> Rather than “the gene performing just one job—coding for proteins,”<sup>34</sup> epigenetic and postgenomic work understand genes and the genome “as ‘complex spatially discontinuous objects . . .’ embedded in a regulatory network with distributed agency and specificity . . . [which] respond[s] to environmental signals, which can originate in the cellular environment around the DNA, the entire organism, and, in the case of human beings, their social and cultural dynamics.”<sup>35</sup> There is, for instance, early stage evidence that suggests some factors that influence gene expression may be heritable, meaning that stressors, such as poverty and discrimination, may persist in the genome through the generations.<sup>36</sup> Taken together, the possibility of

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<sup>31</sup> Heidi Ledford, *Precise CRISPR Tool Could Tackle Host of Genetic Diseases*, 574 NATURE 464 (Oct. 24, 2019), <https://media.nature.com/original/magazine-assets/d41586-019-03164-5/d41586-019-03164-5.pdf> [<https://perma.cc/Y4YS-3CUA>]; Heidi Ledford, *CRISPR Editing Wreaks Chromosomal Mayhem in Human Embryos*, 583 NATURE 17 (July 2, 2020), <https://media.nature.com/original/magazine-assets/d41586-020-01906-4/d41586-020-01906-4.pdf> [<https://perma.cc/BYU7-XF5J>] (discussing the history of working CRISPR on embryos and trying to understand what happened).

<sup>32</sup> For a discussion of the risks of and attempts to address off-target effects, see, for example, Muhammad Naeem et al., *Latest Developed Strategies to Minimize the Off-Target Effects in CRISPR-Cas-Mediated Genome Editing*, 9 CELLS, July 2, 2020, <https://doi.org/10.3390/cells9071608> [<https://perma.cc/3Q3P-2K65>]; NCI Staff, *How CRISPR Is Changing Cancer Research and Treatment*, NAT'L CANCER INST. (July 27, 2020), <https://www.cancer.gov/news-events/cancer-currents-blog/2020/crispr-cancer-research-treatment> [<https://perma.cc/MEA7-LBCZ>].

<sup>33</sup> MAURIZIO MELONI, POLITICAL BIOLOGY: SCIENCE AND SOCIAL VALUES IN HUMAN HEREDITY FROM EUGENICS TO EPIGENETICS 188–209 (2016).

<sup>34</sup> *Id.* at 190.

<sup>35</sup> *Id.* at 191.

<sup>36</sup> DALTON CONLEY & JASON FLETCHER, THE GENOME FACTOR: WHAT THE SOCIAL GENOMICS REVOLUTION REVEALS ABOUT OURSELVES, OUR HISTORY, AND THE FUTURE 198–99 (2017). This area seems consistent with work on social determinants of health that has gained traction in the legal literature. Emily A. Benfer, *Health Justice: A Framework (and Call to Action) for the Elimination of Health Inequity and Social Injustice*, 65 AM. U. L. REV. 275 (2015); Len M. Nichols & Lauren A. Taylor, *Social Determinants as Public*

off-target changes and our burgeoning understanding of epigenetics yield this nontechnical takeaway: gene editing for desired effects is deeply complex and multifactorial. This technological complexity layers upon the ethical quandaries of the most controversial application of the technology—human enhancement—meaning CRISPR may unfold in unpredictable ways which may be shaped both by the technical science and the society in which it is employed.

CRISPR's potential germline applications drive much of the controversy over the technology. To be clear, CRISPR is not the only means of shaping reproduction. Short of testing genetic code, more normalized technologies like ultrasound are sometimes used for sex selection. Genetic counseling, embryo selection in the assisted reproduction industry, and preimplantation genetic diagnosis shape reproductive decisions without directly changing the genetic code of prospective parents or a potential child.<sup>37</sup> But if the technology continues to develop and germline changes become controllable and precise, the fear is that CRISPR will shift from a tool to cure disease to a means of designing children.<sup>38</sup> In an effort to shape their children, parents might, for example, attempt to control a child's gender,

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*Goods: A New Approach to Financing Key Investments in Healthy Communities*, 37 HEALTH AFFS. 1223 (2018).

<sup>37</sup> Noting the use of preimplantation genetic diagnosis (PGD), see Shwartz, *supra* note 27 (“Very few people will need to do gene editing to have healthy babies . . . . Almost every genetic disease can be avoided using preimplantation genetic diagnosis. Rather than changing genes in an embryo, you just select an embryo that doesn’t have the dangerous genes. PGD has been around for almost 30 years. It’s safe and effective.”).

<sup>38</sup> This basic progression is assumed by most commentators and scholars in the space. See, e.g., MEHLMAN, *supra* note 12, at 12–13 (“The transformation of humanity has already begun with egg and sperm donation, which allows parents to select donors who have favorable sets of characteristics that the parents hope will be incorporated into their offspring. IVF and genetic testing enable parents to select and implant only those embryos that possess the best genes. More active forms of genetic engineering lie just around the corner, transhumanists point out . . . . People may be alarmed at first by these new technological capabilities, transhumanists admit, but eventually they will get used to them. ‘Germline engineering represents a shift in human reproduction,’ admits Gregory Stock, ‘but as effective somatic therapies become common, reduced public concern about genetic interventions in general will smooth the way for a move from screening and selecting embryos to actually manipulating them.’ Transhumanists also accept the fact that active forms of evolutionary engineering will begin by targeting disease. . . . ‘It will begin in a way that is most ethically acceptable to the largest portion of society, with the treatment of only those childhood diseases like sickle cell anemia and cystic fibrosis—that have a severe impact on quality of life. The number of parents who will desire this service will be tiny, but their experience will help to ease society’s trepidation.’ Gene therapy for serious childhood diseases will be followed by genetic treatments for diseases that are less severe for children or that do not manifest symptoms until adulthood, such as predispositions to obesity, diabetes, heart disease, asthma, and some forms of cancer.”).

appearance, height, intelligence, ability to focus, athletic prowess, or other similar characteristics. Many make the obvious leap to describe the prospect of such control as “market-driven eugenics.”<sup>39</sup> If, for example, the ability to focus on work gives one a decisive advantage in employment and lifetime earnings, a compromised ability to do so may become medicalized—treated as disease or condition. If a manipulable gene or set of genes were identified that influenced this ability, parents would, the thinking goes, be tempted to select for or modify genes of a prospective child to ensure (or at least increase the chance) that the child had this socially advantageous trait. Herein CRISPR runs headlong into an oft-underappreciated aspect of medical care: the socially constructed nature of health and disease, of normalcy and aberration.

Once the door to CRISPR is opened via uses widely understood to be therapeutic, the only likely bar to more controversial uses is the science itself. Beyond the media attention and voluminous-and-growing medical literature and work in the space that largely assumes the continued expansion of applications, Corporate America is also taking note. Market research analyses from major accounting and consulting firms that address pricing and financing issues and advise investors are already available.<sup>40</sup> KPMG notes, for example, the “explosion” in trials of gene editing to treat genetic conditions and advises investors of the need to “stay the course” with cautious investment and to begin to “develop financial and tax” strategies.<sup>41</sup> Deloitte notes a marked rise in investment and merger and acquisition activity in the sector with \$4 billion in deals in 2015 rising to \$156 billion in 2019.<sup>42</sup> It is an open question if either CRISPR or our

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<sup>39</sup> See, e.g., van Beers, *supra* note 13, at 14, 25–29; MICHAEL J. SANDEL, THE CASE AGAINST PERFECTION: ETHICS IN THE AGE OF GENETIC ENGINEERING 75 (2007) (“What, after all, is the moral difference between designing children according to an explicit eugenic purpose and designing children according to the dictates of the market? Whether the aim is to improve humanity’s ‘germ plasm’ or to cater to consumer preferences, both practices are eugenic insofar as both make children into products of deliberate design.”); see also *id.* at 69–81 (situating market-driven eugenics within broader history of eugenics).

<sup>40</sup> See, e.g., Lachlan Towart & Carl Berrisford, *Longer Term Investments: Genetic Therapies*, UBS (Mar. 7, 2019, 3:10 PM), <https://www.ubs.com/content/dam/WealthManagementAmericas/cio-impact/Genetic%20therapies2.pdf> [<https://perma.cc/8T35-3C8H>] (providing some data regarding costs and noting the revolutionary potential and ethical concerns).

<sup>41</sup> MILTON, *supra* note 27, at 4, 13–14.

<sup>42</sup> Hussain Mooraj et al., *Cell and Gene Therapies: Delivering Scientific Innovation Requires Operating Model Innovation*, DELOITTE (Apr. 17, 2020), <https://www2.deloitte.com/us/en/insights/industry/life-sciences/operating-models-for-gene-cell-therapy-manufacturing-process.html> [<https://perma.cc/S7JC-KESR>]; *Cell and Gene Therapy*:

understanding of genes and their expression will advance to the point where designer babies move from science fiction to fact. This Article deliberately does not wade into the question of whether CRISPR should be widely embraced nor into the question of the proper scope of its use. Rather, it aims at two goals: first, to address questions CRISPR presents for tax law and policy. Tax is not always at the forefront of technology, but it will be part of the development of gene editing, whether consciously or not. Second, this Article highlights that CRISPR is a case study—a veritable canary in the coal mine—of the future of tax, technology, and the body. The train to the development of the technology has left the station. The question then becomes whether regulatory regimes will be ahead of, or left behind by, the technology. This next Section surveys the literature expressing both hopes and fears of a world where CRISPR gene editing is a reality.

*B. Utopia or Dystopia: Interdisciplinary Hopes and Fears*

CRISPR—and the gene editing it enables—is polarizing. It is, to some, a slippery slope to dystopia—the beginning of the end of human life as we know it. To others, it is the door to a better future where CRISPR will allow human beings to transcend the mortal coil. To still more, it exists in a kind of middle, precarious space, a source of deep anxiety alongside optimism. Intersecting with fields as varied as philosophy, literary theory, political science, and science and technology studies, the work of transhumanists, posthumanists, and those who fall outside these important traditions makes clear how gene editing is not simply about science but rather about science *in society*. Understanding the key aspects of the rich, complex, multi- and interdisciplinary literatures in the area helps hone the questions and challenges for law broadly, and tax specifically.

What it means to be human is hardly a novel area of inquiry. But distinct literatures have developed that wrestle with this idea in the face of advancing scientific knowledge and technologies that call into question established understandings of the body and mind, as well as the natural world and humanity's relationship to it. Posthumanism describes an interdisciplinary area of thought which theorizes how advances in areas such as neuroscience and technologies like gene

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*Opportunities and Challenges to Personalized Medicine*, DELOITTE, <https://www2.deloitte.com/us/en/pages/life-sciences-and-health-care/articles/challenges-in-the-emerging-cell-therapy-industry.html> [<https://perma.cc/6VRA-6RBC>] (providing a clearinghouse for its analyses).

editing upset the traditional humanist view of the human as a discrete, rational, self, separate from nature.<sup>43</sup>

Broadly, posthumanist work aims to think through the ethical and political implications of embracing emerging technologies. Influential philosophers advocate both for and against the adoption of technologies such as CRISPR. Philosopher Julian Savulescu writes, for example, in *In Defence of Procreative Beneficence* that parents owe it to children to use any safe, available technology to maximize their chances of success in a world that rewards some traits—for example, impulse control—more than others.<sup>44</sup> Savulescu sums up his assessment of the ethics of genetic engineering succinctly: “Far from playing God, attempting to control our genetic fate is ‘playing human’—trying to improve the odds of doing well in an uncertain world of difficulty, threat and misfortune.”<sup>45</sup> Savulescu’s view stands in contrast to that of fellow philosopher Michael Sandel who argues against embracing the technology for enhancement because of its nature as a form of “hyperagency”; an attempt to control all aspects of life that will erode foundational aspects of liberal democracy: “A lively sense of the contingency of our gifts—an awareness that none of us is wholly responsible for his or her success—saves a meritocratic society from sliding into the smug assumption that . . . the rich are rich because they are more deserving than the poor.”<sup>46</sup> Still other scholars push back against any attempts to universalize the understanding of the body, its capacities, and the implications of technology thereto, highlighting how ideology and discrimination have made “other” the bodies of many.<sup>47</sup>

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<sup>43</sup> Veronica Hollinger, *Historicizing Posthumanism*, in *AFTER THE HUMAN: CULTURE, THEORY, AND CRITICISM IN THE 21ST CENTURY*, *supra* note 12, at 15–30.

<sup>44</sup> Julian Savulescu, *In Defence of Procreative Beneficence*, 33 *J. MED. ETHICS* 284 (2007).

<sup>45</sup> *Id.*

<sup>46</sup> SANDEL, *supra* note 39, at 91.

<sup>47</sup> See generally Hollinger, *supra* note 43 (discussing how recent work has pushed back against universalizing approaches to humanism that ignored and marginalized difference). Though not necessarily falling under the rubric of posthumanism, the disability studies literature is an important part of this discussion. See SIMI LINTON, *CLAIMING DISABILITY: KNOWLEDGE AND IDENTITY* 8–33 (1998); Adrienne Asch, *Recognizing Death While Affirming Life: Can End of Life Reform Uphold a Disabled Person’s Interest in Continued Life?*, 35 *HASTINGS CTR. REP.* S31 (2005). This critique is consistent with Foucault’s work in *MICHAEL FOUCAULT, THE BIRTH OF THE CLINIC* (1963).

Alongside this literature exists a more unabashedly sanguine one in the school of thought known as transhumanism.<sup>48</sup> Falling under the umbrella of posthumanism, transhumanists welcome gene editing with open arms. Embracing gene editing as “evolutionary engineering,” transhumanists see a natural progression of the application of the technology from eradicating childhood disease, then to predispositions for diseases like diabetes or cancer, and finally on to genetic enhancement for physical and cognitive capabilities.<sup>49</sup> Transhumanists “express a neo-Cartesian desire to transcend the body,”<sup>50</sup> viewing the “vulnerable physical body” as weighing down the mind.<sup>51</sup> By embracing technology ranging from manipulating genes to incorporating high tech prostheses, to transferring the mind into an artificial body, transhumanists want to make the cyborg real in pursuit of a “technologically driven ‘über-humanism.’”<sup>52</sup> CRISPR, in this view, is an invaluable tool in this effort.

Thought on the body, technology, and how our understanding of both shape and are shaped by humanist, posthumanist, and transhumanist philosophy is rich. Legal theory on the body, particularly in tax, is comparatively thin.<sup>53</sup> Taking a broad view of these much richer literatures brings three issues at the intersection of the body and technology into relief. These issues arise in the work of both critics and advocates of gene editing for enhancement and directly implicate the law: (1) access and affordability of gene editing, (2) managing uncertain safety of the technology, and (3) how gene editing *in practice* will respond to and reconfigure difference in society. The first and third most directly implicate tax and will be of focus.

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<sup>48</sup> It is important to note that there are no universal definitions of transhumanism or posthumanism. The deeper one explores the literature the more varied the usage of the terms can become and other terms emerge. Some authors embrace labels while others eschew them. *See, e.g.*, Robert Ranisch, *Morality (of Transhumanism and Posthumanism)*, in *POST-AND TRANSHUMANISM: AN INTRODUCTION* (Robert Ranisch & Stefan Lorenz Sorgner eds., 2014). For the purposes of this Article, internal terminology and debates are less important than understanding the broad sweeps.

<sup>49</sup> MEHLMAN, *supra* note 12, at 13–19 (“[F]uture humans won’t only be healthy, strong, brilliant, blissful, fluorescent, and more ethical. They will live longer, indeed much longer, and may even attain transhumanism’s ultimate goal, to live forever.”).

<sup>50</sup> Cartesian mind/body dualism is the view that the mind and body are essentially separate entities, often hierarchically ranked with the mind being superior and the body being base.

<sup>51</sup> Hollinger, *supra* note 43, at 20.

<sup>52</sup> *Id.* at 17–21.

<sup>53</sup> Thin but not nonexistent. The limited but fascinating literature is discussed *infra* Part II.



First, access and affordability. Gene editing and therapy are expensive. Six-figure price tags are not uncommon, and seven-figure price tags are not unheard of for existing treatments.<sup>54</sup> For investors and pharmaceutical companies, the cost of treatment and the “one and done” nature of gene editing as a treatment are factors to consider or problems to be solved as companies selling such technology aim to develop favorable financial models.<sup>55</sup> For others, whether advocates or critics, the costs of such therapies raise real distributional concerns. Many foresee a stratification of access to the technology that will only worsen the correlation between health and economic inequality. And should enhancement prove possible, industry analysts and philosophers alike fear a future where existing inequality is further entrenched by gene editing.<sup>56</sup> Some assume that as the technology is normalized, insurance companies will be pressured to cover the care or that government subsidies could be offered to reduce costs.<sup>57</sup> While opinions vary on the gravity of the issue, there is a strong consensus

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<sup>54</sup> Troyen A. Brennan & James M. Wilson, *The Special Case of Gene Therapy Pricing*, 32 NATURE BIOTECHNOLOGY 874 (Sept. 2014); Michael Sherman, *Access and Affordability for All*, 564 NATURE S23 (Dec. 13, 2018), <https://media.nature.com/original/magazine-assets/d41586-018-07648-8/d41586-018-07648-8.pdf> [<https://perma.cc/J5D7-97BP>]; Mooraj et al., *supra* note 42; MILTON, *supra* note 27, at 6 (noting that therapies will be costly but not suggesting certain figures).

<sup>55</sup> See, e.g., Sherman, *supra* note 54 (advocating value-based agreements); see also Mooraj et al., *supra* note 42; MILTON, *supra* note 27; Brennan & Wilson, *supra* note 54, at 875 (highlighting that it is just one incredibly expensive treatment and stating: “Payers may be reluctant to structure a one-time payment over a ‘projected’ duration of efficacy. In addition, the rollout of a novel treatment with a price tag of greater than \$1 million will likely be criticized in the current environment of reducing healthcare costs. These criticisms may emerge, despite the fact that truly effective gene therapy treatments may reduce the overall financial burden to the healthcare system. As a result, gene therapy breakthroughs may face substantial obstacles if reimbursement is not thoughtfully structured.”).

<sup>56</sup> See, e.g., Jim Kozubek, *Who Will Pay for CRISPR?*, STAT (June 26, 2017), <https://www.statnews.com/2017/06/26/crispr-insurance-companies-pay/> [<https://perma.cc/2YQG-52BP>] (noting existing pharmaceutical companies: “One of two things will happen: either we will embrace a national health care system with broad access but that severely limits expensive new drugs, gene therapies, and CRISPR-based biologics; or these treatments will be available to only the wealthiest among us who can pay for them, a dystopian vision which is perverse but perhaps more realistic considering the pressures for a return on investment.”); SANDEL, *supra* note 39; Ferris Jabr, *Are We Too Close to Making Gattaca a Reality?*, SCI. AM. (Oct. 28, 2013), <https://blogs.scientificamerican.com/brainwaves/are-we-too-close-to-making-gattaca-a-reality/> [<https://perma.cc/7SGK-76G4>].

<sup>57</sup> CONLEY & FLETCHER, *supra* note 36, at 192 (imagining a future in which gene editing “spread quickly down the socioeconomic ladder as employees demanded that their health insurance pay for this sort of screening; [and] eventually such coverage was mandated by law.”).

that a policy regime must develop to address or mitigate the high cost of gene editing technologies.

Dovetailing with the accessibility concern is how CRISPR will reshape our understanding of difference. Stated simply, the potential discriminatory applications and impacts of gene editing extend far beyond the distributional impacts of its high cost, and the literature reflects this fact. Some scholars anticipate that “new forms of inequality may emerge based not only on genotype but also on whether individuals know their genotypes (and the genotypes of those around them) and can act on that information.”<sup>58</sup> Educational programs may develop selective admissions procedures based upon prospective students’ genetic sequences, for example.<sup>59</sup> Disparate treatment of and opportunities afforded to those who use gene editing and those who do not (either by choice, lack of access, or access to lesser versions of the technology) may stratify society in familiar ways but along these new dividing lines.<sup>60</sup>

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<sup>58</sup> *Id.* at 4; *cf.* Savulescu, *supra* note 44, at 288 (minimizing the discrimination concern and stating: “Fou[r]th, the objection that the use of technology to select better children will increase inequality because it will only be available to the rich is a distraction. . . . How we treat people is logically and practically independent of what set of biological, psychological and social capacities and opportunities they are born with. Because somebody is born with a lower IQ, lower impulse control or is less attractive (whether or not these result from natural or genetic selection), does not dictate how these people are treated. That is our choice and a matter for the social policies and laws that we introduce. Natural inequality exists and we require social institutions to ensure that everyone has a fair go, a good enough chance of a good life. The same applies to a world of selection.”); Faye Ginsburg & Rayna Rapp, *Disability Worlds*, 42 ANN. REV. ANTHROPOLOGY 53–68 (2013), <http://www.jstor.org/stable/43049290> [<https://perma.cc/ZL3F-MUT3>] (noting the sociocultural nature of what is considered a disability and highlighting environmental and cultural factors); YUVAL NOAH HARARI, *HOMO DEUS: A BRIEF HISTORY OF TOMORROW* 349–55 (2017) (discussing the way in which evolving technologies may reify and naturalize inequality).

<sup>59</sup> CONLEY & FLETCHER, *supra* note 36, at 193 (“The social world soon bowed to this new auto-evolutionary reality. Not only did admissions testing for schools give way to genetic screening, but the educational system fragmented into stratified niches based on specific combinations of genetically based traits.”).

<sup>60</sup> *See, e.g.*, HARARI, *supra* note 58. Harari argues that gene editing may be part of a suite of technological advances that, as they make real the cyborg, threaten liberalism, writing:

If medical hopes are realized, future humans will incorporate into their bodies a host of biometric devices, bionic organs and nano-robots, which will monitor our health and defend us from infections, illness, and damage. . . . The . . . threat to liberalism is that some people will remain both indispensable and undecipherable, but they will constitute a small and privileged elite of upgraded humans. . . . However, most humans will not be upgraded, and will consequently become an inferior caste dominated by both computer algorithms and the new superhumans.

*Id.* at 349, 351.

Though the visions of how gene editing like CRISPR may be used in society differ, there is a unifying thread throughout the varied pictures of the future: a recognition of the malleable nature of disease. Scholars and commentators across disciplinary boundaries envision a world in which the development and uptake of CRISPR parallels a steady shift in what becomes pathologized. And while the notion that disease is socially constructed is not new,<sup>61</sup> the potential applications of CRISPR seem primed to put significant pressure on the often-thin line between normalcy and disease; between therapeutic care and enhancement.<sup>62</sup>

Tax has many points of intersection with the issues raised in the multidisciplinary literature on CRISPR. In addition to the tax provisions that expressly address the body, tax is a major player in health care finance, making it part of any regulatory regime that may develop around the technology. Tax could be used as a tool to help increase access to and affordability of CRISPR or to try to slow its development or uptake. By considering the near future, this Article helps prepare the law to adopt a more deliberate posture. This next Part discusses how current doctrine understands and treats the body, laying

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<sup>61</sup> For foundational work on the socially constructed nature of disease, see generally FOUCAULT, *supra* note 47; MARY DOUGLAS, *PURITY AND DANGER: AN ANALYSIS OF CONCEPTS OF POLLUTION AND TABOO* (2002). I discuss the import of the socially constructed nature of disease in tax in Tessa Davis, *Reproducing Value: How Tax Law Differentially Values Fertility, Sexuality & Marriage*, 19 *CARDOZO J.L. & GENDER* 1 (2012) [hereinafter Davis, *Reproducing Value*].

<sup>62</sup> Such concern predates the advent of CRISPR and led, at least in part, to the restrictions many countries put in place in the 1990s. William Gardner, *Can Human Genetic Enhancement Be Prohibited?*, 20 *J. MED. & PHIL.* 65, 66 (1995) (Skeptical as to whether a bright line between treating and preventing disease and enhancement is defensible, Gardner writes: “Successful germ-line gene therapies would, in turn, pose the question of whether nontherapeutic human genetic enhancements are ethically acceptable. Anderson has argued that a line can be drawn between prevention or treatment of disease and genetic enhancement. Furthermore, this line should be drawn, so humanity can reap the benefits of gene therapy without experiencing the risks of genetic enhancement. I worry whether there is, as Anderson believes, a bright line separating therapy and enhancement. Let’s suppose, however, that the line can be drawn. Can that line be held? In other words, if it becomes possible to produce genetically enhanced children with attributes desired by parents, can we successfully prohibit parents from doing so?”) (internal citations omitted); Jabr, *supra* note 56 (arguing that advances in PGD [preimplantation genetic diagnosis] possibly present a slippery slope centered on “individual, market-based eugenics, where children are increasingly regarded as made-to-order consumer products” and quoting the Bush Administration Assistant Director for Forensic Sciences, Tania Simoncelli, in 2003 as saying that “[u]nfettered development of PGD applications is providing parents and fertility specialists an increasing and unprecedented level of control over the genetic make-up of their children.”). For a discussion of a recent shift in the framing of human rights aspects of gene editing, see van Beers, *supra* note 13.

the necessary foundation for Part III's consideration of the unique challenges CRISPR presents to both narrow doctrinal issues in tax, as well as more foundational policy commitments.

## II

### TAX AND THE BODY IN 2022

Tax and the body intersect at extremes—found in either guiding debates on distributive justice or relative minutiae of doctrine with little discussion in between. Robert Nozick, for example, famously analogized taxation to slavery in his *Anarchy, State, and Utopia*, his work prompting voluminous literatures in support of and against his vision of justice. More in the weeds, tax has two longstanding provisions that directly address the body: § 104 and § 213. Section 104 provides an exclusion for personal physical injury awards and § 213 a deduction for medical care costs. This Part introduces both provisions, as well as the existing case law and literature on the body in tax to provide the necessary foundation for Part III.

#### *A. Section 213 Medical Expenses*

Section 213 provides a deduction for qualifying medical expenses. The deduction is limited both by the definition of medical care it adopts and a floor that the expenses must, in the aggregate, exceed to be deductible.<sup>63</sup> The income limitation (the floor) impacts the distribution of the deduction itself. But it is within the definition of medical care the provision adopts that the real scope of the provision is fleshed out. Section 213(d) defines medical care as (in pertinent part): “amounts paid—for the diagnosis, cure, mitigation, treatment, or prevention of disease, or for the purpose of affecting any structure or function of the body.”<sup>64</sup> In 1990, Congress added paragraph (9)<sup>65</sup> to the definition to exclude from medical care procedures identified as cosmetic surgery,<sup>65</sup> defining cosmetic surgery as “any procedure which is directed at improving the patient’s appearance and does not meaningfully promote

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<sup>63</sup> I.R.C. § 213(a) (“There shall be allowed as a deduction the expenses paid during the taxable year, not compensated for by insurance or otherwise, for medical care of the taxpayer, his spouse, or a dependent (as defined in section 152, determined without regard to subsections (b)(1), (b)(2), and (d)(1)(B) thereof), to the extent that such expenses exceed 7.5 percent of adjusted gross income.”).

<sup>64</sup> *Id.* § 213(d)(1)(A).

<sup>65</sup> *Id.* § 213(d)(9); Omnibus Budget Reconciliation Act of 1990, Pub. L. No. 101–508, 104 Stat. 143.

the proper function of the body or prevent or treat illness or disease.”<sup>66</sup> A procedure that fits this definition may still qualify as medical care if it is performed “to ameliorate a deformity arising from, or directly related to, a congenital abnormality, a personal injury resulting from an accident or trauma, or disfiguring disease.”<sup>67</sup>

The cosmetic surgery exception (and the exception to the exception) turns upon the discretionary nature of the procedure. The House Report on the change notes: “The Internal Revenue Service (IRS) has interpreted ‘medical care’ as including procedures that permanently alter any structure of the body, even if the procedure generally is considered to be an elective, purely cosmetic treatment (such as removal of hair by electrolysis and face-lift operations).”<sup>68</sup> Cosmetic surgery, so defined, is referred to as “unnecessary.”<sup>69</sup> Carving such care out of the medical care definition seems consistent with regulatory language often cited by the Service in attempts to deny a § 213 deduction: “[A]n expenditure which is merely beneficial to the general health of an individual, such as an expenditure for a vacation, is not an expenditure for medical care.”<sup>70</sup>

But the seeming consistency of the regulatory language with the cosmetic surgery exception belies the complexity of interpreting and applying § 213. It is settled, for example, that an annual physical satisfies the definition of medical care despite such care not fitting well within the scope of even the preventative aspect of the medical care definition if the regulatory language is robustly applied.<sup>71</sup> Returning to foundational policy goals is less fruitful than one might hope as there are multiple plausible explanations for the advent of the medical expense deduction. The Senate Report provides this modest guidance:

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<sup>66</sup> I.R.C. § 213(d)(9).

<sup>67</sup> *Id.*

<sup>68</sup> H.R. REP. NO. 101-964, at 1031 (1990) (Conf. Rep.).

<sup>69</sup> *Id.* at 496, 1032. *See also* 136 Cong. Rec. 30570 (Describing the denial of deduction for unnecessary cosmetic surgery, “the committee determined that expenses for cosmetic surgery and other similar procedures should not be eligible for the medical expense deduction, unless the procedure is necessary to ameliorate a deformity arising from a congenital abnormality, a personal injury resulting from an accident or trauma, or disfiguring disease. Expenses for purely cosmetic procedures that are not medically necessary are, in essence, voluntary personal expenses, which like other personal expenditures (e.g., food and clothing) generally should not be deductible in computing taxable income.”).

<sup>70</sup> Treas. Reg. § 1.213-1.

<sup>71</sup> *See* INTERNAL REVENUE SERV., PUB. 502: MEDICAL AND DENTAL EXPENSES 12 (2021), <https://www.irs.gov/pub/irs-pdf/p502.pdf> [<https://perma.cc/4V65-XXHR>] (“You can include in medical expenses the amount you pay for an annual physical examination and diagnostic tests by a physician. You don’t have to be ill at the time of the examination.”).

Only such expenses are deductible as exceed 5 percent of the net income computed without the deduction. The maximum deduction allowable is \$2,500 in the case of a head of a family or a husband and wife filing a joint return; in all other cases, the maximum is \$1,250. This allowance is recommended in consideration of the heavy tax burden that must be borne by individuals during the existing emergency and of the desirability of maintaining the present high level of public health and morale. . . . It is not intended, however, that a deduction should be allowed for any expense that is not incurred primarily for the prevention or alleviation of a physical or mental defect or illness.<sup>72</sup>

Like many of the enduring-but-hard-to-reduce-to-one-rationale aspects of the Code, each likely carries a grain of truth. The legislative history at the outset suggests the deduction stemmed from a desire to boost morale, ensure a fit citizenry for then-raging World War II, and have some sense of sympathy for those injured or ill.<sup>73</sup> The lack of clarity of purpose of the deduction leaves it somewhat unmoored, however. Scholars debate whether the provision is about income measurement or social policy. Stated differently, is § 213 necessary to distinguish nontaxable consumption from deductible costs, or is it a tax expenditure aimed at subsidizing health care, or one motivated by sympathy for those facing medical costs that demand a significant portion of their income? Factors that guide interpretation of both the disease and structure/function prongs include whether the care provided is “wholly medical” and whether it goes to “general health and welfare” or a discrete, identifiable disease or condition.<sup>74</sup> But examples of qualifying care in tension with these guidelines abound.<sup>75</sup> Further, the terms themselves evade easy definitions. As will be explored in Part III, our concept of disease shifts with time and advances in knowledge, a fact that, when paired with this uncertain foundation, places § 213 on shifting ground.

### *B. Section 104(a)(2) Personal Injury Damage Awards*

The exclusion for personal injury damage awards is even older than the medical expense deduction. In 1919, a mere six years after the modern income tax was established, Congress added the precursor to

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<sup>72</sup> S. REP. NO. 77-1631 at 6 (1942).

<sup>73</sup> *Id.*; HARARI, *supra* note 58, at 309–11 (relating to the connection between liberalism and the need for soldiers).

<sup>74</sup> *Havey v. Comm’r*, 12 T.C. 409, 411–12 (1949); *Gerstacker v. Comm’r*, 414 F.2d 448, 450 (6th Cir. 1969); *Stringham v. Comm’r*, 12 T.C. 580, 584 (1949).

<sup>75</sup> *See, e.g.*, INTERNAL REVENUE SERV., *supra* note 71 (classifying an annual physical as medical care).

current § 104(a)(2).<sup>76</sup> That provision, like § 213, has somewhat muddled origins. Early authorities analogized the body to a type of property and physical injury to a loss of capital.<sup>77</sup> But that analogy is doctrinally troubling as it implies one can have basis<sup>78</sup> in one's self—a concept routinely rejected for, at a minimum, administrability concerns.<sup>79</sup> Alongside flirting with the idea of viewing one's own body as capital subject to wear and tear exist similar motives to those behind § 213: taxing someone on a damage award intended to make them whole raises moral qualms and questions of whether such awards *should* be understood as income.

Whatever may be the policy or values it advances, in its current iteration, § 104(a)(2) permits an exclusion from income for qualifying personal injury damage awards. The pertinent statutory language reads:

(a) In general.—Except in the case of amounts attributable to (and not in excess of) deductions allowed under section 213 (relating to medical, etc., expenses) for any prior taxable year, gross income does not include—

....

(2) the amount of any damages (other than punitive damages) received (whether by suit or agreement and whether as lump sums or as periodic payments) on account of personal physical injuries or physical sickness[.]<sup>80</sup>

The section then goes on to add:

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<sup>76</sup> Revenue Act of 1918, Pub. L. No. 65-254, § 213(b)(6), 40 Stat. 1057, 1066 (1919). For an excellent history of the exclusion and changes over its life, see Douglas A. Kahn, *Compensatory and Punitive Damages for a Personal Injury: To Tax or Not to Tax?*, 2 FLA. TAX REV. 327, 329 (1995).

<sup>77</sup> See, e.g., *Dotson v. United States*, 87 F.3d 682, 685 (5th Cir. 1996) (“Congress first enacted the personal injury compensation exclusion in 1918 at a time when such payments were considered the return of human capital, and thus not constitutionally taxable ‘income’ under the 16th amendment. See H.R. Rep. No. 767, 65th Cong., 2d Sess. 9–10 (1918). The concept of a return of human capital lost through injury continues to support the exclusion. *Commissioner v. Miller*, 914 F.2d 586, 590 (4th Cir. 1990), 1 B. Bittker, *Federal Taxation of Income, Estates and Gifts*, ¶ 13.1.4 (1981). The recipient of personal injury damages is in effect forced to sell some part of her physical or emotional well-being in return for money.”); cf. Paul B. Stephan III, *Federal Income Taxation and Human Capital*, 70 VA. L. REV. 1357, 1389–97 (discussing the concept of basis and human capital in tax).

<sup>78</sup> Basis is a means of tracking tax history. For example, if you purchase a car for \$25,000, you hold that car with a 25,000 basis. If you sold the car for \$15,000 or \$30,000, basis allows you to calculate loss (10,000) or gain (5,000) on the subsequent sale. See I.R.C. §§ 1001, 1011–16.

<sup>79</sup> See *infra* Section III.B.1 and sources at notes 155–59. Outside narrower doctrinal questions, analogizing the body to property is an obviously fraught approach. See, e.g., *Green v. Comm’r*, 74 T.C. 1229, 1234 (1980) (“traditional sanctity of the human body”).

<sup>80</sup> I.R.C. § 104(a).

For purposes of paragraph (2), emotional distress shall not be treated as a physical injury or physical sickness. The preceding sentence shall not apply to an amount of damages not in excess of the amount paid for medical care (described in subparagraph (A) or (B) of section 213(d)(1)) attributable to emotional distress.<sup>81</sup>

Section 104 is routinely criticized as inconsistent—it allows clear income such as lost wages to be excluded while it ostensibly helps measure ability to pay<sup>82</sup>—but it is an enduring and important provision that shapes and is shaped by tax understandings of the body.

### C. Case Law and Literature on the Body

Beyond the literature on § 104 and § 213, tax scholars have explored another express intersection of the body and tax: how to classify the body and its parts.<sup>83</sup> If/when one transfers bodily materials such as blood, breast milk, eggs, or sperm, tax questions may arise. Is the body an ordinary or capital asset? Can one have basis in one's body? What, if any investments in one's self are recoverable? Should the body as a whole be treated differently than its parts? Tax law's answers to these questions are sparse and often in tension.<sup>84</sup>

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<sup>81</sup> *Id.*

<sup>82</sup> For representative critiques, see, for example, Joseph M. Dodge, *Taxes and Torts*, 77 CORNELL L. REV. 143 (1992); Patrick E. Hobbs, *The Personal Injury Exclusion: Congress Gets Physical but Leaves the Exclusion Emotionally Distressed*, 76 NEB. L. REV. 51, 55 (1997); Morgan L. Holcomb, *Taxing Anxiety*, 14 FLA. TAX REV. 77, 78 (2013); Louis Kaplow, *Human Capital Under an Ideal Income Tax*, 80 VA. L. REV. 1477, 1478 (1994); Stephan, *supra* note 77; G. Christopher Wright, *Taxation of Personal Injury Awards: Addressing the Mind/Body Dualism that Plagues § 104(A)(2) of the Tax Code*, 60 CATH. U. L. REV. 211 (2011).

<sup>83</sup> To delve into the other works on the body in tax, see Lisa Milot, *What Are We—Laborers, Factories, or Spare Parts? The Tax Treatment of Transfers of Human Body Materials*, 67 WASH. & LEE L. REV. 1053 (2010); Bridget J. Crawford, *Taxation, Pregnancy, and Privacy*, 16 WM. & MARY J. WOMEN & L. 327 (2010) [hereinafter Crawford, *Pregnancy & Privacy*]; Bridget J. Crawford, *Our Bodies, Our (Tax) Selves*, 31 VA. TAX REV. 695 (2012) [hereinafter Crawford, *Our Bodies*]; Dorothy A. Brown, *Taxing the Body*, in THE GLOBAL BODY MARKET: ALTRUISM'S LIMITS 148–159 (Michele Goodwin ed., 2013); Lawrence Zelenak, *The Body in Question: The Income Tax and Human Body Materials*, 80 L. & CONTEMP. PROBS. 37, 37 (2017); Bridget J. Crawford, *Tax Talk and Reproductive Technology*, 99 B.U. L. REV. 1757 (2019) [hereinafter Crawford, *Tax Talk*].

<sup>84</sup> Crawford, *Our Bodies*, *supra* note 83, at 731 (“Existing tax jurisprudence provides no ready answer to the question of whether the body is property, or what relationship, if any, the tax system should have to transactions involving the human body.”).



The existing case law on the body is limited and inconsistent. A mere three cases: *Green v. Commissioner*,<sup>85</sup> *Lary v. United States*,<sup>86</sup> and *Perez v. Commissioner*<sup>87</sup> make up the key precedent (such as it is). Taking the oldest case first, consider *Green*.<sup>88</sup> There, Margaret Cramer Green attempted to deduct the cost of protein-rich foods and supplements as § 162 trade or business expenses and to claim a depletion deduction connected to her regular plasma “donations.” In its opinion, the Tax Court analogized Ms. Green’s plasma to livestock products, writing:

The rarity of petitioner’s blood made the processing and packaging of her blood plasma a profitable undertaking, just as it is profitable for other entrepreneurs to purchase hen’s eggs, bee’s honey, cow’s milk, or sheep’s wool for processing and distribution. Although we recognize the traditional sanctity of the human body, we can find no

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<sup>85</sup> *Green v. Comm’r*, 74 T.C. 1229 (1980).

<sup>86</sup> *Lary v. United States*, 787 F.2d 1538 (11th Cir. 1986).

<sup>87</sup> *Perez v. Comm’r*, 144 T.C. 51, 54 (2015).

<sup>88</sup> The Fifth Circuit considered the blood plasma income question in a criminal tax fraud case and is cited favorably by the tax court. *United States v. Garber*, 607 F.2d 92 (5th Cir. 1979). That court noted the question as being novel and wrestled with whether to understand the body as a whole or its products separately. It also struggled with the property/service distinction. The court writes, in pertinent part:

No court has yet determined whether payments received by a donor of blood or blood components are taxable as income. If, as the government contends, by subjecting herself to the plasmapheresis process Garber has performed a service, her compensation would be taxable under section 61(a)(1) of the Code. In some ways, Garber’s activity does resemble work: artificial stimulation, which is not a necessary prerequisite to plasma extraction, causes nausea and dizziness; the ordeal of plasmapheresis can be extremely painful if a nerve is struck, can cause nausea, blackouts, dizziness and scarring, and increases the risks of blood clotting and hepatitis. These efforts of production may logically compare to the performance of a service.

On the other hand, blood plasma, like a chicken’s eggs, a sheep’s wool, or like any salable part of the human body, is tangible property which in this case commanded a selling price dependent on its value. . . . The greater their concentration, the more she was paid; her earnings were in no way related to the amount of work done, pain incurred, or time spent producing one pint of plasma.

Of course, the product/service distinction is relevant only if the sale of the product results in no taxable gain. The experts testifying for both parties here concede that section 61(a)(3) includes in income only the profit gained through the sale or conversion of capital assets. They do not, however, agree on the computation of gain, because they differ in their theories as to how the value of the product before its sale is to be established. The cost of Garber’s blood plasma, containing its rare antibody, cannot be mathematically computed by aggregating the market cost of its components such as salt and water. That would be equivalent to calculating the basis in a master artist’s portrait by costing the canvas and paints.

*Id.* at 97.

reason to legally distinguish the sale of these raw products of nature from the sale of petitioner's blood plasma. . . . The main thrust of the relationship between petitioner and the lab was the sale of a tangible raw material to be processed and eventually resold by the lab.<sup>89</sup>

This framing, alongside the broad definition of income Congress intended, answered the income question.

The next question the court had to address was how to treat the deductions Ms. Green claimed. The court disallowed the claimed deductions but only in part.<sup>90</sup> Rejecting claimed deductions for health insurance premiums (on the grounds that they were personal) and depletion (because the applicable provisions contemplate mineral deposits), the court permitted a deduction for the high protein diet and supplements to the extent that plasma donation, rather than mere subsistence, required them.<sup>91</sup> The body, then, could be an income-producing asset.

In *Lary*, the taxpayer argued that he was entitled to a deduction for blood donation under the theory that the blood should be treated as property. Therein the court punted on the substantive classification question of whether blood should be treated as property or the

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<sup>89</sup> *Green*, 74 T.C. at 1234.

<sup>90</sup> The court did accept that Ms. Green was in the business of selling plasma, a finding that created the possibility of § 162 trade or business expenses. *Id.* at 1235 (“Upon the facts, we find that petitioner was in the trade or business of selling blood plasma. Therefore, to be allowable, the deductions claimed by petitioner must be substantiated as ‘ordinary and necessary expenses paid or incurred during the taxable year in carrying on’ her activity as a seller of blood plasma.”).

<sup>91</sup> *Id.* at 1236–37 (“Petitioner also claimed business deductions for special high protein foods and ‘special drugs’ or diet supplements. Respondent disallowed the entire deduction for food and all but \$112 of the claimed deduction for ‘special drugs’ as being nondeductible personal expenses. While the greater portion of these claimed amounts were those normal expenses necessary for petitioner’s personal physical benefit, and thus not deductible under section 262, part of these expenses were incurred by petitioner in her business as a seller of blood plasma. Petitioner went to additional expense, beyond that necessary for her personal needs, to purchase high protein foods and diet supplements for maintaining the quality of her blood plasma. That additional expense is deductible under section 162 if properly substantiated.”).

rendering of a service.<sup>92</sup> It did, however, hold that any gain from the sale of blood would qualify as income.<sup>93</sup>

In the most recent case, *Perez v. Commissioner*, the taxpayer argued that the egg donor fee she received was excludible under § 104.<sup>94</sup> Her position hinged upon the argument that the fee was not paid for services rendered but rather for the pain and suffering incurred in the process.<sup>95</sup> In making her argument, Ms. Perez relied upon the language of the donor agreement.<sup>96</sup>

The Tax Court rejected Ms. Perez's arguments, holding that the fee was clearly compensation for services rendered.<sup>97</sup> The court went on to conclude that the payments did not fit the definition of "damages" under § 104 at least in part because she agreed to the scope of the alleged harm.<sup>98</sup> The court then opined further on the reasonableness of its interpretation:

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<sup>92</sup> *Lary v. United States*, 787 F.2d 1538, 1539–40 (11th Cir. 1986) ("We need not decide whether the donation of blood constitutes the performance of a service or the contribution of a product because Taxpayers cannot claim a charitable deduction under either interpretation. If the donation of blood were the performance of a service, then Taxpayers are not entitled to a charitable deduction because the regulations expressly prohibit charitable deductions for the performance of services. *See* 26 C.F.R. § 1.170A-1(g) (1985).").

<sup>93</sup> This is consistent with I.R.S. Gen. Couns. Mem. 36,418 (Sept. 15, 1975) (treating milk as property).

<sup>94</sup> *Perez v. Comm'r*, 144 T.C. 51, 56–57 (2015).

<sup>95</sup> *Id.* at 52, 54–55.

<sup>96</sup> *Id.* ("Donor Fee: Donor and Intended Parents will agree upon a Donor Fee for Donor's time, effort, inconvenience, pain, and suffering in donating her eggs. This fee is for Donor's good faith and full compliance with the donor egg procedure, not in exchange for or purchase of eggs and the quantity or quality of eggs retrieved will not affect the Donor Fee.").

<sup>97</sup> *Id.* at 57 ("Both of Perez's 2009 contracts with the Donor Source specify that her compensation is in exchange for her 'good faith and compliance with the donor egg procedure.' Unlike the taxpayers in *Green* and *Garber*, who were paid by the quantity and the quality of plasma produced, Perez's compensation depended on neither the quantity nor the quality of the eggs retrieved, but solely on how far into the egg-retrieval process she went. On this key point, the testimony of both parties to the contracts agrees with the contract language. We have to find that Perez was compensated for services rendered and not for the sale of property.").

<sup>98</sup> *Id.* at 61 ("Perez very clearly has a legally recognized interest against bodily invasion. But we must hold that when she forgoes that interest—and consents to such intimate invasion for payment—any amount she receives must be included in her taxable income. Had the Donor Source or the clinic exceeded the scope of Perez's consent, Perez may have had a claim for damages. But the injury here, as painful as it was to Perez, was exactly within the scope of the medical procedures to which she contractually consented. Twice. Her physical pain was a byproduct of performing a service contract, and we find that the payments were made not to compensate her for some unwanted invasion against her bodily integrity but to compensate her for services rendered.").

We conclude by noting that the result we reach today by taking a close look at the language and history of section 104 is also a reasonable one. We see no limit on the mischief that ruling in Perez’s favor might cause: A professional boxer could argue that some part of the payments he received for his latest fight is excludable because they are payments for his bruises, cuts, and nosebleeds. A hockey player could argue that a portion of his million-dollar salary is allocable to the chipped teeth he invariably suffers during his career. And the same would go for the brain injuries suffered by football players and the less-noticed bodily damage daily endured by working men and women on farms and ranches, in mines, or on fishing boats. We don’t doubt that some portion of the compensation paid all these people reflects the risk that they will feel pain and suffering, but it’s a risk of pain and suffering that they agree to before they begin their work. And that makes it taxable compensation and not excludable damages.<sup>99</sup>

In this discussion, the court demonstrates the difficulty of thinking about the body in tax and the implications—the “mischief”—of thinking about it as physical capital. It is, in the court’s view, a slippery slope to a conclusion that wages are excludable as a return of capital—for the using up of one’s body—rather than a gain. Coming to such a conclusion is consistent with much § 104 precedent, but such an approach to the body has always generated consternation.<sup>100</sup>

The existing scholarship on the body largely tracks the questions the courts wrestled with in the case law discussed above. It also reflects the challenge of finding the appropriate frame for thinking about the body in tax. Addressing how surrogacy work should be treated, Professor Bridget Crawford acknowledges the challenge head-on: “Basic tax concepts like gain and loss do not translate easily to the sale of human body parts or products . . . . Because the tax law is so ill-equipped to address commercial dealings involving the human body, one gropes for apt (if inelegant or even offensive) analogies.”<sup>101</sup> The consensus view is that payments for the use of one’s body (e.g., in scenarios like surrogacy) or for body products (e.g., blood or milk) are income.<sup>102</sup>

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<sup>99</sup> *Id.* at 62–63.

<sup>100</sup> See discussion of *Murphy* *infra* Part III.

<sup>101</sup> Crawford, *Pregnancy & Privacy*, *supra* note 83, at 330–32.

<sup>102</sup> *Id.* at 333 (“By any definition, these human organs are not assets held primarily for sale to customers in the ordinary course of business, suggesting that they are capital in nature. Yet the taxpayer has not made any investment in a tax sense in these organs, or at least the taxpayer has made no investment in her organs that is different than an investment in life generally (such as paying for food, water, shelter).”); Milot, *supra* note 83, at 1092–94 (arguing that intact bodies are legal subjects and parts, contextually, are property); see generally, Zelenak, *supra* note 83 (providing a survey of the existing precedent); Victoria J. Haneman, *Prepaid Death*, 59 HARV. J. ON LEGIS. 329 (2022); Crawford, *Tax Talk*, *supra*

There is less agreement as to questions of characterization (ordinary or capital) and cost recovery, however.<sup>103</sup> But taken together, the clear sense that emerges is that tax, quite simply, lacks a comprehensive and consistent understanding of its relationship to the body, as well as a clear set of values for orienting its policy toward the body. Imperfect and uncomfortable attempts to make transactions involving the body and/or its parts fit existing frames strain the same. Human capital theory, for example, is rejected in some tax spaces but embraced in others as it undergirds (at least partially) the existence of many tax credits and deductions, including § 104 and § 213 which expressly address the body and bodily harm. This next Part examines how existing doctrine will apply to CRISPR. That work, in turn, lays the foundation for understanding how CRISPR highlights weaknesses in tax policy that go beyond the confines of provisions expressly about the body.

### III

#### TAX AND THE BODY IN 2092

Tax could adopt multiple postures toward gene editing. At the organizational level, tax could be a speedbump or an open door: federal research and development credits could be structured to lower or raise the cost of the development of CRISPR and similar technologies, for example. At the individual level, tax in isolation (e.g., § 213's application for unreimbursed medical costs) and in its role as an important aspect of health care finance could similarly reduce or increase the cost of accessing gene editing technologies. For tax to be in a deliberate rather than reactive posture, a better understanding of and approach to the body in tax is needed. This Part imagines a likely not-too-distant future in which CRISPR becomes commonplace, examining the potential tax response as it unfolds. Considering this future highlights the indeterminacy of doctrine on the body in tax and the thin theoretical foundation from which it stems. More broadly, this Part uses the lens of CRISPR and the cyborg to illuminate how ideas of the body are more embedded in tax than has been previously understood, emerging in the distributive concept of ability to pay and the tax approach to human capital.

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note 83 (discussing the fertility industry and the role of rhetoric in shaping perception of the industry and tax compliance).

<sup>103</sup> Milot, *supra* note 83, at 1064 (noting the sparse and inconsistent nature of the guidance on the body).

### *A. Tax and Gene Editing: The Obvious Doctrinal Issues*

The most obvious doctrinal question that arises is how § 213 will apply to CRISPR and its potential applications. Specific guidance is essentially nonexistent. In late 2019, the Service issued a private letter ruling classifying genetic testing as medical care—a letter that is thin on analysis and lacks any precedential value.<sup>104</sup> Beyond that, however, lies nothing but the need to fit new technology into old precedent. This Section considers three applications of CRISPR—one currently in use and two potential future uses—and how they fit within existing § 213 precedent. These examples increase in interpretive complexity. As they do so, they bring into relief weaknesses in the foundations of tax law’s approach to and understanding of the body.

#### *1. A Simple Case: CRISPR and Sickle Cell Disease*

Sickle cell disease (sometimes referred to as sickle cell anemia) is a heritable genetic condition that causes an individual’s red blood cells to form in a hard, sickle shape.<sup>105</sup> So formed, the cells cannot properly move through and transport oxygen in the bloodstream.<sup>106</sup> Those with sickle cell disease face anemia, fatigue, pain, risk of stroke, and other conditions.<sup>107</sup> Because of its nature as a genetic disorder stemming from a single mutation and its profound effects on one’s health, sickle cell disease has been an early target for CRISPR therapy.<sup>108</sup> In a recent representative trial, doctors removed bone marrow from a patient, used CRISPR-Cas9 to replace the responsible genetic sequence with a normal one, then infused the treated bone marrow back into the patient’s body.<sup>109</sup> With the normal DNA sequence in her replaced bone marrow, the individual should be able to produce a significant number

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<sup>104</sup> I.R.S. Priv. Ltr. Rul. 201933005 (Aug. 16, 2019).

<sup>105</sup> *What Is Sickle Cell Disease?*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/ncbddd/sicklecell/facts.html> [<https://perma.cc/77NM-UAJH>].

<sup>106</sup> *Id.*; *Sickle Cell Anemia*, MAYO CLINIC, <https://www.mayoclinic.org/diseases-conditions/sickle-cell-anemia/symptoms-causes/syc-20355876> [<https://perma.cc/A5X4-TJYA>].

<sup>107</sup> *Sickle Cell Anemia*, *supra* note 106.

<sup>108</sup> Robert Sanders, *FDA Approves First Test of CRISPR to Correct Genetic Defect Causing Sickle Cell Disease*, BERKELEY NEWS (Mar. 30, 2021), <https://news.berkeley.edu/2021/03/30/fda-approves-first-test-of-crispr-to-correct-genetic-defect-causing-sickle-cell-disease/> [<https://perma.cc/76U5-M78A>].

<sup>109</sup> *Id.*

of healthy-functioning blood cells and thereby mitigate or completely eliminate the symptoms of the disease.<sup>110</sup>

CRISPR treatment of sickle cell disease presents little interpretive challenge for current doctrine. Recall that the definition of medical care is two-pronged, having both a disease and a structure/function prong. With its close nexus to the treatment of an existing disease, CRISPR herein is an easy fit for the first prong of the medical care definition (disease prong).<sup>111</sup> Somewhat less clear is whether manipulating the genetic sequence that codes for an individual's bone marrow satisfies the structure/function prong.<sup>112</sup> There is a tenable argument that one's genetic code is a structure of the body, and an even stronger one that the target of the CRISPR treatment—generating healthy blood cells—is a function of the body, but no clear guidance on how to fit gene editing within the structure/function rubric.<sup>113</sup> Doing so is unnecessary, however. Satisfying the disease prong alone would be sufficient, making CRISPR as applied to cure sickle cell disease a straightforward fit for the definition of medical care under existing precedent.

Section III.A.3 will consider a second application of CRISPR that begins to stretch the bounds of § 213. This next Section pauses to consider how the easy application of CRISPR may shape future doctrine. The Service's first chance to interpret § 213 as applied to CRISPR may come in a private letter ruling or a case and it is likely to look something like the fairly simple sickle cell case. And that decision, in turn, may have ripple effects for § 213 specifically, tax broadly, and the regulation of gene editing.

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<sup>110</sup> *Id.* (“Sickle cell disease is caused by a single change in the DNA code of the beta-globin gene. The new trial uses the CRISPR-Cas9 nuclease—a fully assembled Cas9 protein and guide RNA sequence targeting the defective region of the beta-globin gene, accompanied by a short DNA segment encoding the proper sequence—to stimulate repair of the sickle mutation by substituting the normal DNA segment for the abnormal one. In this approach, the patient's blood stem cells are first treated with electrical pulses that create pores in their membranes. These pores allow the CRISPR-Cas9 platform to enter the stem cells and travel to their nuclei to correct the sickle cell mutation. ‘The goal of this form of genome-editing therapy is to correct the mutation in enough stem cells so the resulting blood in circulation has corrected red blood cells,’ Walters said. ‘Based on our experience with bone marrow transplants, we predict that correcting 20% of the genes should be sufficient to out-compete the native sickle cells and have a strong clinical benefit.’”).

<sup>111</sup> I.R.C. § 213(d) (“for the diagnosis, cure, mitigation, treatment, or prevention of disease”).

<sup>112</sup> *Id.* (“or for the purpose of affecting a structure or function of the body”).

<sup>113</sup> Tessa R. Davis, *Freezing the Future: Elective Egg Freezing and the Limits of the Medical Expense Deduction*, 107 KY. L.J. 373, 417–24 (2019) (offering initial thoughts on CRISPR and § 213).

## 2. *Ripple Effects of the Simple Case*

New technologies become normalized through many mechanisms. If (when) tax law qualifies CRISPR gene editing as medical care in an application like the simple case discussed above, such technology moves closer to normalization in society. And within the law specifically, the groundwork is laid for arguing by analogy how the next case is more like CRISPR applied to cure sickle cell than not.

Under current law, § 213 is largely used by individuals with low or fixed income (and the lower AGIs that follow) and high medical costs.<sup>114</sup> Many of us have a multitude of costs that meet the § 213(d) definition of medical care in a given year, but the aggregated total of those costs does not exceed the AGI threshold, leaving the costs nondeductible (e.g., birth control). Why, then, consider how a provision claimed by a minority of taxpayers in any given year will apply to new technology? First, § 213—like any Code section—could be reimaged (and recent years have driven home the ever-changing nature of tax). And even if its basic structure holds, the definition it provides informs other important health care provisions within the Code, influencing the exclusion for employer-provided health insurance, HSAs, FSAs, and cafeteria plans. Stated simply, § 213 impacts the tax treatment and consequences of health care costs not only for the millions who claim the deduction each year but also for the broader swath of the population whose tax picture is shaped by private insurance.

Larger doctrinal changes are possible as well. A future Congress may seek ways to address the accessibility and affordability concerns CRISPR's high out-of-pocket costs are likely to create and which are highlighted in the broader literature on the technology. Multiple tools would be available from the familiar—tinkering with AGI threshold for § 213<sup>115</sup>—to the novel—a CRISPR credit.

Consider, for example, the following hypothetical: modeled on existing credits, the CRISPR credit might be a fully refundable credit keyed to “qualified CRISPR costs.” For the lowest income groups, the credit percentage is the lesser of 100% of the qualified costs or \$20,000.

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<sup>114</sup> INTERNAL REVENUE SERV., STATISTICS OF INCOME, INDIVIDUAL INCOME TAX RETURNS 2014: PUBLICATION 1304 103, 123, 139 (2014), <https://www.irs.gov/pub/irs-soi/14inalcr.pdf> [<https://perma.cc/EZ9H-H4F9>] (providing data on claimed § 213 deductions by filing status and income band).

<sup>115</sup> Congressional coronavirus responses provide an example of such a tweak as Congress first delayed a planned increase in the AGI floor and then made that change permanent within § 213, keeping the percentage at 7.5% rather than allowing it to increase to 10%. Consolidated Appropriations Act of 2021, Pub. L. No. 116-260.



As one's AGI increases, the credit percentage decreases steadily to 0% by a function of the stepwise increases in AGI (e.g., by 1% point for each additional \$5,000 in AGI over the threshold amount). Interested in subsidizing therapeutic uses but in recognition of the ever-evolving state of genetics, Congress embraced the § 213(d) medical care definition but added language clarifying that a gene is considered a structure of the body. And thus the first CRISPR credit became law.

A CRISPR credit may currently sound unlikely or even fanciful. But the analogies to existing law are less strained than one might assume.<sup>116</sup> Scholars in other fields have already noted a shift in discussions of CRISPR and other gene editing and gene therapy technologies; an increasing openness to carving a path to allow applications deemed to be therapeutic.<sup>117</sup> What was once science fiction viewed with concern is increasingly an achievable reality. New technologies become old hat with the passage of time and the process of normalization. Considering the more marginal cases illustrates the lines of reasoning by which a future Congress could come to view CRISPR as many in other fields already do: a form of investment in human capital analogous to education.<sup>118</sup> Failing to do so would leave tax in a reactive posture.

### 3. *A Marginal Case: Germline Edits for HIV Resistance*

In late 2018, the global community learned of Dr. He Jiankui's claim to have edited the genetic code of at least one of two embryos successfully implanted and carried to term, born to a couple in China

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<sup>116</sup> See discussion *infra* Section III.B.

<sup>117</sup> See, e.g., van Beers, *supra* note 13, at 3 (“[T]he first cracks in existing human rights legal frameworks are starting to appear. Moreover, in scientific, political, and academic circles, the call is growing louder to move from prohibition to regulation of HGGE. According to these recent proposals, the ban on heritable genome editing can be lifted for therapeutic purposes as soon as the technology is safe for introduction in the clinic.”).

<sup>118</sup> Another possible motivation for subsidizing investment in the development and individual uptake in CRISPR might be perceived international competition, a concern that undergirded the advent of the medical expense deduction itself. See *supra* Part II.

in October 2018.<sup>119</sup> Dr. He<sup>120</sup> used CRISPR to modify a specific gene that would shape the embryos' CCR5 cell receptors. That receptor has been shown to play an essential role in allowing the HIV virus to infect an individual.<sup>121</sup> Dr. He defended the care as therapeutic in nature as the father of the children was HIV positive, a fact which meant that there was a possibility of transmission of the virus to children.<sup>122</sup> The couple sought the care because the father's HIV status meant that Chinese law would not permit the in vitro fertilization that the couple required to become pregnant.<sup>123</sup> Criticism of Dr. He's work was swift,<sup>124</sup> challenging the contention that it was therapeutic on the grounds that preventing parent-to-child transmission in this context is fairly easily accomplished with a treatment applied to sperm prior to

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<sup>119</sup> Preetika Rana, *How a Chinese Scientist Broke the Rules to Create the First Gene-Edited Babies*, WALL ST. J. (May 10, 2019, 12:44 PM), <https://www.wsj.com/articles/how-a-chinese-scientist-broke-the-rules-to-create-the-first-gene-edited-babies-11557506697> [https://perma.cc/6YKF-KUWA]; Preetika Rana & Wenxin Fan, *Chinese Scientist Claims World's First Genetically Modified Babies*, WALL ST. J. (Nov. 26, 2018, 1:51 PM), [https://www.wsj.com/articles/chinese-scientist-claims-worlds-first-genetically-modified-babies-1543258316?mod=article\\_inline](https://www.wsj.com/articles/chinese-scientist-claims-worlds-first-genetically-modified-babies-1543258316?mod=article_inline) [https://perma.cc/9GNU-JTHT]; Sara Reardon, *Gene Edits to 'CRISPR Babies' Might Have Shortened Their Life Expectancy*, NATURE (June 3, 2019), <https://www.nature.com/articles/d41586-019-01739-w> [https://perma.cc/2Q4A-JSPB] (discussing potential impacts of the modification). Dr. He was reportedly released from prison in April 2022. Antonio Regalado, *The Creator of the CRISPR Babies Has Been Released from a Chinese Prison*, MIT TECH. REV. (Apr. 4, 2022), <https://www.technologyreview.com/2022/04/04/1048829/he-jiankui-prison-free-crispr-babies/#:~:text=The%20researcher%20spent%20around%20three,network%20in%20China%20and%20abroad> [https://perma.cc/9KBB-AM9E].

<sup>120</sup> Dr. He was subsequently arrested by Chinese authorities and sentenced to three years in prison for his use of the technology. Sui-Lee Wee, *Chinese Scientist Who Genetically Edited Babies Gets 3 Years in Prison*, N.Y. TIMES (Dec. 30, 2019), <https://www.nytimes.com/2019/12/30/business/china-scientist-genetic-baby-prison.html> [https://perma.cc/C7H6-MNEX].

<sup>121</sup> For more information on the role of the gene in HIV infection, see, for example, Lucia Lopalco, *CCR5: From Natural Resistance to a New Anti-HIV Strategy*, 2 VIRUSES 574, 574–75 (2010) (“Due to the natural history of HIV infection, CCR5 is a key target for the development of drugs and immunogens that are able to elicit systemic and especially mucosal responses to protect exposed people from infection. Easy-to-use, cheap, and long-lasting mucosal protection could significantly limit HIV spread, especially in sub-Saharan Africa, Eastern Asia, and other areas where sexually transmitted diseases are heavy health and social burdens.”); see also Vera Lucia Raposo, *The First Chinese Edited Babies: A Leap of Faith in Science*, 23 JBRA ASSISTED REPROD. 197, 197 (2019).

<sup>122</sup> Rana, *supra* note 119.

<sup>123</sup> *Id.*

<sup>124</sup> See, e.g., *id.*; Gina Kolata et al., *Chinese Scientist Claims to Use Crispr to Make First Genetically Edited Babies*, N.Y. TIMES (Nov. 26, 2018), <https://www.nytimes.com/2018/11/26/health/gene-editing-babies-china.html> [https://perma.cc/4RUZ-NVSW]; David Cyranoski & Heidi Ledford, *International Outcry over Genome-Edited Baby Claim*, 563 NATURE 607, 607 (2018).

fertilization and, more broadly, condemning the violation of ethical and regulatory guidance it represented.<sup>125</sup> Assume for this discussion that science has enabled the engineering Dr. He performed to be safe and effective. Assume as well that neither parent is HIV positive. Such editing would, then, be entirely intended to create immunity to disease. How would such care be classified under § 213?

Germline edits to create disease resistance or immunity present the same interpretive challenge as the sickle cell repair in somatic cells discussed in the simple case: it is not clear whether such changes constitute care to “affect[] any structure or function of the body.”<sup>126</sup> Further, the cosmetic surgery exception that controls the margins of the structure/function prong has no apparent application here, whether the relevant change is understood as being made to the gene-as-structure or the cell’s function in producing the CCR5 receptor. But considering something as granular as genetic code under the structure/function prong is unprecedented.<sup>127</sup> That uncertainty, however, may be less impactful than how such an application strains precedent under the disease prong. Existing attempts to apply current law to reproductive care are instructive in this unprecedented space.

Assisted reproduction technologies (ART) highlight key explanatory frameworks employed in § 213 as well as weaknesses therein. As highly medicalized care, ART such as egg donation and in vitro fertilization would seem to satisfy both prongs of the medical care definition.<sup>128</sup> If, in the context of a heterosexual couple, a woman uses ART to conceive, even if she is not medically infertile, she has received care that affects both a structure (or structures) of her body as well as one of its functions—the reproductive function—that qualifies as

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<sup>125</sup> Rana, *supra* note 119.

<sup>126</sup> I.R.C. § 213(d)(1)(A).

<sup>127</sup> One could imagine tax authorities or a court looking to existing guidance on determining the relevant unit of property from the expense versus capital expenditure space to help answer the question (e.g., *FedEx* and the section 1.263 functional interdependence standard). Such analogies, to the extent they have already been employed, may harm more than they help, however. *See infra* Sections III.B.1–2.

<sup>128</sup> Much of the § 213 guidance suggests that “inherently” or “wholly” medicalized care should qualify as medical care, the logic being that such care does not have a consumptive element (cosmetic surgery being an important exception). *See, e.g.,* *Jacobs v. Comm’r*, 62 T.C. 813, 819 (1974) (“There would seem to be little doubt that the expense connected with items which are wholly medical in nature and which serve no other legitimate function in everyday life is incurred primarily for the prevention or mitigation of disease.”); *Stringham v. Comm’r*, 12 T.C. 580, 584 (1949).

medical care.<sup>129</sup> If that same woman is considered medically infertile, such care also satisfies the disease prong as it serves to mitigate or treat her infertility.<sup>130</sup> Outside the context of a heterosexual, married couple, however, inconsistencies emerge.

The facts of the cases that interpret § 213 as it applies to ART are substantially similar to one another. In both *Magdalin*<sup>131</sup> and *Morrissey*,<sup>132</sup> the taxpayers were gay men who used egg donation, in vitro fertilization, and surrogacy to have a child. In both cases, the Service denied a deduction, relying upon the same core rationales: (1) reproduction is not truly a function of male bodies, and (2) even if the care could be construed as affecting the taxpayer's reproductive function, such care is held to be "merely beneficial to the general health of the individual"<sup>133</sup> because the taxpayer was not medically infertile. There is a healthy literature that explores the inconsistencies in and inadequacies of the courts' and the Service's interpretation of § 213 in this space, highlighting its heteronormative, gender, and marital status biases.<sup>134</sup> But one lesson is particularly important for this discussion: the Service may argue for, and courts seem willing to accept, importing a disease requirement into the structure/function prong when the care at issue is understood as elective *even if the care in question does not fall within the cosmetic surgery exception*. Elective, under current precedent then, means not compelled by a specific etiology and coterminous with going merely to the "general health of the individual."<sup>135</sup>

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<sup>129</sup> Davis, *Reproducing Value*, *supra* note 61, at 15–18; Davis, *supra* note 113, at 403–04; I.R.S. Priv. Ltr. Rul. 200318017 (May 2, 2003); *see also* I.R.S. Info. Letters 2005-0102 (Mar. 29, 2005), <https://www.irs.gov/pub/irs-wd/05-0102.pdf> [<https://perma.cc/5C77-6X3Z>]. For a complete discussion of fertility care and tax, *see generally* Anthony C. Infanti, *Dismembering Families*, in *CHALLENGING GENDER INEQUALITY IN TAX POLICY MAKING: COMPARATIVE PERSPECTIVES* (Kim Brooks et al. eds., 2011); Katherine Pratt, *Deducting the Costs of Fertility Treatment: Implications of Magdalin v. Commissioner for Opposite-Sex Couples, Gay and Lesbian Same-Sex Couples, and Single Women and Men*, 2009 WIS. L. REV. 1283 [hereinafter Pratt, *Deducting the Costs*]; Katherine T. Pratt, *Inconceivable? Deducting the Costs of Fertility Treatment*, 89 CORNELL L. REV. 1121 (2004) [hereinafter Pratt, *Inconceivable*].

<sup>130</sup> Infanti, *supra* note 129, at 161–63 (noting aggregation of the bodies of heterosexual spouses).

<sup>131</sup> *Magdalin v. Comm'r*, 96 T.C.M. (CCH) 491 (2008).

<sup>132</sup> *Morrissey v. United States*, 226 F. Supp. 3d 1338, 1341 (M.D. Fla. 2016), *aff'd*, 871 F.3d 1260 (11th Cir. 2017).

<sup>133</sup> Treas. Reg. § 1.213-1 (2014) (limiting language).

<sup>134</sup> *See sources cited supra* note 129.

<sup>135</sup> The perceived elective nature of the care is understood as a dividing line between taxable consumption and recoverable costs. *See Davis, supra* note 113, at 398–406 (discussing

Return now to considering how § 213 would apply in the instant case: CRISPR-mediated germline changes to make an embryo immune to HIV. If the application can satisfy the disease prong, it must do so as preventative care.<sup>136</sup> The preventative care category is interpreted narrowly, however.<sup>137</sup> *Stringham v. Commissioner*<sup>138</sup> provides the oft-cited limiting language:

The Congressional intent is sufficiently evident to require the showing of the present existence or the imminent probability of a disease, physical or mental defect, or illness as the initial step in qualifying an expenditure as a medical expense. In other words, the language used in the statutory definition and the report of the Senate Finance Committee is sufficiently specific to exclude, except as to diagnosis, amounts expended for the preservation of general health or for the alleviation of physical or mental discomfort which is unrelated to some particular disease or defect.<sup>139</sup>

Modifying the genome of an embryo to be resistant to a disease with profound consequences but a low likelihood of exposure strains existing preventative care precedent, possibly beyond its limits. A countervailing factor that would support classification is the highly medicalized nature of the care. But that fact was insufficient to qualify ART as medical care, and the preventative care precedent is so undertheorized as to give the Service room to argue for a restrictive approach.<sup>140</sup> The range of care that currently fits within the preventative care category suggests inconsistent deference to medical care providers

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the choice frame in reproductive and broader health care). For discussion of the role of perceived elective nature of costs in other spaces, see generally Tsilly Dagan, *Commuting*, 26 VA. TAX REV. 185 (2006); Tessa R. Davis, *Taxing Choices*, 16 FIU L. REV. 327 (2022); Shannon Weeks McCormack, *Caregivers and Tax Reform: Before and After Snapshots*, 40 VA. TAX REV. 53 (2020).

<sup>136</sup> The disease prong reads: “amounts paid for the diagnosis, cure, mitigation, treatment, or prevention of disease.” I.R.C. § 213(d).

<sup>137</sup> Even if the care were classified as medical care, a further hurdle to deductibility lies in the fact that under current law the modified embryo would not be considered a dependent for purposes of § 213. Treas. Reg. § 1.213-1(e)(3) (2014) (“Status as spouse or dependent. In the case of medical expenses for the care of a person who is the taxpayer’s spouse or dependent, the deduction under section 213 is allowable if the status of such person as ‘spouse’ or ‘dependent’ of the taxpayer exists either at the time the medical services were rendered or at the time the expenses were paid.”); see also *Kilpatrick v. Comm’r*, 68 T.C. 469, 473 n.4 (1977).

<sup>138</sup> *Stringham v. Comm’r*, 12 T.C. 580 (1949) (considering the costs of moving the taxpayers’ daughter to a climate deemed more hospitable for her particular respiratory illness).

<sup>139</sup> *Id.* at 584.

<sup>140</sup> See Davis, *supra* note 113, at 418–21 (considering elective egg freezing and prophylactic surgery).

alongside the choice/elective care framing. Neither provides clear guidance on how CRISPR should be treated. What undergirds the attempt to import a disease requirement into the structure/function prong and shapes the disease prong inquiry is a frame common to other areas of tax: choice.<sup>141</sup> Choice, in this space, is a means of assessing whether a decision was elective or not. Such analysis also borrows from the familiar repair/improvement dichotomy grounded in the doctrine which determines the timing of recovery of business costs.<sup>142</sup> Unless you are compelled to pursue care *by forces the courts or Service recognize*, it is elective. And if care is elective, the thinking goes, it is in the nature of taxable consumption, more akin to an improvement than a repair. But the conditions that qualify as compulsion are never clearly or consistently defined, and how decision-makers deploy these frames and fill analytical gaps is often shaped by biases.<sup>143</sup>

These concepts operate at the margins, and clearer, more consistent decisions do exist in the § 213 precedent. But CRISPR takes us to the margins. As such, tax is running headlong into falling back on these incomplete and inconsistent heuristics. And the impact is broader than § 213. The concepts of choice, the elective nature of a decision, and the repair/improvement spectrum borrowed from expense/expenditure analysis, in turn, come to bear on ability to pay, as will be explored in Section III.B.2.<sup>144</sup> If the Service continues to write a disease requirement into the structure/function prong, whether germline edits to prevent future, low-probability diseases or conditions will qualify as

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<sup>141</sup> *Id.* at 398–406; Davis, *supra* note 135, at 363–67. In the specific case of reproductive care, there is no small amount of heteronormative and gender bias built into much analysis as well. For discussion of heteronormativity and gender bias in this space, see also Davis, *Reproducing Value*, *supra* note 61; Pratt, *Deducting the Costs*, *supra* note 129; Infanti, *supra* note 129.

<sup>142</sup> See I.R.C. §§ 162, 263.

<sup>143</sup> See sources cited *supra* note 129.

<sup>144</sup> A few scholars have explored related ideas as applied to the definition of income broadly, for example, Deborah A. Geier, *The Taxation of Income Available for Discretionary Use*, 25 VA. TAX REV. 765, 770 (2006) (“The key to understanding the theoretical construct underlying our conception of an ‘ideal’ tax base—as well as the key to improving current law—is that we wish to protect from taxation what I shall call ‘nondiscretionary’ income, while taxing ‘discretionary’ income (in the sense of income available for discretionary use). This distinction between ‘discretionary’ and ‘nondiscretionary’ income has significant explanatory force with respect to several key provisions in our current tax base.”). For an example exploring business versus personal expenses, see, for example, Dagan, *supra* note 135, at 199 (“If, for example, we label certain expenses, such as childcare, healthcare, or commuting as personal, similarly to the expenses incurred by taxpayers who crave chocolates or theater, we help construct them as a choice or as a mere preference, as if they were commensurable with one another.”).

medical care will turn on how broadly or narrowly the Service decides to construe the preventative care category. And while reproductive care can be distinguished from disease prevention, the most recent preventative care precedent suggests the Service aims to narrowly circumscribe that category.

#### 4. *A Difficult Case: CRISPR and the Complexity of Enhancement*

Drawing the line between therapeutic care and enhancement is not an easy task. The malleability of that line is part of what makes CRISPR so controversial. Perceived difference is rarely neutral. Perceived biological differences, whether understood as deriving from genetics or not, have been used to pathologize, to make other, to distance, to divide, and to dehumanize. Humans have a long history of dressing prejudice in the seeming objectivity of science and using law, in turn, to disempower. The fear of abuse of our growing knowledge of genetic makeup and expression is, therefore, well-founded. That is why it is so important to consider this seemingly futuristic case *now*, so tax is in a more deliberate posture to such technologies. Any regulatory response must consider not just regulating the science qua science but how it is used and to what ends. This last case considers how tax might respond to a more complicated and controversial application of CRISPR: enhancement.

Imagine that in 2092, CRISPR can be employed to improve one's ability to focus. Assume for the sake of this case that scientists have already marshaled CRISPR to make ADHD<sup>145</sup> curable at the genetic level. Scientists then shifted to enhancing ability to focus within or beyond what would, in 2022, be judged to be normal parameters (improving both time and quality of focus). How would tax respond to such an application of CRISPR?

The structure/function analysis remains the same as in both prior cases and will not be repeated here. If CRISPR could qualify as medical care in the instant case, then, it would have to qualify under the disease prong. As in prior applications, the highly medicalized nature of the care is a point in favor of it satisfying § 213. What such an application of CRISPR runs headlong into, however, is whether the care is to treat a disease or condition, or if it goes instead to general health and welfare. If the decision were made today, the most likely outcome is that such

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<sup>145</sup> Attention-deficit/hyperactivity disorder (ADHD) is a well-known condition with a suspected genetic/heritable component. Stephen V. Faraone & Henrik Larsson, *Genetics of Attention Deficit Hyperactivity Disorder*, 24 *MOLECULAR PSYCHIATRY* 562, 562 (2018).

an application of CRISPR would not qualify as medical care. The Service would argue, and courts would agree, that the connection between a disease or condition is too tenuous, if not entirely nonexistent.<sup>146</sup> That instead, improving one's ability to focus absent a diagnosis of something aberrant is more akin to an improvement of general health and well-being than a treatment of something amiss in the body.<sup>147</sup>

The outcome under current law is less interesting, however, than the frames and assumptions used to arrive at and support that outcome. Current doctrine relies upon three important frames for understanding the body and its care. First, there is an undertheorized but consistent use of mind/body dualism in tax. To be considered medical, the care should apply in some way to the physical body understood as separate from the conscious mind. In the absence of a biological etiology, care begins to be assumed to be about satisfying preferences originating from the preference-generating factory of the mind.<sup>148</sup> Second, a strained and incomplete appeal to the repair/improvement spectrum common to business cost recovery analysis seeps into § 213. Care perceived as reparative seems compelled—necessary to return one to the status quo—while care that improves capacity at the outset loops back to preference satisfaction. Third, § 213 relies upon a notion of normalcy and aberration (and the baseline normative individual that implies) which lacks any clear definition and whose relevance to tax is neither clearly stated nor thoroughly explored.<sup>149</sup> The next Section explores how these frames go beyond Code provisions that pertain to the body to shape the tax approach to human capital and the foundational distributional principle of ability to pay.

*B. The Hidden Body: CRISPR, the Cyborg, and Finding the Body in Foundational Tax Concepts*

Examining how tax is poised to respond to CRISPR highlights the interpretive frames that structure our current approach to and

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<sup>146</sup> Cf. INTERNAL REVENUE SERV., *supra* note 71, at 13 (allowing psychiatric care). Absent a diagnosed/diagnosable pathology, however, medical care classification remains unlikely.

<sup>147</sup> Such care would be analogized to disqualified costs such as gym memberships and vacations. *Id.* at 17.

<sup>148</sup> The connection to the choice/elective versus nonelective frame is embedded within this frame as well. Compare this frame to classification of psychological care. *Id.* at 13. A biological etiology may be assumed in the need for such care.

<sup>149</sup> See Davis, *supra* note 113.



understanding of the body in tax. Both § 213—the first place where tax is likely to directly wrestle with CRISPR—and § 104 are shaped by and influence how tax intersects with the body. The aim of Section III.B. is to go beyond narrower doctrinal questions to better conceptualize how concepts of the body are bound up with the tax treatment of human capital investments and the foundational distributive justice concept of ability to pay. Doing so exposes the thinness of our approach to the body in tax. Imagining a future in which the full anticipated applications of CRISPR have been realized—where a new cyborg is a reality—provides a point of departure to a different approach.

### *1. Mind/Body Dualism and the Tax Approach to Human Capital*

Motivated by a desire to make CRISPR accessible, in 2042 Congress passed legislation to create the provision colloquially known as the CRISPR credit.<sup>150</sup> The credit was intended as a means of addressing the often-prohibitive costs of accessing the technology widely heralded as a leap forward for human health and quality of life. Analogies to educational credits were regularly made<sup>151</sup> and the idea of investing in

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<sup>150</sup> See *supra* Sections III.A.1–2.

<sup>151</sup> Gardner, *supra* note 62, at 68 (“Moreover, seeking to improve the cognitive ability of a child is not, in and of itself, problematic. A novel educational technology that accomplished these changes would raise few ethical questions. The rearing of a skillful child is a goal for most parents; conversely, we admire parents who take time from other pursuits to tutor their children or volunteer in classrooms.”) (internal citations omitted).

one's human capital<sup>152</sup> via CRISPR edits became commonplace.<sup>153</sup> Health is, after all, another aspect of human capital.

Such a credit would reflect an intermixing of two related but distinct approaches to human capital in tax. It is accepted outside the legal literature that both health and education are aspects of individual human capital. But within tax, education is the more common of the two to be framed in human capital terms.<sup>154</sup> The reason for this, at least

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<sup>152</sup> The standard approach to human capital in tax is informed by Gary Becker's foundational work on human capital and educational investment. At an individual level, human capital is understood as the knowledge, skills, and health possessed by a given person. Human capital may also be considered at both the organizational and societal levels. At its core, human capital is a concept developed and analyzed by economists as a way of conceptualizing the connection between investments in individuals and productivity. *See generally* GARY S. BECKER, *HUMAN CAPITAL: A THEORETICAL AND EMPIRICAL ANALYSIS, WITH SPECIAL REFERENCE TO EDUCATION* (3d ed. 1993). Individual returns to human capital investments are most commonly conceived of as earnings. Luca Flabbi & Roberta Gatti, *A Primer on Human Capital* 3, 5 (World Bank Pol'y Rsch., Working Paper No. 8309, Jan. 2018), <https://documents1.worldbank.org/curated/en/514331516372468005/pdf/WPS8309.pdf> [<https://perma.cc/XLW8-N2MY>] ("Decisions are taken in order to maximize a payoff which includes not only earnings and labor market performance but also cultural and other nonmonetary gains. . . . Typically, it does only include monetary benefits and, as implied by the example above, is the return obtained by equating the (net) present value of life-time earnings to the net present value of the human capital investment cost. However, this return not only ignores cultural and other non-monetary gains at the individual level but also ignores aggregate gains or loss that may be generated by the investment's positive or negative externalities (the social return).").

<sup>153</sup> *See, e.g.*, Gardner, *supra* note 62, at 77–78 (treating genetic engineering as essentially traditional human capital: "With the background, consider what a nation would gain by permitting parents to genetically enhance their children. By assumption, the genetic enhancement technology increases the ability of children to learn and perform cognitive tasks, and thus to acquire and generate knowledge. Permitting or facilitating genetic enhancement would therefore increase the collective human capital embodied in the nation's workers. The increasing prevalence of high-ability genotypes would also multiply the effects of other national investments in education, training, and scientific or engineering research. Because genetic enhancements are heritable, the effects of these investments on the stock of human capital are cumulative unless enhanced offspring or their descendants emigrate. Finally, permitting genetic enhancement would be a cheap way for a state to increase aggregate human capital, because competition between parents would lead some parents to pay for it out of their own pockets. If expanding the stock of a nation's human capital brings increasing returns in productivity and economic growth, it means that in economic competitions among nations, small initial differences in the distribution of able people can multiply, over time, to large international differences in the rate of economic growth. Thus nations have an incentive to defect from an international ban on genetic enhancement to get a jump on others in the accumulation of human capital."); Savulescu, *supra* note 44 (discussing the types of investments in human capacities—human capital—genetic engineering may enable and their philosophical implications).

<sup>154</sup> To gain a sense of the existing literature on human capital and tax, see J. Martin Burke & Michael K. Friel, *Tax Treatment of Employment-Related Personal Injury Awards: The Need for Limits*, 50 MONT. L. REV. 13 (1989); David S. Davenport, *The 'Proper' Taxation of Human Capital*, 52 TAX NOTES 1401 (1991); Paul A. David, *Reforming the*

in part, is a concern for the potential complexity of robustly applying a human capital theory of health in tax. And the dualistic understanding of the mind and body that tax employs makes plausible the law's different postures to human capital in education and health.

Congress is of two minds on the proper tax treatment of education. Most general educational costs—from elementary through undergraduate and postgraduate work—are nondeductible and nonamortizable.<sup>155</sup> Your college degree, for example, confers a general education and/or the minimum qualifications for a future job. The rationale for denying a § 162 trade or business expense deduction for such costs is some mix of the sense that the business investment portion of the costs cannot be severed from the personal consumption aspect, and that tax should not allow cost recovery for such general human capital investments.<sup>156</sup> Appealing to a sense of the repair/improvement spectrum borrowed from the expense/expenditure analysis of § 213, minimum education requirements are not immediately recoverable as they are more akin to improvements, while continuing education requirements are closer to a repair, thereby garnering more favorable treatment. Even within this basic framework, however, some subsidy of educational investments is provided—even ones with strong improvement and consumption elements—in provisions like § 529 educational savings accounts and the oft-tweaked educational credits and student loan interest deduction.

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*Taxation of Human Capital: A Modest Proposal for Promoting Economic Growth*, in *ECONOMICS FOR AN IMPERFECT WORLD: ESSAYS IN HONOR OF JOSEPH E. STIGLITZ* 439 (Richard Arnott et al. eds., 2003); Dodge, *supra* note 82; Mary L. Heen, *An Alternative Approach to the Taxation of Employment Discrimination Recoveries Under Federal Civil Rights Statutes: Income from Human Capital, Realization, and Nonrecognition*, 72 N.C. L. REV. 549 (1994); Hobbs, *supra* note 82; Holcomb, *supra* note 82; Kaplow, *supra* note 82; Michael Simkovic, *The Knowledge Tax*, 82 U. CHI. L. REV. 1981 (2015) [hereinafter Simkovic, *The Knowledge Tax*]; Stephan, *supra* note 77 (discussing basis and human capital); Lawrence Zelenak, *The Reification of Metaphor: Income Taxes, Consumption Taxes and Human Capital*, 51 TAX L. REV. 1 (1995); Michael Simkovic, *Taxing Human Capital*, 107 PROC. ANN. CONF. ON TAX'N & MINUTES ANN. MEETING NAT'L TAX ASS'N 1 (2014) [hereinafter Simkovic, *Taxing Human Capital*].

<sup>155</sup> I.R.C. § 162 (providing a deduction for trade or business expenses); Treas. Reg. § 1.162-5 (providing guidance on applying the deduction to education costs).

<sup>156</sup> For focused discussion of human capital and education costs in tax, see Joseph M. Dodge, *Taxing Human Capital Acquisition Costs—Or Why Costs of Higher Education Should Not Be Deducted or Amortized*, 54 OHIO STATE L.J. 927 (1993); David S. Davenport, *Education and Human Capital: Pursuing an Ideal Income Tax and a Sensible Tax Policy*, 42 CASE W. RESV. L. REV. 793 (1992); Clifford Gross, *Tax Treatment of Education Expenses: Perspectives from Normative Theory*, 55 U. CHI. L. REV. 916 (1988); Jennifer J.S. Brooks, *Taxation and Human Capital*, 13 AM. J. TAX POL'Y 189 (1996); John A. Litwinski, *Human Capital Economics and Income*, 21 VA. TAX REV. 183 (2001).

In the health space, the human capital picture looks somewhat different, however. Though early justifications for § 104 seemed to embrace a human capital frame—conceiving the physical body as something that can be invested in a manner that should be recoverable—tax has steadily distanced itself from that approach.<sup>157</sup> When Judge Ginsburg of the D.C. Circuit Court of Appeals seemed to embrace such an approach in *Murphy v. IRS* in 2006 (a case in which the taxpayer argued for exclusion under § 104 for an award stemming from employment discrimination), for example, the opinion created a tremendous stir (in the tax world) and was ultimately vacated.<sup>158</sup> The original opinion erred by accepting what tax *knows to be wrong*: the body is not a machine and one cannot have basis in one’s self. And to be sure, the limited case law on the body pushes back against the idea that investments in one’s health should be recoverable.<sup>159</sup> So too have we consistently rejected the idea that such investments can create tax basis. Doing so would be too messy and, as the court in *Perez* noted, create all kinds of “mischief” such as support for the idea that health investments could reduce taxable income.<sup>160</sup>

Conceiving of education as about the mind and health as about the separate, physical body helps maintain the gap between these approaches. Both § 213 and § 104 were and largely remain focused on harm to the physical body, perceived as essentially separate from the mind and its emotions. Emotional distress, in and of itself, is not sufficient to meet the requirements of § 104. Early § 104 focused on

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<sup>157</sup> See *supra* Part II.

<sup>158</sup> *Murphy v. Internal Revenue Serv.*, 460 F.3d 79, 85–87 (D.C. Cir. 2006), *vacated*, No. 05-5139, 2006 WL 4005276 (D.C. Cir. Dec. 22, 2006), *opinion after reinstatement of appeal*, 493 F.3d 170 (D.C. Cir. 2007); see also Joseph M. Dodge, *Murphy and the Sixteenth Amendment in Relation to the Taxation of Non-Excludable Personal Injury Awards*, 8 FLA. TAX REV. 369, 370 (2007). *But see* Erik M. Jensen, *Murphy v. Internal Revenue Service, the Meaning of “Income,” and Sky-Is-Falling Tax Commentary*, 60 CASE W. RES. L. REV. 751, 753 (2010). Tax protestor cases attempt versions of this argument and are regularly and appropriately dismissed as frivolous. See, e.g., *Funk v. Comm’r*, 687 F.2d 264 (8th Cir. 1982); *Boggs v. Comm’r*, 95 T.C.M. (CCH) 1317 (T.C. 2008), *aff’d*, 569 F.3d 235 (6th Cir. 2009).

<sup>159</sup> See *Green v. Comm’r*, 74 T.C. 1229, 1235–36 (1980) (“Although petitioner attempts to justify the deduction by comparing her body to some insured manufacturing machinery, the instant set of facts prevents such a comparison; her body is not a replaceable, or easily repairable, machine maintained solely for the production of blood plasma. The unique nature of the ‘manufacturing machinery’ in this instance makes the personal nature of the health insurance premiums unavoidable. Insuring against the costs of maintaining petitioner’s health is primarily a personal concern, not merely a business concern. *Cf. Sparkman v. Commissioner*, 112 F.2d 774, 777 (9th Cir. 1940).”).

<sup>160</sup> See discussion *supra* Section II.C.

loss of limbs and has, at points in its existence, required a “tort-like” harm for a damage award to be qualified. Section 213 accepts care that would often be thought of as “of the mind” to qualify as medical care but retains a strong focus on the physical body.<sup>161</sup> This dualism allows tax to maintain separate but superficially consistent approaches to human capital in the health and education spaces. A CRISPR credit, however, would bring tax close to arguments it routinely rejects<sup>162</sup> as applied to the physical body: namely, the idea that investments in the physical body should afford any type of recovery when they are understood as an improvement. As it thinks about the body, tax wants to behave as though the treatment of the body and the mind can be severed and that they can map neatly onto the repair/improvement spectrum used to guide cost recovery broadly. When the focus is on the physical body, tax pretends that what we take out of the income bucket is solely in the nature of a repair.

CRISPR, and the increasing understanding of genetics and epigenetics of which it is a part, blurs the line tax attempts to maintain between the mind and the body. A CRISPR edit to increase one’s ability to focus seems a change to the physical body that improves a capacity of the mind. And if epigenetics is correct that environmental conditions influence the expression of genes, the picture becomes even less clear as the lines between mind, body, and environment are blurred. Health law and policy have already embraced an understanding of the impact of social determinants of health—could and should tax do the same?<sup>163</sup> As CRISPR pushes back on the dualistic approach to the body currently embedded in tax it forces us to think differently about the body in tax in complementary ways. In such

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<sup>161</sup> Cf. *O’Donnabhain v. Comm’r*, 134 T.C. 34, 54–74 (2010). For a thorough discussion of *O’Donnabhain*, see Katherine Pratt, *The Tax Definition of “Medical Care:” A Critique of the Startling IRS Arguments in O’Donnabhain v. Commissioner*, 23 MICH. J. GENDER & L. 313, 322 (2016).

<sup>162</sup> Milot, *supra* note 83, at 1076 (“In more recent years, the human capital theory embodied in the argument that exchanges of human body materials cannot produce income has since been rejected by the courts. Instead, any proceeds received are included as income, and thus subject to tax, because they represent ascensions [sic] to wealth received by the taxpayer that are not excluded under the Code. These later decisions, though, leave open key questions about the proper characterization of this income and applicable holding periods.”).

<sup>163</sup> Matthew B. Lawrence, *Against the “Safety Net,”* 72 FLA. L. REV. 50, 65 (“Relatedly, health justice emphasizes both that social, economic, cultural, educational, and other determinants of health are as influential for a person’s health outcomes as the health care that they might come to receive should they get sick and that such determinants often cause inequities.”).

a reality, tax's tendency to look for clear lines in the space seems foolhardy.

If the body is something that technology can increasingly optimize (whatever that is taken to mean), that fact strengthens the idea that the body is something that can be invested in. If we are all cyborgs, we are, in some sense machines. But our bodies and their capacities are not the same as machines either morally or physically. CRISPR may, then, prompt us to rethink the analogy and the economic frame from which it stems. The CRISPR cyborg could serve to strengthen arguments to expand opportunities for recovering the cost of investments in human capital accumulation in health. Alternatively, CRISPR could weaken the appeal of the analogy itself—we may be able to modify our bodies in new, profound ways, but we are not machines—our lives are still finite and irreplicable. Tax, informed by this shift in view, might then move to change the current balance between the tax burdens on labor and capital to rest more heavily on the latter.<sup>164</sup> How tax *should* respond requires greater clarity and consistency in the goals and values that shape tax's approach to and understanding of the body.

## 2. *Tax, the Body, and Ability to Pay*

If the anticipated applications of CRISPR are fully realized, the nature of normalcy and disease, both of which are socially constructed, are likely to shift. And with that shift will follow a change in our understanding of the body and its capacities. In a system where the distribution of tax responsibility is based on one's ability to pay, measuring ability to pay is essential. Our chosen proxy for ability to pay is income. Considering how tax will respond to CRISPR highlights the connection between the tax understanding of the body and ability to pay.

Both § 213 and § 104 are intended, at least in part, to help measure ability to pay. We can (and do) disagree as to whether the justification for either or both provisions is grounded in doctrine—that is, neither damage awards nor medical care should be understood as properly

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<sup>164</sup> There is a robust literature on how our current tax system favors capital over labor. See, e.g., Edward D. Kleinbard, *The Right Tax at the Right Time*, 21 FLA. TAX REV. 208 (2017); see also Martha C. Nussbaum, "Whether from Reason or Prejudice": Taking Money for Bodily Services, 27 J. LEGAL STUD. 693, 693 (1998) ("All of us, with the exception of the independently wealthy and the unemployed, take money for the use of our body. Professors, factory workers, lawyers, opera singers, prostitutes, doctors, legislators—we all do things with parts of our bodies for which we receive a wage in return."); Crawford, *Pregnancy & Privacy*, *supra* note 83 (on the using up of one's body).

being placed in the income bucket—or what would commonly be referred to as social policy—that is, that both should be understood as income, but we decide to exclude them for some other policy reason.<sup>165</sup> To the extent compensatory damages are meant to make one whole, we are uncomfortable with including them in income (even if that implies some sense of recovery of capital).<sup>166</sup> In § 213, the earliest legislative history suggests Congress had mixed motives: a sense of sympathy as well as an interest in maintaining a minimum level of health and morale.<sup>167</sup> However muddled may be the rationales, there is a commitment to the idea that some baseline level of health is necessary, and that conditions or events that prompt departures from that baseline, if compensated for (§ 104) or remedied through outlays (§ 213), are not properly part of the tax base.

But tax has a baseline problem. It is neither clear what the baseline level of health is nor what that level of health is intended to support. At points, tax's idea of the body and baseline health seems bound up with the idea of the physical body as a physical laborer.<sup>168</sup> But § 213 does not premise exclusion on a connection to wage labor, at least not expressly so. Assume a woman has maltracking kneecaps. If she pursues knee surgery to make her kneecaps better track through the full expected range of motion of a knee, that is medical care, even if her pain is minimal, does not affect her work, and her primary motivation for the surgery is to realize her dream of hiking Kilimanjaro. What level of knee health establishes the baseline? Further, whose body makes up the baseline is not clear. Within § 213, for example, there is evidence of sexual identity discrimination.<sup>169</sup> And the labor of certain bodies is obscured or ignored in tax, such as unpaid caregiving work for children or the elderly.<sup>170</sup> The body in tax is, in fact, *bodies*; which is normative is unclear.

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<sup>165</sup> See generally William D. Andrews, *Personal Deductions in an Ideal Income Tax*, 86 HARV. L. REV. 309 (1972); Mark G. Kelman, *Personal Deductions Revisited: Why They Fit Poorly in an "Ideal" Income Tax and Why They Fit Worse in a Far from Ideal World*, 31 STAN. L. REV. 831 (1979); Thomas D. Griffith, *Theories of Personal Deductions in the Income Tax*, 40 HASTINGS L.J. 343 (1989).

<sup>166</sup> See discussion *supra* Part II.

<sup>167</sup> S. REP. NO. 1631-77 (1942).

<sup>168</sup> For examples of work discussing health as connected to labor and earning capacity, see Andrews, *supra* note 165; Kelman, *supra* note 165; Griffith, *supra* note 165.

<sup>169</sup> See sources cited *supra* notes 128–29.

<sup>170</sup> See McCormack, *supra* note 135 (discussing caregiving work); Martha T. McCluskey, *Taxing the Family Work: Aid for Affluent Husband Care*, 21 COLUM. J. GENDER & L. 109 (2011) (discussing gendered implications of the tax treatment of caregiving work); Dorothy A. Brown, *The Marriage Bonus/Penalty in Black and White*, 65 U. CIN. L. REV. 787 (1997)

A poorly defined normative body leaves tax rudderless as it reckons with difference. The normal/aberrant health/disease frame on which § 213 depends is not fixed. Widespread adoption of CRISPR may shift our understanding of normalcy, pathologizing that which is now considered health. Without a clear baseline informed by consistent values, tax could operate to subsidize the enhancement so vigorously opposed, and which it would currently exclude, from the medical care definition. Absent more careful work on the body in tax that would enable the area to be part of a deliberate regulatory response, tax may find itself playing the inadvertent role of CRISPR supporter.

The baseline problem of the body in tax creates inconsistencies in our approach to income measurement and, by extension, assessment of ability to pay. CRISPR may prompt a shift away from income as a proxy for ability to pay entirely, however, toward looking to the body itself. It is often said we have an industrial Code for a digital economy. What is usually meant by this statement is that our approach to the taxation of capital, for example, was built for an era when more capital was physical and, by extension, less mobile. The same saying may apply to the Code's understanding of the body. The CRISPR cyborgs of 2092 may exemplify modification of the body that upends our existing approach to ability to pay.<sup>171</sup>

The idea that we operate largely in a knowledge economy is somewhat overstated. The COVID-19 pandemic has driven home stratification of the character of work and the essential nature of so many whose work is considered physical in a way that is usually excluded from the concept of knowledge work. CRISPR may shift or reify that dividing line even further. If, as is currently assumed, the most lucrative work of the future is typically knowledge work, CRISPR's enhancement applications may be employed to boost individuals' success therein. As this shift intersects with the likely limited accessibility of the technology, we may find ourselves facing a society where some are conceived of as physical laborers and others as knowledge workers based upon our perceptions of their genome. That

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(discussing how the marriage bonus/penalty dilemma can impact labor in racialized ways); Patricia A. Cain, *Heterosexual Privilege and the Internal Revenue Code*, 34 U. San Francisco L. REV. 465 (2000) (discussing heteronormativity of the Code).

<sup>171</sup> For an exploration of how the Code currently conceives of disability and its relationship to ability to pay, see Theodore P. Seto & Sande L. Buhai, *Tax and Disability: Ability to Pay and the Taxation of Difference*, 154 U. PA. L. REV. 1053 (2006).



perception, in turn, may shape earning capacity and broad economic, social, and political power in self-perpetuating ways.<sup>172</sup>

Return to the difficult case of the child whose parents elected to use CRISPR to increase her ability to focus. That change gives her a competitive advantage in her school years and in the labor market. How does her ability to pay compare to that of an unmodified individual? Should it be measured by income or earning capacity as influenced by CRISPR modification? As applied herein, CRISPR may strengthen or renew policy arguments in favor of endowment taxation. Endowment taxation uses earning capacity rather than income as a proxy for ability to pay. As it may reinvigorate a concept of ability to pay which already has strong support, CRISPR also shifts the traditional liberty arguments against endowment taxation as it gives individuals more agency in shaping their endowments.<sup>173</sup> Folding in epigenetic considerations bolsters arguments that consider CRISPR uptake within social context—for example, with those who have financial resources to maximize market-favorable expression of genetic modification—to provide support for a privilege tax akin to that proposed by Professors Bruce Ackerman and Anne Alstott that includes some consideration of genetic modification.<sup>174</sup> But these observations tacitly assume a similar appetite for redistribution as is reflected in our current system and reform proposals. CRISPR may instead be deployed to amp up meritocracy claims and thereby weaken collective appetites for redistribution.<sup>175</sup> We cannot know how a future version of our society

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<sup>172</sup> There are parallels to this in our current understanding of what shapes inequality in society. There may also be a global dimension to this issue that is not unlike aspects of the relationship between the global north and south.

<sup>173</sup> For an introduction to endowment theory in tax, see, for example, Dan Shaviro, *Endowment and Inequality*, in *TAX JUSTICE: THE ONGOING DEBATE* (Joseph J. Thorndike & Dennis J. Ventry Jr. eds., 2002); Kirk J. Stark, *Enslaving the Beachcomber: Some Thoughts on the Liberty Objections to Endowment Taxation*, 18 *CANADIAN J.L. & JURIS.* 47 (2005).

<sup>174</sup> BRUCE ACKERMAN & ANNE ALSTOTT, *THE STAKEHOLDER SOCIETY* 158 (1999) (“Can tax law take any further steps to ameliorate, if not to eliminate, the consequences of these gnawing initial injustices? If this is the question, our new privilege tax is the answer. We propose to fund our program of citizens’ pensions by requiring each American to pay a tax based on the degree of privilege that she enjoyed during childhood. Our measures of unequal privilege will inevitably be crude, and this is one of the reasons that the privilege tax will be relatively modest. But it will have a progressive feature. A child born to unusual privilege will pay a higher tax than one born into severe disadvantage.”).

<sup>175</sup> See generally SANDEL, *supra* note 39. See also Walter Veit, *Cognitive Enhancement and the Threat of Inequality*, 2 *J. COGNITIVE ENHANCEMENT* 404 (2018); Gardner, *supra* note 62, at 74–75 (“The increasing variance in human ability would also change how meritocratic societies assign social rewards in ways that would benefit the able and, therefore, the enhanced. Meritocracies reward persons who have credentials and credentials

will understand the perceived differences CRISPR may create, but that understanding will have wide-ranging implications for the law broadly, and as this Part makes clear, even tax.

#### CONCLUSION: A NEW APPROACH TO THE BODY(IES) IN TAX

A new approach to the body in tax is needed. Examining the pressures CRISPR will place on tax and the questions it raises reveals how the impacts of the tax concept of the body (such as it is) extend far beyond provisions that expressly contemplate the body. And the full capacity of CRISPR need not be realized for the thin concept of the body and its role in the tax treatment of human capital and ability to pay to present real policy challenges. A future technology, then, illuminates a current problem. Neither a doubling down on economic theory of human capital nor a renewed commitment to accurately measuring income as a proxy for ability to pay present ready answers. We have rejected the human capital analogy for fear of its implications: basis in one's self, limitations on taxing wage income that it might imply, and the like. The cyborg may, oddly enough, show us that there has been too much emphasis on the *capital* of human capital and too little on the *human*.<sup>176</sup> We struggle with the body in tax because we have tried to both embrace some aspects of economic understandings of the body while also holding others at bay.

To craft a more robust approach to and understanding of the body in tax we must look beyond the usual players. Professor Tsilly Dagan proposes commodification theory as a potential way forward for thinking through how and whether to tax labor or bodily products.<sup>177</sup>

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are assigned based on social filters (test scores, school grades, performance evaluations, and the like) that respond to individual differences in ability (among many other factors). An increase in individual differences in ability will in and of itself cause these filters to measure ability more accurately, simply because it is easier to rank people when they are more widely spread apart. The improvement of the filters means that the credentials people hold will correspond more closely to the rankings of their abilities . . .”).

<sup>176</sup> And perhaps too little of the body in economics. MARIANA MAZZUCATTO, *THE VALUE OF EVERYTHING: MAKING AND TAKING IN THE GLOBAL ECONOMY* (2018) (discussing different understandings of labor once embraced by economic theory that reshape our notions of value and its sources). *But see* Jack Amariglio & David F. Ruccio, *Modern Economics: The Case of the Disappearing Body?*, 26 *CAMBRIDGE J. ECON.* 81 (2002).

<sup>177</sup> Tsilly Dagan, *Itemizing Personhood*, 29 *VA. TAX REV.* 93, 96 (2009) (“This article identifies four distinct ways in which tax law and commodification interact. *First*, tax law provides incentives that affect commodification: by taxing some items (e.g., barter) and not taxing others (e.g., friendly exchanges), tax law affects the incentives of taxpayers to commodify or decommodify their behavior. *Second*, tax law interacts with commodification through nonvoluntary realization: the fact that taxes are paid with money, rather than in kind, may pressure taxpayers towards the commodification of resources and attributes in

Professor Bridget Crawford offers privacy as a value that might better serve tax in answering some of the more difficult questions at the intersection of tax and the intimate bodily labor of surrogacy.<sup>178</sup> Feminist and vulnerability theories have generated another rich literature from which to draw to reshape the tax understanding of the body, as does human flourishing theory. Reimagining the body in tax in this way should be an interdisciplinary discussion. This Article offers an impetus and a beginning.

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situations where they may not otherwise choose to commodify. *Third*, taxation attaches a price tag to the item being taxed (in order to tax gifts or leisure, for example, we need to determine their monetary value). Monetizing some items devalues them because it assumes that their value can be reduced to monetary terms. *Finally*, taxation entails government involvement: the association of emotional, social, or psychological resources and interactions with the official, public, bureaucratic realm of government may transform them in ways that are similar to those challenged by the commodification critique.”).

<sup>178</sup> Crawford, *Pregnancy & Privacy*, *supra* note 83, at 356 (“Notwithstanding the current law, might there be something about surrogacy that makes it different enough from house painting that it is more susceptible to a constitutional claim to privacy? If one’s primary intellectual commitment is to treating reproductive labor identically to other types of labor, then surrogacy should be treated no differently from house painting. Neither the surrogate nor the house painter, each of whom engages in paid work, has a constitutional right to keep from the IRS any information about the taxpayer’s earnings. Like house painting, surrogacy—and indeed all employment—involves a choice about the use to which one will put one’s own body. But to take this position is to ignore the social and cultural reality that, in the estimation of many reasonable people, surrogacy is not just another form of employment. Rather, it is an arrangement with deep moral implications. Participating in a surrogacy arrangement, whether as an egg donor, intended parent, gestational carrier, or representative of a surrogacy agency, may invite scrutiny from one’s friends, family, or community.”).

