
Handbook of Genomics, Health and Society

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Chapter 13

The value of the imagined biological in policy and society

Somaticizing and economizing British subject(ivitie)s

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Introduction

Attending the World Economic Forum this past week, I was struck by two trends. The first was that brain research has emerged as a hot topic. Not only was brain science or brain health a new theme at the meeting, research on the brain emerged in discussions about next generation computing, global cooperation, and even models of economic development as well as being linked to mental health or mindfulness. In a meeting frequented largely by economists and business leaders, I was surprised by the number of non-scientists who have become enchanted by brain science. Clearly this is the era of the brain, with mental health now part of a much broader discussion.

(Insel, 2015)

Thomas Insel, former Director of the US National Institute of Mental Health, wrote the above following his recent attendance at the World Economic Forum. Part of his regular and public-facing ‘Directors Blog’ series, Insel’s comments are illustrative of how the biological has come to be situated within a range of economic regimes – how it has been “economized.” In particular, through talk of an “era of the brain” (or of genes, or of epigenetics), chains of value-generation are conjured, instantiated, and replicated in ways that present the (imagined) biological as promissory matter (Brown and Kraft, 2006). This presentation can in turn act as a platform for the production of symbolic and financial capital via careful sociotechnical tinkering and positioning within the laboratory, the clinic, and the market.

Scholarship in science and technology studies has often focused on the “lively capital” (Sunder Rajan, 2012) that can be generated through newly and re-configured relationships between life, science, and business. Martin and Nightingale (2004), for instance, have shown how an imaginary of a “biotech revolution” has powered investment and attention toward extracting value from the soma, in the UK and beyond. This is even in the absence of “outputs” that have kept “pace with [this] increased research and development spending” (ibid.: 564). Concurrently, a wealth of careful social scientific and historical analyses have attended to an

expansion of private-sector innovation in the realms of pharmacology, biobanking, tissue engineering, and so on.

Yet, the economization of biology exceeds the development of products, patents, and markets. As Insel's comments suggest, in a range of nations value is also extracted from bodies via the brains within them; in particular, through psychological techniques and personalized social interventions aimed at promoting mental health, enhancing wellbeing, and augmenting responsible citizenship. On this basis, it is not a challenging task to characterize populations as having come to include – or be focussed on generating – increasingly prosocial and content (or at least, decreasingly unsatisfied) individuals. Within such analytic sketches, the governance and subjectification of these agents could be considered to better optimize them for the generation and accumulation of wealth.

Characterizations like the above are as compelling to some as they are disturbing to others. In this chapter, I seek to move beyond sweeping celebrations or castigations to illustrate some of the ways through which soma and economy are articulated. Following a broader overview, I focus on UK programs of governmental intervention into the early development of children. I note how the (purported) modulation of the soma through parental practices and state welfare is increasingly framed as linked to societal costs and value. The concerns of this chapter can perhaps best be characterized not as with the body proper (Lock and Farquhar, 2007), but rather with the *imagined* biological. A range of assumptions and anticipated understandings underlie articulations of genes, brains, and bodies in diverse cultural arenas (including within the sphere of biomedicine itself). Together, these configure a discursive “biology” that does not necessarily have a direct and linear relationship with its fleshy referent, and may at times seem quite distant to it.

Plastic fantastic

The creation of capital is often associated with the plasticity of the (imagined) biological. To put this in a straightforward manner: wealth is commonly realizable through the transformation of biology from one kind of thing into another, with the product made being more valuable than the substrate. Indeed, the biology of the workforce is itself very much subject to economic attention. The notion of plastic bodies that are responsive to changing workplace conditions (temperature, humidity, light, and so on) has for quite some time featured within the calculations of those who design and manage the built environment of zones of production. An article in US business magazine *Fast Company*, for instance, communicates this clearly through its headline, “Want more productive workers? Adjust your thermostat” (Friedman, 2012). In the piece, we are informed that not only do offices that are too cold mean that workers have “less energy available for concentration, inspiration, and insight,” but they are also more likely “to perceive others as less generous and caring.”

Conceptions of psyche and society are often included within assemblages of capital and bodies, and in discourses upon both. In particular, they are constructed as exerting somatic effects, and in turn impacted by biological change. In a sense, subjectivity is somaticized, but the (imagined) biological too can be shaped by agentic action and processes of subjectification. Psychological techniques such as mindfulness meditation, for example, are regularly regarded as working on the psyche through the brain, affecting this changeable organ in ways that enable agents to better adapt and respond to stressful situations (as *Forbes* strikingly illustrates in their article, “7 Ways Meditation Can Actually Change the Brain”; Walton, 2015). Further, new meta-discourses are emerging – such as “neuromanagement” – where, for instance, research is being urged into the neural processes underlying operational decision-making, with a view to further enhancing workplace productivity (Bian et al., 2012).

The biological at play within straightforward economic contexts – sites of manufacture and assembly, and of the financial and legal services that enable these to expand – is amorphous and flexible (see also Martin, 1994). It is constituted through wide-ranging academic studies of, and popular tropes regarding, varied bodily attributes and limitations, as well as enduring accounts of dynamic brain–body relationships. The plastic brain is especially important: as the site of worker subjectivity, and as a modulator of (un)productive bodies in response to the environment in which they are situated. The somatic, the psychic, and the social interweave in such accounts in complex and compelling ways.

British brains

As an observed and assumed reality, the malleability of biology remains key to a wide variety of economized practices. Within a range of nations, the plastic biology commanding some of the most intense cultural attention is perhaps the brain. Epigenetics is also increasingly visible within popular discourse, and intrigue around genetics endures. It is not unusual for somatic narratives to converge, with popular discussion linking together themes from neuroscience and epigenetics to wider societal concerns; for example, around the (potential) intergenerational effects of illegal drug use.

In the UK, the neurological is frequently configured as plastic. Education, for instance, has been one key site where neuroscientific technologies and concepts can be found. This includes wider discussions of development, as well as in educational policy and the classroom per se – including through the use of brain training games. In the substantial press coverage that the latter technologies have attracted, the possibilities of change, optimization, and enhancement across the life-course are commonly emphasized (Pickersgill et al., 2017). Within popular culture, behavioral shifts (such as during the teenage years) have been linked to a mutable neurology that changes over time (Choudhury et al., 2012). This is in response to external entities such as stimulants, as well as intra-bodily processes. The imagined biological might often emphasize the brain, but shifts between other icons of somatic concern also feature prominently. In particular, hormones continue to find cultural traction and are often interwoven with neurological accounts – such as in news items about the effects of testosterone on the brain (see e.g. Rainey, 2017).

The assumed plasticity of children’s (and others’) brains has come to focus the minds of many policymakers. In a range of social policy settings (e.g. addictions policy, older adult care, and so on), the mutability of the imagined (neuro)biological has been configured as a source of societal and economic value (including through intervention as a cost-saving measure). Much policy attention – as well as debate within social work and beyond – relates to the “early years.” Generally, this term is taken to mean the first three years of a child’s life (or “the first thousand days,” as these are more commonly referred to in the United States, for instance). As we will see, the policy praxis regarding the early years intertwines established tropes of British civil society – e.g. citizenship, the economy, and welfare reforms – with imaginaries of neurological plasticity assembled, in part, through the international scientific literature.

Early life

The early years have been deemed by successive UK governments as salient in determining children’s futures. The ‘Sure Start’ policy program, introduced by Prime Minister Tony Blair’s Labour government, was a key initiative that firmly fixed attention on the social and emotional development of children. This formed part of a wider policy agenda to support “vulnerable

young people” (Secretary of State for Social Security, 1999: 5). Specifically aimed at families living in socio-economically deprived contexts, the Sure Start program featured centers with educational activities for children and parents. These included play facilities for the former and child care and other support – such as debt counselling – for the latter. In Westminster and beyond, the program was commonly deemed a success, with one House of Commons Committee charged with scrutinizing policy in this area describing Sure Start as “innovative and ambitious,” as well as “solidly based on evidence that the early years are when the greatest difference can be made to a child’s life chances” (House of Commons, 2010: 3). The initiative evolved into a more universal program of Children’s Centres in 2003 (Lewis, 2011) and varying degrees of support for children’s services have continued under Conservative Prime Ministers David Cameron and Theresa May.

While state social services continue to be deemed important by recent governments, policy discourse has come to be increasingly permeated with themes of individual responsibility for the rational choices citizens are believed to make. The production of responsibility – to oneself, one’s child, and to others, all with the aim of optimizing individuals and communities – has been a feature of speeches and reports that often express an idiom of somatic plasticity (Broer and Pickersgill, 2015a). Such themes were exemplified in David Cameron’s “Life Chances” speech (January 11, 2016):

[O]ne critical finding [from neuroscience] is that the vast majority of the synapses[,] the billions of connections that carry information through our brains[,] develop in the first 2 years. Destinies can be altered for good or ill in this window of opportunity. On the one hand, we know the severe developmental damage that can be done in these so-called foundation years when babies are emotionally neglected, abused or if they witness domestic violence. [...] On the other hand, we also know – it’s common sense – how a safe, stimulating, loving family environment can make such a positive difference [...] So mums and dads literally build babies’ brains [...] I believe if we are going to extend life chances in our country, it’s time to begin talking properly about parenting and babies and reinforcing what a huge choice having a child is in the first place, as well as what a big responsibility parents face in getting these early years right.

The comments above underscore the importance of the imagined biological, placing considerable onus on parents to “build babies’ brains” the *right* way (and, indeed, introducing the capacity to do so). In part, the post-Blair services that continue to be provided to families appear aimed precisely at developing the capacity to enact such individual responsibilities.

At a policy level, the mechanisms through which intervention in family and social life is thought to enable economic enhancement often relates to (somewhat diverse and mutable) neurobiological processes. In general, the brains of developing children are judged susceptible to environmental insult; accordingly, the immediate environment of a child is presented as salient to modulate. The mother is seen as of paramount importance, with her parenting practices regarded as shaping (or even constituting) that environment. These practices commonly become the subject of the intervention, which targets the (imagined) biological with the aim of – ultimately – benefiting society.

Under the current (2017) Conservative government, relevant social services can involve professionals working closely with pregnant and post-partum women, helping them to access employment and support, to look after and interact with young children, and to make an assortment of “positive choices.” Political drivers have often been around the savings to “the taxpayer” that early intervention is argued to make. As one House of Commons Library

Briefing paper pointed out, “in addition to the social rationale for intervention, advocates of early intervention policies and programmes often cite the economic advantages in terms of cost savings to the public purse. This is based on the premise that early, preventative interventions deliver results for significantly less money than later, reactive interventions” (Bate, 2017: 12).

The mutable somatic

The imagined biological at stake in early intervention policies and practices largely relates to the brain. Yet, reflecting the ontological mixing so characteristic of articulations of plastic biology, genes too are important players in enjoinders to invest in and expand services aimed at the early years. Within policy documents, the infant genome has, for example, been presented as a significant producer of adult (neuro)biology, and is often framed as somewhat “fixed” (though new discussions about epigenetics have begun to recast this contention, as discussed below).

These themes are strikingly conveyed within the (in)famous “Allen Report” – i.e., Member of Parliament Graham Allen’s “Early Intervention: The Next Steps” (Cabinet Office, 2011). For example, the report quotes two paragraphs from a 2007 working paper produced by the National Scientific Council on the Developing Child (based at Harvard’s Center on the Developing Child) to advance an understanding of brains as designed by – but not wholly attributable to – the genome:

Just as in the construction of a house, certain parts of the formative structure of the brain need to happen in a sequence and need to be adequate to support the long-term developmental blueprint. And just as a lack of the right materials can result in blueprints that change, the lack of appropriate experiences can lead to alterations in genetic plans. Moreover, although the brain retains the capacity to adapt and change throughout life, this capacity decreases with age.

(Cabinet Office, 2011: 12)

Environmental inputs, then, impact the brain initially patterned by the genome. Such inputs might be social or chemical, although exposure to chemicals (like nicotine or alcohol) is often reduced to the result of discrete choices made by contextless individuals who feature predominantly in children’s lives (often, mothers). The metaphor of genome as blueprint is, of course, a familiar one within Anglophone society (Nerlich et al., 2002), and has helped to convey a notion of biological inevitability and fixity. In the quotation above, the metaphor has been skilfully elaborated, precisely to unsettle these meanings and to present biology as plastic. In this way, the (well-recognized) trope of the linear gene is intertwined with a new story about the importance of the brain in/and society. The result is a montage of familiarity and novelty that has stimulated investment (e.g. into early intervention services) in ways that make straightforward cultural sense.

Within both policy and services aimed at the early years, the stabilization of attachments between parents and children is commonly held to be salient. Drawing from work in developmental psychology (most notably Bowlby [1969], 1999), attachment theory underscores the necessity of physical and psychological closeness between adults and their offspring, in order to develop the emotional regulation of the latter. In contemporary social policy and programs aimed at enhancing parenting practices, attachment is frequently described through a neuro-biological framework. As in the Allen Report, across the UK it is common to read and hear about what is apparently a “growing body of evidence that adverse emotional and social experiences in infancy alter the architecture of the brain itself” (Furnivall, 2011: 5).

Within Scotland, which in a post-devolution context has an enhanced capacity to forge its own policy conversation about the early years, discourse around attachment and young people resonates with the psychosocial discussions that took place within and beyond the UK Labour government through their Sure Start and Children's Centre initiatives. In particular, the promotion of a neurobiologically informed notion of attachment as a mode of addressing deprivation and its interpersonal effects seems often to be considered a goal in and of itself (e.g. Furnivall, 2011). Nevertheless, the focus of the Scottish government on antisocial behavior has shifted toward the responsabilization of the child and their individual behavior (Tisdall, 2006), and hence discourse around childhood development must be considered as part of a broader policy ecology. Within the wider UK, the emphasis at a policy level of promoting attachment and building better brains often foregrounds the economy and the wider social and capital costs of failing to intervene. Of course, practitioners themselves might well be focussed on similar social democratic ideals to those constitutive of many children's services in the 1990s and early 2000s. Yet, the aforementioned Allen Report, for instance, constructs a financial burden to encourage investment: "every taxpayer pays the cost of low educational achievement, poor work aspirations, drink and drug misuse, teenage pregnancy, criminality and unfulfilled lifetimes on benefits" (Cabinet Office, 2011: x). Consequently, we can see that the neuropsychosocial discourse of attachment has come to be articulated in diverging – if not necessarily distinct – ways, further underscoring the mutability of the imagined biological.

Toward epigenetics?

Although (shifting) ideas about a plastic biology are of evident significance to early intervention policy and practice, it is also striking that policy and service actors can be critical of how, and the extent to which, somatic notions impact discourse and initiatives (as discussed in more detail in Broer and Pickersgill, 2015b). Within social policy spheres more generally, there is likewise – on occasion – recognition of the partiality of, and contestation surrounding, much of the biological knowledge circulating therein. We might usefully speculate whether this is, in part, related to the introduction of the scientific vocabularies, idioms, and metaphors documented above that trouble taken-for-granted biological ideas (*ibid.*). In essence, the layering of new (neuro)biological truths on top of somatic narratives relatively recently regarded as novel and valuable themselves (such as the "gene X for behavior Y" discourse) could, perhaps, be potentially destabilizing of the epistemic credibility of biomedical research *per se* within particular contexts. After all, if the veracity of prior certainties is now to be called into question, it is not surprising that newer knowledge is somewhat reflexively adjudicated (especially if it calls into question existing professional practice; cf. Pickersgill, 2011).

More generally, the fact that terms and concepts from neuroscience and genetics exist within policy reports or the accounts of those who develop new services does not necessarily imply fundamentally new kinds of social praxis. Rather, novel articulations of the imagined biological potentially reify policy paths already mapped or trod. Of course, reification itself can be regarded as a new social process, and the marks a reified extant policy might leave on the communities and subjects it touches cannot be dismissed.

By suggesting limits on the import of biology in the context of early intervention, I have no desire to dismiss the significance of the development of – or, maybe, the return to – a conception of sociality that is in some sense capable of leaving a somatic trace (Pickersgill, 2014). Rather, the import of the (imagined) biological seems in some sites to be growing, not receding. In particular, in the case of early intervention, ideas associated with epigenetics are becoming gradually more visible. A 2010 report by the Centre for Excellence and Outcomes in

Children and Young People’s Services, for instance, notes how epigenetics “is now suggesting the environment, especially during pregnancy and very early childhood, activates or silences good and bad genes crucial for mental well-being and social adaptation.” Some scientists have themselves urged new connections between biology and social policy: biologist Michael Meaney, for example, has hypothesized that epigenetics research could benefit early intervention practices by showing how “different biology may require different levels of interventions” (Meaney, 2014). Epigenetics, then, provides a route back to notions of the importance of genetics, while still enabling a plastic narrative of development that allows for intervention in ways that highly deterministic framings of genetics have struggled to accommodate.

Some of the greatest excitement around epigenetics within British policy communities pertains to how heritable epigenetic changes might be, and especially modifications that have significant phenotypic effects. Within Scotland, epigenetics research has been cast as a means through which to shed light on the widening of gaps in the health and wellbeing of the citizens of Glasgow (for instance, by the influential former Chief Medical Officer and member of the Scottish Government Council of Economic Advisers, Harry Burns; Scottish Parliament, 2013). Such a framing again points to the political plasticity of the mutable imagined biological. This essay opened with straightforward descriptions of capital-extraction and value-generation, and progressed to discuss regimes of early interventions that are today associated with particularly individualistic political rationalities. However, neurobiological and epigenetic notions also have traction in arguments for redressing various kinds of inequality. The possibilities of plasticity seem to be endless, and a kind of pragmatic enthusiasm remains considerable (if not unending).

Conclusion

In this chapter, I have sketched out some of the ways that the imagined biological interacts with various kinds of economizing processes and economic calculations. We have seen how political discussion and early intervention policy instantiates and expands an economized understanding of infancy and development (e.g. the costs of poor infant attachment are deemed to have clear and calculable socio-economic effects, such that social welfare can be presented as a cost-saving measure rather than an end in itself). Biological notions – particularly as emerging from neuroscience and (epi)genetics – can play key rhetorical and practical roles; for instance, they have been used by politicians and those working in social care to authenticate and grow various kinds of state interventions and personal responsibilities. The actions of individuals are regarded in such contexts as impacting aspects of the soma, with varying implications for the spending and saving of capital.

Within social policy and beyond, genes might sometimes be seen as fixed, with only the somatic structures and functions they coded for – such as the brain – subject to imposition by the environment. At the same time, popular narratives on epigenetics allow for the actions of genes themselves to be presented as malleable, providing new sites through which the social might exert its effects. As the biological levels upon which personhood is imagined to be constituted are increasingly pluralized – a plurality that relates to the proliferation of formal bioscientific vocabularies and their circulation within societies – so too do the varieties and ontogenies of plasticity that can be operationalized within policy and practice (e.g. that aimed at the early years). The multiplicity of perspectives ensure that the imagined biological is itself plastic: bodies are understood to shift and change, and those understandings are shifting.

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