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Subject of innovation or : how to redevelop 'the patient' with technology

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1 Object formation

Innovation as an object of inquiry

In this first chapter, I examine the first mode of subjectivation that I introduced before: the notion of forming people in relation to different forms of inquiry. This may sound somewhat vague at first, but I will attempt to clarify matters. The stake of this chapter is to examine how the ‘object’ of inquiry is related to the formation of a particular subject. In his earlier work, in which objects of inquiry are discussed, Foucault did not explicate this relation to subjectivation. As I said in the introduction, he did discuss this earlier work in such a light toward the end of his life. In this chapter, I try to give more body to this.

One of the questions that Foucault asked in his book *The Archaeology of Knowledge* (1972) is how an object of inquiry is ‘formed’. As I said in the introduction, it seems that there are modes of inquiry that would probably not be considered as part of the scientific field, such as governmental gathering of data on public health. Nevertheless such ‘practical’ inquiries are often closely related to the development of related sciences. With respect to innovation, for instance, it is clear that it is an object of study within a wide range of scientific disciplines – from engineering to business studies, from economics to sociology. More recently, innovation studies is positioned as a discipline of its own (Fagerberg & Verspagen, 2009). At the same time, it is an object for different public institutions, such as the European Commission and the OECD, but also the Dutch Public Health Council and the Ministry of Healthcare.

Foucault always took a historical approach to his studies, but has changed his angle considerably over time. I will not describe all the features of abandoning his ‘archaeological’ method for a ‘genealogical’ one, but do want to stress again that his histories are ‘histories of the present’ (Foucault, 1977, p. 29), rather than histories of the past (see also his essay ‘What is Enlightenment?’ in Foucault, 2007b). They are histories that aim to contribute to our understanding of how a phenomenon in our time was constituted. For this chapter, this implies that I am interested in the constitution of innovation as an object of inquiry in Dutch healthcare.

Foucault argues that such objects are discursively formed, even though he would later probably have argued that they are constituted in power relations. In order to study how this formation takes place, there are a number of

points to consider (Foucault, 1972). First, we must study the *surfaces of emergence*, the places where objects are delineated, where boundaries are set. In the context of this chapter, this mostly implies whether the object of innovation was given shape within businesses, academia or in government. The place where formation takes place tells us something. Second, we must study *authorities of delineation*, the institutions that support a particular understanding and demarcation of the object. We could think of influential journals, but also organisations, or broader institutions like the law. Finally, there are the *grids of specification*, the systems according to which the different aspects that relate to an object are classified. Foucault uses the different kinds of madness as an example. In addition to the latter, French sociologist Pierre Bourdieu (1991) stipulated that also the methods that we use for our inquiries will inevitably form the object. Even the use of random sampling for a survey frames the object in a particular way. I use the combined focus of Foucault and Bourdieu to examine how the object of innovation in healthcare was formed, and how this relates to the subjectivity of the care recipient.

In the framework of this study, it makes sense to look at the interrelation of object formation and subject formation from the point of view of technology. In this respect, there is an interesting parallel between Pierre Bourdieu's and Bruno Latour's work. Latour started off as an anthropologist of science (Latour & Woolgar, 1986; Latour, 1987). Just like Bourdieu, he paid attention to the role that instruments play in researchers' work. In Latour's excavations, however, such instruments and tools are treated as artefacts that act on the research work, much like the human analyst who is also part of the team (Latour, 1999). This implies that we may regard them as techniques or technologies, in the broad sense that I outlined in the introduction. As such, they may be considered as being endowed with a script, which *may have been* purposefully inscribed. It is not my intention to provide a Latourian anthropological account of the role of specific forms, tools or other instruments that play a role in measuring healthcare innovation. Nevertheless, I do consider them as techniques with a particular script in my discussion. This will come up at the end of the chapter.

I perform the analysis in a number of steps. I start by a short overview of the different traditions of thinking about innovation, examining where they emerged, what authorities support them and what methods they use in their inquiries. I also discuss the impact of neoliberalism on the innovation discourse. The discussion of these traditions in relation to neoliberalism will be important from the point of view of postpanopticism, as I try to show. Second, I assess which of these traditions can be recognised in the way innovation was adopted in Dutch healthcare policy. Third, I examine concrete inquiries of healthcare innovation in the Dutch context. Particularly in this last

part, I relate the formation of the object to the formation of the subject. Due to the scope of this chapter, I use secondary material for my discussion of the traditions of innovation research. The situation of Dutch healthcare is based on a study of policy documents.

Forming the object of innovation

Joseph Schumpeter (1883-1950) is usually credited as the founder of innovation studies, even though he was certainly not the first to use the term (Sundbo, 1998). Nevertheless, his work was an exception in a period in which studies of technological change were mainly associated with invention (Godin, 2010a). In fact, it was Schumpeter who delineated what innovation is, by juxtaposing it with invention. The creation of such demarcation lines is an important way of forming the object.

If we want to discuss innovation studies as a discipline, it makes sense to take the 1960s as a starting-point (Fagerberg & Verspagen, 2009). Nevertheless, the pre-history of the formation of innovation as an object of inquiry is strongly dependent on the earlier work on invention. Retrospectively, these studies are often shared under the umbrella of innovation studies (Godin, 2010a). The object emerged at various 'surfaces': it was constituted across disciplinary borders, particularly when applications of innovation are taken into consideration. However, the majority of theorising seems to stem from economic science. This particularly holds for the point of view of this chapter: the formation of the object of innovation in Dutch healthcare. A more general history of innovation studies should obviously include other contributions as well. Much of this overview is based on the emergent 'intellectual history of innovation' that Benoît Godin is composing (e.g. Godin, 2006; 2008; 2009a; 2009b; 2010a; 2010b).

Godin provides one of the most comprehensive categorisations of traditions in the innovation studies field, which is suitable for this discussion, despite its (purposeful) high level of generality. There would be the following traditions: 'that of mainstream economists concentrating on (the adoption or **introduction** of new) processes in industry (technological change), and that looking at (the invention and **commercialization** of new) products (technological innovation)' (2010a, p. 29, original emphasis).

The first tradition: mainstream economics

For understanding the first tradition, mainstream economics, we have to examine how innovation was adopted in the historical current of thought of the discipline. In *The Order of Things*, Foucault (2002) examines this history. His claim is that modern economics started around the turn of the 18th and 19th century by making labour its prime object. Up to then, the predecessors of what would become political economy were primarily concerned with measuring the exchange of wealth. Foucault claims David Ricardo (1772-1823) to be the first to turn to the study of labour as it would be done in modern economy. Adam Smith had acknowledged before him that labour is 'analysable into days of subsistence [and] can be used as a unit common to all other merchandise' (Foucault, 2002, p. 254). Ricardo, however, added to this that labour is not just a unit for calculating value, but that it is 'the source of all value'. Value had become a product that has its origin in labour.

Godin argues that before Schumpeter 'economic thoughts [*had*] existed for over a century on 'machines' and their effects on employment (Ricardo, Sismondi, Marx). It is in line with this tradition that technological 'invention' began to be studied in the 1920-30s' (Godin, 2010a, p. 10). The prime characteristic of such studies, which would develop into the way innovation would be conceptualised in mainstream, neoclassical economics, was that it was connected to labour productivity. It had long been acknowledged that technologies could play a role in the production function of a company. By adopting new technologies in the production process, labour could be partially replaced, or be made more efficient. This implies that innovation was defined as *input*, and labour productivity as *output*. Godin argues that '[f]rom the 1960s, technological change, defined as substitution of labour for capital as factors in industrial production, became the economists' category rather than invention' (2010a, p. 20). Godin considers two think tanks to be important *surfaces of emergence* for this tradition: the National Bureau of Economic Research (NBER), founded in 1920, and the RAND corporation, founded in 1946. Particularly the 1960 NBER conference was an important place for such ideas to develop. Still, the way innovation has been treated in mainstream economics is often interchangeable with what used to be called invention (Godin, 2010a). The term innovation was often considered to be too subjective and sociological for economic science, considering that a good deal of perception is involved. This shows a main difference between mainstream economics and Schumpeter, who argued that '[t]o the economist, the study of invention is of interest to the historian only: invention is an act of intellectual creativity and 'is without importance to economic analysis' (Schumpeter quoted in Godin, 2010a, p. 14).

The use of neoclassical models in mainstream economic thought about technology and innovation has often been challenged by scholars from the Social Studies of Technology (SST) discipline. Williams and Edge argue that 'neo-classical economics has an 'instrumental' approach - tending to assume that technologies will just 'appear to order', in response to the demands of the market at any one time' (1996, p. 871). The notion of 'technological instrumentalism', which is sometimes also denoted as 'social determinism', implies that technology has no essence. As such, it can be used by humans as they please. This approach is often juxtaposed with the notion of 'technological determinism', the idea that technology is characterised by an innate dynamic that pushes social processes (see also Achterhuis, 2001; Verbeek, 2005).

The second tradition: evolutionary economics

The second tradition of innovation studies, to which Godin refers, developed outside of mainstream, neoclassical economics. In a sense, it is particularly the distinction between invention and innovation that makes the difference. Innovation was now conceived as the (first) commercialisation of inventions. Rather than being considered as *input* to a production function, it was to be considered as its *output*. The development of this way of thinking can be observed in the gradual construction of what would later be called the 'linear model of innovation'. Godin (2006) argues that the notion of a four/five-stage process (basic research → applied research → development → (production) → diffusion) is unjustly attributed to Vannevar Bush, the author of the blueprint for post-war US science policy (Bush, 1945). In fact, the model does not even appear in his report. Instead, the model was iterated over time by several disciplines. Again, the *surfaces of emergence* play an important role in the way this object was formed. Natural scientists linked basic and applied research, researchers in business schools added the notion of development and economists, finally, added production and diffusion to the equation. Rather than Bush, Godin (2008) considers W. Rupert Maclaurin as the first to introduce the model as a whole, in 1953. It is interesting to note, however, that Maclaurin was an economic advisor to Bush. Nevertheless, in terms of object formation it is still relevant to observe that policy followed research in this respect.

Even though the 'second tradition' started off from the notion that innovation is the commercialisation of the inventions that come out of the research sector, it turned against the idea of the linear model (Sharif, 2006). Along with scholars in the Social Studies of Technology (SST) tradition, the

linear model was judged to reflect a form of 'technological determinism' (Williams & Edge, 1996).

Non-mainstream, evolutionary economists like Richard Nelson, Sidney Winter and Christopher Freeman firmly placed innovation on the agenda. Their work caused the reappraisal of Schumpeter's work, particularly considering the abandonment of studies of invention. Some even go as far as labelling the second tradition neo-Schumpeterian (Verspagen, 1992). Nevertheless, there are important differences between Schumpeter and these more recent economists. Godin (2010b) argues, for instance, that Freeman 'put words in Schumpeter's mouth' when saying that the latter had defined innovation as commercialisation. Again, Maclaurin ought to be given this credit (Godin, 2008).

Apart from the focus on innovation as an *output*, evolutionary economists re-formed the object by the idea of studying the system *behind* the innovation, by their National Innovation System concept. Freeman studied the development of such systems over time. He focused on 'its growing complexity, the increased scale of processes, and the specialization of research work' (Godin, 2010b, p. 9). The idea of focusing on systems is a way to overcome 'linear-model type thinking' (Sharif, 2006, p. 762). Innovation diffusion is studied as an 'inter-related whole', rather than as a 'passive, mechanical process in which a given technology is gradually spread to a population of potential adopters' (Fagerberg, 2003, p. 139). This is another way of distinguishing a particular understanding of the object from others. Particularly Bachelard (2002) is known for studying the impact of using metaphors or holistic conceptions. The second tradition sets itself apart by covering more ground, by stressing the complexity of the object and by criticising the mechanistic approach of the other tradition.

One of the most important differences between the two traditions lies in the question of how innovation is measured. This relates to Bourdieu's work on the formational impact of different methods. First, there is the question of *how* measurements were constructed. Apart from the argument that technical change was largely rejected by economists before WWII because of a 'preoccupation [...] with employment and business cycle problems', Freeman gives the lack of quantitative data as a reason (1994, p. 463). Before the 1960s, statistics regarding invention and innovation were mostly non-standardised (Godin, 2010a). In such cases, inquiries necessarily followed what was available in practice. Afterwards, there have been different ways of standardising such measurements. Godin (2006) claims, for instance, that the linear model remained so influential, due to the fact that it was translated into statistics, by the OECD for instance. At the same time, however, the OECD developed into the main *authority of delineation* to propagate the gathering of data that were

deemed valuable in the second tradition (Godin, 2009a; Mytelka & Smith, 2002). A number of the scholars from the second tradition obtained positions in the organisation. Interestingly, the OECD institutionalised both strands of thinking (Sharif, 2006).

This brings us to the second question, which regards the *type* of measurements that would be performed. In terms of the first tradition, that of mainstream economics, it will not come as a surprise that productivity indicators were of prime importance. Godin shows that

‘[b]y the 1960s, productivity, which was considered a measure (proxy) of technological change in the 1930s, came to be seen as an effect of invention: research and development (R&D) as input gives rise to productivity and profitability. Economists began to correlate R&D with productivity measures’ (2010a, p. 21).

The type of statistics that were gathered in evolutionary economics, and by the OECD were of a different nature. Freeman’s note that mainstream economists were too occupied with employment (Freeman, 1994) gave way to measurements that were not focused on labour productivity. Instead, indicators were proposed that would measure the functioning and evolution of innovation systems. We might think of ‘indicators of output like papers, patents and high technology trade; and indicators of impacts like the technological balance of payment’ (Godin, 2010a, p. 24). The second tradition turned to descriptive statistics, rather than to the econometric ones that dominated mainstream economics. Such statistics have significant reproductive power: these indicators were not only used for measuring innovativeness, but also for stimulating it.

SST scholars have acknowledged the attempts of evolutionary economists to ‘open up the black-box’ of technology, in order to reflect the complexity of its construction. The idea that technologies are essentially constructed is posited as an idea that aims to overcome the deterministic views I mentioned earlier. Nevertheless, some evolutionary concepts are still judged to be overtly deterministic in terms of their focus on the autonomous development of technology. Williams & Edge (1996) particularly refer to (early) work by Christopher Freeman and Giovanni Dosi on technological paradigms and trajectories to illustrate this. Particularly because of the near-autonomous role they attribute to technology, however, their work differs strongly from the instrumentalism of neoclassical economics that I referred to earlier.

Innovation and neoliberalism

A final point that I want to make in terms of thinking about innovation is the influence of neoliberalism. This is not to suggest that innovation is a central point to neoliberal analysis, or that neoliberalism falls together neatly with one of the two traditions that I have outlined. However, there are certain relations between innovation theory and neoliberalism that will be an important factor in this study.

Foucault did not live to see the influence of politicians like Margaret Thatcher and Ronald Reagan, who are now often associated with the rise of neoliberalism in the 1980s (see e.g. Rabinowitz & Holm, 2009; McNay, 2009). In his study of this development, Foucault (2008) looked at the ideas of particular schools of economic thought, which preceded this development. In particular, he examined the Freiburg, Austrian and Chicago school.

In this work, he pointed at the relations between the entrepreneurial tenets of innovation theory and the rise of neoliberalism. He argues that 'the series of works on the enterprise by Weber, Sombart, and Schumpeter actually support the neo-liberal analysis or project' (2008, p. 147). It is questionable, however, whether Schumpeter was an influence on neoliberal thought, as Foucault claims. Rather, he seems to be a contemporary who deals with similar questions. Foucault's assertion is that Schumpeter's establishment of the entrepreneur in economic theory provided the argument for neoliberal economists to apply the model of entrepreneurship to nearly everything. Jones and Spicer argue that 'entrepreneurship has bled out of its heartland in small business fantasies and motivational seminars and has stained nearly every aspect of public life' (2006, p. 179). Their claim is that the birth of the figure of the entrepreneur should in fact be considered as a next stage of the development that Foucault described in economic thought, after renaissance, the classical and modern period.

If we look at the neoliberal schools that Foucault discusses – Freiburg, Austria and Chicago – there are certainly relevant parallels with the innovation discourse. Competition and entrepreneurship are key characteristics, particularly for the Austrian school, to which Schumpeter belonged (Jacobson, 1992; Bianchi & Henrekson, 2005). It would be too easy to conflate neoliberalism and the type of neoclassical economic theory that I have described here under the mainstream tradition, as some do (e.g. Sharif, 2006). Particularly the Austrian school did not adopt the idea that economics is to be studied from the point of view of an equilibrium situation (Jacobson, 1992; Van Horn & Mirowski, 2009). Nevertheless, the notions of price competition and the assumptions of perfect knowledge and rational agents are shared features

of both strands of thought. As such, neoliberalism is much closer to the tradition of innovation in mainstream economics.

The place of neoliberalism in the innovation debate will become clearer when the differences with the second tradition are explained. Particularly evolutionary economists have voiced their long-standing 'fight' against neoliberalism (Sharif, 2006, p. 753). Apart from the focus on price competition and rational choice, other differences of opinion lie in the way in which economic developments can be measured, and in the role that is attributed to public policy. Already Schumpeter had conceived capitalist competition as technological competition, rather than as price competition (Fagerberg, 2003). For Schumpeter, competition between entrepreneurs was not merely something that ought to be considered as part of the production function. He argued that entrepreneurship could not be measured quantitatively, in order to compare it to a particular output (Bianchi & Henrekson, 2005).

This is strongly related to the second point: the refusal of theories of perfect information and rational choice by evolutionary economists (Godin, 2010b). Some in fact consider Schumpeter as the father of 'irrational choice' (Prisching, 1995). Evolutionary economics introduced the notion of bounded rationality in their thinking about innovation (Verspagen, 1992; Fagerberg, 2003).

This is related to a third difference between the 'second tradition' and neoliberal thought: the question of measurement. Considering the assumptions of rationality and perfect information, different neoliberal schools applied econometric models to analyse the profit-maximising behaviour of innovative entrepreneurs (Jacobson, 1992). The Chicago school, with influential thinkers like Milton Friedman, in fact turned the principle of studying entrepreneurial competition into a 'mathematical science' based on modelling (Sharif, 2006). Partly because of the refusal of the assumptions that neoliberal thinkers take, evolutionary economists stuck to descriptive (non-econometric) statistics of inputs and outputs of innovation. This opposition in methodology is important to understand the different ways in which the object is formed.

A fourth, and final, difference that I want to highlight here is somewhat ambiguous, i.e. the role that is attributed to public policy. The basic argument is that the evolutionary tradition places greater emphasis on policy intervention in innovation than the mainstream tradition (Godin, 2010b; Freeman, 1994) and neoliberalism (Sally, 1996; Sharif, 2006). This goes back to a dispute between Schumpeter and Eucken, a representative of the Freiburg school, which Foucault discusses in his study of neoliberalism. Schumpeter argued that socialism was to a great extent inevitable, considering that he observed that society developed increasingly in this direction (Foucault, 2008). Innova-

tion would be the only way to safeguard capitalism, by means of his famous thesis of 'creative destruction'. Unless innovative sectors destroyed less productive sectors in society, institutionalisation and the formation of monopolies would continue. Nevertheless, Schumpeter thought that socialism and democracy could go together to some extent (Meyer, 2005). For the Freiburg school, by contrast, this was unthinkable. The notion of direct state intervention was considered to be fundamentally incompatible with its ideal of individual freedom (Sally, 1996). The same applies to the libertarianism of the Chicago school (Sharif, 2006). Foucault refers to this as 'state-phobia' (2008, p. 76). From this point of view, the focus on governmental intervention in innovation that evolutionary economists propose is rather at odds with these neoliberal views. Nevertheless, Foucault presents a convincing alternative. Even though he notes the resistance against direct political intervention in economic life, he particularly positions the notion of an active state as a key feature of the neoliberal schools he discusses. This is based on a difference of opinion with classical liberalism with regard to the question of freedom. Neoliberals no longer belief in Adam Smith's 'invisible hand' that will steer the market to equilibrium. Foucault summarises the neoliberal argument as follows:

'Clearly innovation will not come from the laws of the market, it will not take place in the market itself since economic theory shows that, by definition, the market must function in such a way that its pure mechanisms are in themselves regulative of the whole. So we do not touch the laws of the market but act so that institutions are such that these laws, and only these laws, really are the principle of general economic regulation and, as a consequence, of social regulation. The consequence of this is no economic interventionism, or a minimum of economic interventionism, and maximum legal interventionism' (2008, p. 167).

This leads to the seemingly contradictory idea that control is needed to assure freedom. This is one of quintessential features of postpanopticism, as I explain in the next chapter. Foucault says that '[l]iberalism must produce freedom, but this very act entails the establishment of limitations, controls, forms of coercion, and obligations relying on threats, etcetera' (2008, p. 64). In fact, Foucault regards the libertarian views of the Chicago school as the most extreme in this respect, arguing that they propose the 'strategic programming of individuals' activity' (Foucault, 2008, p. 223). He moves on to suggest that innovation is connected to a general view of investing in 'human capital'. He argues that

'[i]f there is innovation, that is to say, if we find new things, discover new forms of productivity, and make technological innovations, this is nothing other than the income of a certain capital, of human capital, that is to say, of the set of investments we have made at the level of man himself' (2008, p. 231).

What we see here is a connection of innovation to the general topic of productivity, but as the result of a new 'paradigm': the investment in human capital. This will be of some importance for the discussion of subjectivation, below.

Innovation in healthcare

Having given a brief overview of the thinking about innovation, I now proceed to examine how this notion was adopted in political discussions about Dutch healthcare. Innovation policy in healthcare was first labelled as such around the turn of the 21st century, even though it already existed in practice before. This policy is part of a longer discussion on the economisation of this policy domain. I briefly introduce this (for a more thorough discussion, see e.g. Grit & Dolfma, 2002; Helderma et al., 2005), before turning to the topic of innovation. For the economisation discussion, the issue of pricing is a returning point of debate. Even though it would certainly be possible to discuss the general formation of healthcare economics in relation to scientific developments in that area, I only do this for the more specific topic of economic thought and healthcare innovation. After providing a general overview of innovation policy in healthcare, I discuss the constitution of a number of particular measures that show how innovation in healthcare is framed.

Introducing the economisation of healthcare policy

The Dutch healthcare system developed gradually since the early nineteenth century (Grit & Dolfma, 2002). It generally fitted within the social insurance-based 'Bismarck' system of healthcare financing, which was practiced in most continental Western European countries. The major alternative was the tax-based 'Beveridge' model that was introduced in the UK and in Northern and Southern Europe (Grielen et al., 2004). The Dutch system was known for its organisation in ideological and confessional 'pillars'. This lasted up to the

1960s (Helderman et al., 2005). In contrast to the introduction of National Health Systems in countries that followed the Beveridge approach, the Dutch health system developed incrementally. The main exception was the introduction of a general sickness fund in 1941 (Helderman et al., 2005).

While the first decades after WWII are considered 'corporatists', aiming at expanding universal access, the 1970s and early 1980s were characterised by 'etatism' that aimed at cost containment (Helderman et al., 2005; Mur-Veeman et al., 2003). The increase of state involvement also implied that the influence of ministries such as finance, social affairs and economic affairs increased. One of the main measures of the mid-1980s was the replacement of an open-ended reimbursement system for hospitals by global budgeting systems. Hospitals were financially encouraged to reduce the number of beds occupied. Dissatisfaction with the effectiveness of the state-driven approach led to calls for a more market-oriented approach.

The 'economisation' (Grit & Dolfsma, 2002) of Dutch healthcare is generally said to have started with the 1987 report of the Dekker committee. Using quantitative instruments as a measure of control, particularly by means of price setting and financial 'incentives', was an important angle of the proposal. Helderman and others argue that 'The fact that Dekker, former chief executive of Philips, led the committee was [...] a signal of the new times: businessmen instead of politicians or medical professionals had authority' (Helderman et al., 2005, p. 391). Others argue that, in contrast to the UK for instance, 'in the Netherlands it is the government, which is seen as the 'wicked man'' (Mur-Veeman et al., 2003, p. 239). The Dekker proposal suggested an approach that was more in line with the neoliberal current of politics that was common at the time. As Grit and Dolfsma put it: 'Markets, management, entrepreneurship and consumers became the prominent concepts and terminology in the domain of health service' (2002, p. 390). The main conception was to have a mandatory health insurance scheme, in combination with regulated competition in order to increase efficiency. The Dutch approach of introducing a regulated market is often contrasted with attempts to introduce an 'internal market' in an otherwise public system, as it happened in the UK, Finland, Italy and Sweden (Oliver & Mossialos, 2005). The previous system of cost-based reimbursement of sickness funds would be replaced by a prospective risk-adjusted system. Similar to the innovation discourse, the notion of entrepreneurial competition is introduced here. This would be enhanced by allowing citizens to switch between sickness funds. This system implied that health insurance companies would gain influence in steering the healthcare economy. They would be left free to negotiate contracts with healthcare providers of their liking. Price control was less and less considered a governmental affair.

In the early 1990s, the not-yet-executed Dekker plan was refurbished in the Simons plan, which was commissioned by the new centre-left government. Simons was the then-vice minister of healthcare. Even though the Simons plan was largely similar to the Dekker plan, more emphasis was placed on equity and the option of a national health insurance scheme. Helderma and others argue that, '[p]aradoxically, the Social Democrat Simons had become the defender of market-oriented solutions against the employer associations that promoted even tougher supply-side regulation' (2005, p. 198). In the end, Simons resigned. Nevertheless, some of the proposals of the original plans were introduced. The subsequent 'purple' cabinets (social-liberal-conservative) were somewhat reluctant to try their hands on radical reforms after the failure of the Dekker and Simons proposals (Mur-Veeman et al., 2003). Nevertheless, pricing was reorganised. Most importantly, the fee-for-service for medical specialists was replaced by a lump-sum payment to hospitals. In terms of the earlier discussion on using competition for enhancing productivity, this measure was considered to work in the opposite direction. In relation to the ongoing debate on the productivity and quality of care, the Dutch liberal-conservative magazine *Elsevier* started rating the quality of hospitals in order to stimulate quality increase (Grit & Dolfsma, 2002). By then, performance measurement already had somewhat of a tradition in healthcare (Smith, 2005).

The opposition that this measure received was an argument to revert the lump-sum pricing approach, by introducing a standardised payment model called Diagnosis Treatment Combinations (DBC) in 2003. This implied that a price-tag was put on 'all activities and services in a hospital associated with a patient's demand for care' (Helderma et al., 2005, p. 204). Such DBCs are framed in a model oriented towards entrepreneurship and competition, and are subject to negotiation between care providers and insurance companies. This was predated by a new competition law in 1998. Grit and Dolfsma argue that

"[s]ocietal entrepreneurship' was a concept that sprung from the economic discourse, an (attempted) translation of the economic discourse into another context. The concept implies a particular attitude and work method for the care sector. The National Council for Public Health (RVZ 1996) started to promote the hospital as an enterprise, albeit working on a regulated market' (2002, p. 392).

The first decade of the 21st century was characterised by major reforms again. In fact, many proposals that were finally implemented were very similar to the original Dekker report (Helderma et al., 2005). Apart from the DTC (DBC)

pricing system, the main principle was the strengthening of the economic influence that patient demand could exert. The introduction of an experiment with personal budgets in the 1990s was an important factor that stimulated further change. For particular chronic conditions, patients could apply for a prospective budget that would be allocated to them directly, rather than receiving care 'in kind' (Grit & Dolfsma, 2002; Kremer, 2006). This system was expanded considerably, to include other types of eligible conditions, and was promoted to extend its reach. The introduction of a new Social Support Act (Wmo) in 2007 established part of this scheme as an element in municipal care provision. The year before that, a new health insurance act was introduced, which effectively implied privatisation. Even though health insurance remained mandatory, the traditional public 'sickness funds' were abolished. Also this reform aimed to enhance competition, public choice and consumerism, by promoting patients to switch between insurance providers and policies more than before (Maarse & Ter Meulen, 2006; Mur-Veeman et al., 2003).

The political formation of innovation in healthcare

Finally, I can turn to the question of the formation of the object of innovation in Dutch healthcare policy. I illustrate how this occurs at the interplay of academic studies of healthcare and innovation, and healthcare policy. I particularly explain this in relation to the two traditions of innovation research I describe earlier, with the additional influence of neoliberal economic thought. I argue here that ideas about *innovation in healthcare policy* generally correspond to the tradition of mainstream economics (Godin, 2010a), with additional neoliberal elements. On the other hand, there are also ideas about the *effects of general innovation policy on healthcare*. These ideas often fit better in the second tradition of evolutionary economics. In this study, however, I mainly focus on the former. Only in chapter seven, I touch upon elements of the latter.

Innovation, as an object in healthcare policy, was introduced at the beginning of the 21st century. Considering the strict limits of my focus, the *surface of emergence* is the small network of public or political institutions that influence Dutch healthcare policy. Over the past decade, a number of reports have appeared in political discussions that have placed their mark on the formation of this object. First, there was the foundational study *Technological Innovation in the Healthcare Sector* by the Public Health Council (RVZ, 2001). After that, particularly the report *Care for Better! Faster better, Innovation and*

*ICT in curative care*¹ by Ad Scheepbouwer, the CEO of Dutch telecommunications corporate KPN, was highly influential and on-topic (Scheepbouwer, 2006). The letter to parliament by then-minister of healthcare, Ab Klink (Christian-democrat), on *Innovation in Prevention and Care* (Ministerie van VWS, 2008) provides a further framing of the issue.

The 2002-report by the Advisory Council on Health Research, *Squeaking Links: Technological Innovation and Healthcare* (Raad voor Gezondheidsonderzoek, 2002), deserves particular attention. It is an example of a report that discusses the effects of 'general' innovation policy on healthcare. Indeed, it fits better in the evolutionary tradition of innovation studies (Godin, 2010b). The reason for this seems to be that the study was commissioned by three ministries: economic affairs; public health, wellbeing and sports; education, culture and science. This different angle is also acknowledged within the discourse. The Public Health Council clearly demarcates its approach *vis-à-vis* this report:

'The [Advisory Council on Health Research]-advice will mainly aim at advancing innovation in the Netherlands from the points of view of health research and economic activities. The [Public Health Council] focuses on the care sector as user and/or customer of innovation' (RVZ, 2001, p. 15).

This angle, of focusing on innovation as *input* rather than as *output*, is central to the 'technical change perspective' (first tradition) that is generally taken in the discourse I am studying.

A first logical step in terms of examining which tradition of innovation studies is followed here is to look at references to theory. From this point of view, the foundational study by the Public Health Council is particularly important. First, Rogers' diffusion of innovations-model is discussed. Second is the notion of technological determinism. Technologies are considered determinist in the sense that they are often developed abroad. However, it is added that 'it is possible to steer a development when one is part of the innovation process' (RVZ, 2001, p. 23). On the other hand, it does not seem to be the same as the neoclassical idea that technologies just 'appear to order', in response to the demands of the market at any one time' (Williams & Edge, 1996, p. 871). Also Schumpeter's notion of creative destruction is referred to,

¹ There are a number of puns in this title. The word 'care' can both refer to healthcare, and to the notion of 'taking care' that things improve in a more general sense. The word 'better' can both refer to improvements in healthcare and to 'better health'.

but it seems that the opposite is imagined to apply to healthcare. The council argues that:

‘[t]he care sector absorbs technological innovations selectively. If they form a threat to the position of care providers, they are less likely to embrace the innovation. But if they strengthen this position, they are more likely to be in demand. In that respect, it may be argued that the care sector has exchanged Schumpeter’s creative destruction for creative conservation’ (RVZ, 2001, p. 57).

We can learn more about the way of thinking by examining what is expected of innovation. The entire Public Health Council report (RVZ, 2001) can be read as a lecture on the benefits of innovation. Costs are also acknowledged, but not focused on, because this is what commonly happens, according to the council. This is an important demarcation. I can distinguish roughly three areas in which benefits are expected: care provision, public health and the economy at large (RVZ, 2001; Scheepbouwer, 2006; Ministerie van VWS, 2007a). This shows how an otherwise economic way of reasoning is embraced in a healthcare context. Even though ‘health’ and ‘care provision’ are closely related, it seems important to note how they are set apart in policy documents. With respect to care provision, it is expected that quality will improve, that it will be more efficient, that work conditions will improve and that it will be more accessible. With respect to health, life expectancy would increase, as well as general wellbeing. It is the improvement in care provision that influences the improvements in public health. When it comes to economic benefits, cheaper products are mentioned, general increase of welfare in the sense of economic growth, increased labour productivity and decreasing costs of labour. There is a presumed causal link: innovation in healthcare causes improvement of care provision, which causes better public health, which in turn boosts the economy. In reference to the tradition of mainstream economics, it is important to note that the themes of labour and productivity form a red thread through the benefits of innovation discussion. There is an interesting relation with human capital, but not in the same way that Foucault describes it for his analysis of neoliberalism. In this case, innovation is regarded as an investment in human capital, rather than the other way around.

There seems to be agreement on the question of what prohibits innovation. Different factors are distinguished (RVZ, 2001; Scheepbouwer, 2006). Most of them relate to the structure of the healthcare sector. First, the sector is considered to be too fragmented. The Public Health Council speaks of ‘partitions’ within and between sectors. Care providers are considered to have too

much power, both compared to patients and to technology providers. On top of that, there are incentives that prohibit innovation, e.g. relating to the way physicians' rates are constructed. Particularly when financing was still arranged by lump-sum budgets for hospitals, the benefits of investments in innovation were often not considered. This has been a long-standing discussion, as I showed in the section on economisation. All of this contributes to a conservative culture, which is also observed among politicians.

There is general agreement that government does not innovate, but that it has an active role nevertheless. Government does not consider its policies as innovations, nor are they described as innovative. Government's view on its role can be summarised by saying that it should create the framework in which innovation can happen. In 2008, the then-minister of healthcare (Christian-democrat) argued that 'the field innovates, government sets boundary conditions' (Ministerie van VWS, 2008, p. 4). Government sets up the 'rules of the game' (RVZ, 2001, p. 9), creates infrastructures and, most importantly, restructures the system in such a way that innovation is no longer prohibited by the barriers I described before. This way of approaching the role of government is exactly in line with my earlier description of neoliberalism: governing-at-a-distance.

Unsurprisingly, concrete policy measures are mainly dedicated to overcoming the earlier-mentioned prohibitions. The main angle is to restructure healthcare financing in such a way that pro-innovation incentives are instated (Scheepbouwer, 2006; Ministerie van VWS, 2001a; 2008). What happens here is that the general debate on the economisation of care is connected to innovation. Health insurance reform is directly linked to the 'innovative capacity' of the healthcare sector (Ministerie van VWS, 2001a). Personal budgets do not only grant more power to patient demand, but can also lead to improved market operation, which may 'imply an impulse for product innovations on the bordering areas of living and care and care and wellbeing' (TK, 2001/2002a, p. 3). Other than that, long-term care was de-institutionalised and the standardised Diagnosis Treatment Combinations structure was instated. This is supposed to enhance competition and entrepreneurship for care providers, and to create a proper regulated market based on critical consumption (Scheepbouwer, 2006). The fragmentation of the sector should be overcome by integrating supply chains and networking in general (Ministerie van VWS, 2008). Technical infrastructures with open standards are supposed to spur innovation, such as the Electronic Health Record (Scheepbouwer, 2006; Squarewise, 2006). A healthcare innovation platform is installed as a coordinatory body (Ministerie van VWS, 2008). Finally, a cultural shift should be made from 'sickness management' to 'health management', even though it is not clear how that should be done (Scheepbouwer, 2006).

Three techniques that 'measure' healthcare innovation

In my discussion of the innovation studies discipline, I have tried to show that the establishment and institutionalisation of statistics and other indicators played a major role in giving shape to the different traditions. The same applies to the way the object of innovation is formed within the context of Dutch healthcare policy. Particularly at this level of concrete indicators, it is possible to show the interconnectedness of scientific and political developments.

Since the inception of the innovation discussion in healthcare policy, only indicators for measuring the *economic* output that is generated by innovation are discussed. In line with the tradition of mainstream economics, these measurements are exclusively aimed at understanding the effect of innovation on labour productivity. Despite the expectations with respect to improvement in public health and care provision, no indicators are proposed for non-economic measurement. Improvements in care provision are expressed as improved productivity of medical workers, and improvements in public health are measured as 'health profit' in terms of additional productive years. In the remainder of this section, I discuss three concrete measurements.

A first indicator is used to assess the productivity of care provision as a result of innovation. It is important to note that this is still a measurement of the output *of* innovation, rather than measuring innovation *as* output (Godin, 2010a). The Diagnosis Treatment Combination (DBC) system is rather important here: in order for an innovation to be eligible in the 'healthcare market', it needs to be allocated a DBC (RVZ, 2002a; Scheepbouwer, 2006; Ministerie van VWS, 2008). This is an interesting combination of healthcare and innovation discourse. The DBC system is based on the existing notion of 'Diagnosis Related Groups' (DRG). This prospective financing system was developed in the United States in the late 1970s (Horn & Schumacher, 1979; Fetter et al., 1980). It was adopted by Medicare in 1983. The development of a Dutch version of this system started mid-1990s and was implemented in 2005 (Oostenbrink & Rutten, 2006). A main difference is that, in the Netherlands, there are around 30.000 DBCs, whereas there is usually a maximum of a few hundred DRGs. This makes DRGs and DBCs rather different tools, if we examine it from the angle of Bourdieu's work. On top of that, the DBC measure has a rather different meaning if it is set in the context of an innovation discussion. Such approaches are in principle set up to connect the patient to resources. In the Dutch innovation context, what is added is that innovative treatments can only be funded if they are allocated a 'combination' (DBC). In order for this to occur, the added value of the treatment needs to be *authorized* by the Dutch

Healthcare Authority (NZa). An organisation called DBC Onderhoud is developing a system of indicators to assess such performance. They argue on their website that ‘innovations have to be included in a DBC system, otherwise these will have a problem with funding’ (DBC Onderhoud, 2011). This shows how a measurement of innovativeness and of medical performance can be united through a construct that indicates productivity. The way this occurs in practice shows the use of techniques in greater detail:

‘An innovation is roughly characterized by Cost Effectiveness Ethics Patient preferences and System [Kosten Effectiviteit Ethiek Patiënt preferenties en Systeem] (= Keeps). When evaluating an innovation application, these characteristics are tested using the KEEPS test. A committee of specialists carries out the KEEPS test and, on the basis of its findings, it formulates an advice regarding your application for the Board of DBC-Onderhoud’ (DBC Onderhoud, 2011).

This KEEPS test is a particularly designed technique for measuring innovation from a health economy point of view. Apart from that, the organisation mentions other instruments, such as a ‘quick scan’, ‘multi-criteria analysis’ and a ‘test protocol’. From the description of these methods, it is clear that all of them are performed by means of questionnaires, tables, systems of codes and other forms of classification that are inscribed with a particular view on assessing the productivity of healthcare innovations. As such, I consider them as techniques with a script that push healthcare practice in a particular direction.

The second technique is not so much a measurement, as a form of classification. It introduces consumption, but not in the sense of consuming innovation as a product. Innovation is positioned as a way to introduce competition, which would change the basis for the consumption of the output of innovative care services. This is one of the places where we see the impact of neoliberalism. The Public Health Council argues that:

‘[c]ompetition that aims at quality and efficiency requires the development of a structure in which care providers are stimulated to show that their innovative ways of work enable them to reach better results than average. Objective information can support the consumer in choosing the best and most efficient care provider’ (RVZ, 2006, p. 63)

Important to note is that the proposal implies the productivity of certain functions, rather than that of a particular profession. This refers to the notion of 'Function-oriented description', a technique that has its roots in the Dekker plan (RVZ, 2006). Even though this is not a clear measurement or inquiry, it is still meaningful if it is regarded as a method of applying classifications within the healthcare sector. 'Functional budgeting' was introduced in 1988 (Maarse, 1989). In particular, however, the Public Health Council refers to the notion of a functional description of the care to which people are entitled on the basis of their health insurance policy. This was introduced with the recent reform that privatised health insurance, with the objective of enhancing entrepreneurship and consumerism. The Council argues that '[t]he aim of the function-oriented description technique is [...] to take patient demand into account, to enable more competition between care providers, to make space for innovation and, in general, to enhance efficient care provision' (RVZ, 2006, p. 87). The neoliberal assumption of a free and rational choice is strongly reflected in this way of thinking. However, as we can see, this free choice is somewhat staged. In the next chapter, I return to this postpantopic way of thinking. This description technique is not supported by a similarly wide range of tools and instruments as we saw for the DBC system. Nevertheless, we may consider an insurance policy that is inscribed with a 'functional logic' as a technology that is expected to evoke a particular behaviour of the patient-subject. It shows that indicators are not only a measurement of the output of innovation, but a stimulator at the same time.

The third, and final, measurement I discuss here relates to the enhanced productivity of the population. Due to the assumed improvements in care delivery, public health is expected to improve as well. Even though no indicators are mentioned in the political discussion that measure health improvement directly, there is a broad discussion of a way to measure the economic impact that it has. The point is to find a way to juxtapose the financial cost of an innovative treatment and its benefits:

'For innovations that (partially) increase the quality of care, an issue is to map out all the relevant costs and benefits of a particular treatment or provision of care. For costs, next to financial costs, one can also consider the pressure on the patient, the burden of the intervention, adverse reactions, etc. With respect to benefits, apart from possible financial benefits, such as the decrease of absenteeism, mainly improvements of the patient's health are concerned. Quantifying health profit is not easy. Usually, this is expressed in so-called Quality Adjusted Life Years (QALY): the number of life years that are gained by the treatment, multiplied by a factor that

expresses the average quality of these gained life years [...] Another problem is how to compare the QALY-value with the financial costs and benefits. A 'straightforward'-approach is to connect a price tag to a QALY, a gained life year (RVZ, 2001, p. 57-58)

The QALY technique has been around in academia since the 1970s. The term is based on earlier measurements (Zeckhauser & Shepard, 1976). It is often performed by applying a scale, ranging for '0' for death to '1' for a completely healthy year. Here, again, we can see the notion of investing in human capital appear. As I said before, unlike in Foucault's analysis of neoliberalism, innovation is seen as the investment, rather than as the output of it.

On the basis of Bourdieu's and Latour's work, we can argue that even such a basic method has implications for the way in which an object is formed. Also this very basic calculation is a technique, an artefact. A similar measurement, entitled 'disability-adjusted life years (DALY)' was popularised by the World Bank in its 1993 World Development Report (RVZ, 2001). Just as for the Diagnosis Treatment Combinations and functionally described insurance policies, we see an example of a measurement that was common in health economics, which was later appropriated for purposes of serving the innovation discourse. Again, the innovation context changed the meaning of this measurement. Even though it was always a means of evaluating the performance of particular treatments, now it is presented as an indicator of the innovativeness of medical professionals. This shows again how the object of innovation was embedded in a long-standing discussion on healthcare productivity. At the same time, the case of healthcare fits rather well in the way mainstream economists approach innovation. The addition here is based on the question of how the formation of the object of innovation relates to the constitution of the patient as a particular subject.

Discussion and conclusions

If I sum up the above, I would argue that innovation is linked to healthcare through a shared focus on productivity. A linear logic seems to be applied to the relation between innovation, health and the economy. Innovation is expected to increase the productivity of health delivery, as a result of which public health would improve. As a result of that, people are expected to become more productive.

I have tried to show that there is more to this than just a way of reasoning. A number of techniques are installed to realise a way of approaching

innovation in healthcare according to the tradition of mainstream economics, with neoliberal elements. With Latour, we can question if such efforts will indeed manage to create a 'durable' configuration. I return to this question in Part 3 of this study, even though this will rather apply to the reality-effects of concrete pro-innovation policies than to these inquiries.

The linear logic that I outlined leads to a twofold subjectivation of the patient. Just like it remains to be seen if the 'innovation configuration' that was outline here will prove durable, we can ask the same about the subjectivation of the care receiver. In following chapters, I present a number of layers to develop this question.

The twofold subjectivation that I present here forms the starting-point for further excavations. On the one hand, the patient is expected to assume the role of *critical consumer*, spurring on the productivity of care providers by his/her critical gaze. This is mainly based on the assumption that the 'function-oriented description' technique will probe people to adopt such a role. The influence of neoliberalism is clearly observable here. We could call this way of conceptualising the care receiver the 'principal subject', in the sense that (s)he is expected to operate in a principal-agent relation with his or her care providers. On the other hand, the patient is subjected to an economic discourse that aims to constitute him/her as a *productive member of society*. This is mainly based on calculation techniques of economic value, such as the Quality-Adjusted Life Years. I will call this way of framing the care receiver the 'human capital subject'. In order to understand this subjectivation properly, I had to invert Foucault's relation between innovation and investing in human capital. In a sense, innovation *is* the investment, rather than the output of it.

There is an awkward discrepancy between these roles, these subjectivities. In both cases, the discourse voices strong expectations of the patient: to survey the productivity of others, in the first case, and to be productive, in the second. There is an importance difference, however. The patient as a critical consumer is placed in a power relation with healthcare providers, which is not the case if (s)he is merely a productive member of the population. Question is if this split subjectivity will develop as a split personality.

We have reached the end of Part 1. In terms of the 'Foucauldian outline', I questioned subjectivation from the point of view of different 'modes of inquiry'. With the twofold subjectivation of the subject, we have a good starting-point to examine other types of subjectivation. In Part 2, I continue by analysing subjectivation in attempts to re-shuffle societal power relations, and materialising these in technology. An important line in the discussion

will be the way in which neoliberal ideas about 'staged freedom' define postpanopticism.

In terms of the 'healthcare innovation outline', I have so far examined the way in which innovation entered political discussions on healthcare. Some of the techniques that I have described as modes of inquiry in this chapter have in fact implied rather substantial policy changes over the past decade. In Part 2, I continue this line of discussing pro-innovation policies. However, I will take an example that is potentially 'closer' to the personal life of care receivers: the electronic health record.

