Moral Accounting Matters

A history of behavioural governance: 1800-1945

1. Summary of the research plan

Over the past decades, rational choice and consumer autonomy, two of the central tenets of post-war economic theory, have become challenged by developments within the scientific and policy realm. Behavioural insights from economists and psychologists are mobilized to nudge individuals to behavioural change in domains that transgress the sphere of the merely economic. New technologies enable the tracking and tracing of individual behaviour in different spheres of life with similar aims of behavioural change in the alleged individual or public's best interest, as in the much-discussed Chinese Social Credit System, or to curb behaviour in the interests of businesses such as Google and Facebook. Based on knowledge about individuals, these scientific and technological developments remap an individual's decision space, posing obvious questions about interference in the private sphere and the meaning of liberty and self-control.

Programs to control and modify an individual's behaviour are of course not new nor limited to states. Jeremy Bentham's panoptic project is a well-studied case in point. Paradoxically, as historians of economics have observed, Bentham's theory became foundational for the micro-economic theory which put the rationality and autonomy of the consumer at centre stage. This was made possible by purifying Bentham's theory from its hedonic behavioural foundations. But this also meant that the tools and instruments Bentham conceived to track and trace the behaviour of individuals vanished from view.

Historians of economics have analyzed the history of theories of rationality to the present day but have lost sight of the accounting instruments that guided individuals in decision-making. Behavioral economist and economic Nobel memorial laureate Richard Thaler even claims we only have indirect access to an individual's mental accounting rules, ignoring the importance of the material tools of accounting altogether. We take a different, historical approach. We aim to bring back the tools and instruments that track and trace an individual's behaviour into our understanding of an individual's processes of deliberation and choice. Such tools consisted, amongst others, of daily planners, diaries, or (household) accounts. They served to improve deliberation and choice by building character. Moral accounting is the use of tools and instruments with the purpose of improving one's behaviour and decision-making. The **purpose** of this proposal is **to trace the untold history of moral accounting to understand the creation of the modern economic agent**.

Our **method** consists of **three historical case studies that rely on archival research and text-analysis.** The first case study is situated in Geneva around 1800, where a Franco-Swiss group of pedagogical reformers, strongly influenced by Bentham and Benjamin Franklin, develops tools to track and trace an individual's character and conduct on a daily basis. The second is situated halfway the Victorian period, when psychologist Alexander Bain recommends accounting tools for rational deliberation and women are trained in moral accounting for their personal and family health. The third case study turns to the American Progressive Era, when a grassroot movement of (women) scientists and pedagogues develops experimental and statistical programs to teach women how to prudently manage household consumption.

Our three case-studies cover the history of moral accounting from Bentham until the modern economic agent takes hold at the dawn of WW-II. It will result in a history that so far has escaped the eye of historians and economists. By showing the importance of the accounting structure that accompanies individual behavioural and decision-making processes, it sheds new light on contemporary discussions in economic philosophy and behavioural economics about the interrelations between choice infrastructures and individual choice. Moral accounting matters. Rationality and consumer autonomy are not natural kinds, but the result of a historical trajectory in which choice and behaviour were moulded by its enabling tools and technologies. For the Genevan case a public website is envisioned that documents the involvement of Franco-swiss pedagogues and social reformers in this historical trajectory.

2. Research plan

2.1 Current state of research in the field

This proposal is motivated by recent policy initiatives in Western and non-Western countries with substantial implications for the private lives of billions of citizens. The first is the introduction in China of a so-called Social Credit System (SCS), a system that aims to measure the moral creditworthiness of Chinese citizens and that will serve the government to influence an individual's behaviour by a system of rewards and penalties for an individual's deeds (The State Council (PRC) 2014). The second is the rapid worldwide spread of policy initiatives based on the idea of "nudging" the behaviour of individuals by designing "choice environments" that aim to protect individuals against damaging lifestyle choices to thus improve overall social welfare and growth (Whitehead et al. 2014; Pykett et al. 2017).

Both policy initiatives use new technologies, such as lifestyle apps and social media, and new scientific insights to change the behaviour of individuals for the alleged personal and public good. These new scientific insights stem from cognitive psychologists and behavioural economists who, with all differences between them, claim to have shown that individuals make mistakes that can be corrected in their own best interest. Both policy initiatives and scientific developments thus challenge what became one of the central tenets of liberal economic and political thought after the Second World War, that individual decision makers are best placed to make their own informed decisions. While the Chinese system is generally considered to intervene in and even suppress the autonomy of the individual agent, western nudging initiatives are considered by their proponents to salvage consumer autonomy by introducing choice environments that invite but do not enforce individuals to improve their choices. In contrast with the Chinese SCS, initiatives from the Cameron and Obama administrations in the early 2010s to establish policy institutes that aim to change the choice behaviour of individual citizens, have been received with wide acclaim. In just a few years these initiatives have led to a worldwide explosion of similar private-public policy institutes and governmental policies (Whitehead et al. 2014; Pykett et al. 2017).

Building on the scientific insights of cognitive psychologists and behavioural economists, these so-called "nudge-units" design welfare enhancing policies that promise to improve human decision making on a wide range of subjects (Halpern 2010, 2014, Halpern and Nesterak 2014, Sunstein 2014). These initiatives prominently refer to *Nudge: Improving Decisions About Health, Wealth, and Happiness* (2008), the bestseller by 2017 Nobel memorial prize laureate Richard Thaler and Harvard law professor Cass R. Sunstein. "Nudge" quickly became a household word for policies affecting different spheres of life that largely transgress the traditional boundaries of economic policy. Broadening the scene, a rapidly increasing number of profit and not-for-profit life-style apps claim the beneficial use of behavioural insights to similarly improve—optimize–individual choice behaviour (Fourcade and Healy 2016, Kool et al. 2015, Lupton 2016, Sharon 2015, Sharon 2017a, Sharon and Zandbergen 2017, Ajana 2018).

This proposal argues that we need to see such scientifically informed initiatives for behavioural change and control in a wider historical perspective to understand the co-development of infrastructures of behavioural tracking and behavioural change. In what follows I will first expand on two different kinds of criticism that have been raised against one of the central underpinnings of contemporary initiatives for behavioural change, behavioural economics. I will put these critiques against the wider issue of the nature of experiments and the constraining relations between scientific instruments and knowledge. This will lead me to the historical question that is driving this proposal: how accounting tools that were developed to track and trace behaviour with the aim to control and modify behaviour helped to create the rational, autonomous economic agent. While these systems at the beginning of the Industrial Revolution were designed to govern and educate the working poor, they were equally designed to enable individuals to govern their own conduct and to build character, that is, to become responsible economic agents. We will tell this history through three case studies that move from the early eighteenth century to the nineteen-thirties, and that are concerned respectively with a group of Swiss-French pedagogical reformers who were contemporaries of Bentham, social and economic scientists and reformers in Victorian Britain, and scientific and pedagogical reformers in America's Progressive Era.

The new behavioural economics and its critics

The new behavioural insights of cognitive and behavioural scientists pivot centrally on a critique of a theory of decision making which after the Second World War rose to prominence in philosophy and psychology but is generally considered central to mainstream (micro-)economics (Giocoli 2003; Hands 2009a; Herfeld forthcoming; Heukelom 2014; Moscati 2018) . This theory postulates a rational decision maker who is able to optimally evaluate choice alternatives and to decide accordingly. In non-mathematical form, Lord Robbins defended this theory already in the early 1930s as grounded in "common sense" and not in need of experimental or other forms of empirical testing (in his famous *Essay on the nature and significance of economic science* ([1932]1935)). Critical voices, most prominently of Nobel memorial laureate in economics Herbert Simon, remained at the fringes of economic academic discourse until the rise of behavioural economics in the early 1980s, when the rise of economic and psychological experiments convincingly challenged the behavioural aspects of this mainstream model of decision making as unrealistic and in need of change (Sent 2004, Angner and Loewenstein 2012, Heukelom 2014).

These new scientific insights replaced the standard model of rational decision making after the Second World War with a model of suboptimal decision makers who are error prone and systematically biased. Especially Kahneman and Tversky's ground-breaking "Prospect Theory," published in 1979 in *Econometrica*, opened up to an experiment-based research program that spread from decision theory to economics and the other social sciences, and introduced a new gold-standard of socio-economic policies in terms of experimental pilots which, if successful, are to be implemented on a larger scale. Best-selling books, such as Dan Ariely's *Predictably Irrational* (2008) or Daniel Kahneman's *Thinking Fast and Slow* (2011) and the already mentioned *Nudge* by Thaler and Sunstein (2008), brought these developments to a wider audience. Thus, developments that were initially confined to high theory and the economists and psychologists' laboratories became a matter of public intellectual debate and of direct policy concern.

Thaler and Sunstein (2003) captured the policy implications of the new behavioural insights under the deliberately chosen oxymoron of "libertarian paternalism." Capitalizing on the limits of an individual's rationality and on the notion of "framing," they proposed policy designs by a "choice architect" who would organize the choice space and incentive structure in such a way as to direct individuals to choice improvements, as Thaler and Sunstein emphasized, "*as judged by themselves*" (Thaler and Sunstein 2008, p. 5). Despite the manifest political enthusiasm for this kind of policies, moral philosophers and welfare economists provided a substantial critique of their proposal because it would introduce a "benevolent autocrat." This raised fundamental concerns about the moral and epistemic implications of a third perspective decision maker who intervenes in an individual's evaluation and choice process (Hausman and Welch 2010, Infante, Lecouteux, and Sugden 2016, Sugden 2018). Critics made clear such a benevolent autocrat carefully needed to be distinguished from the "impartial spectator," or the "deity within," that was introduced by Adam Smith in his *Theory of Moral Sentiments* of 1759 as vantage point from which individuals themselves are able to evaluate their values and choices (Sugden 2018). From a very different (Kantian) angle, the moral philosopher Beate Rössler (2017) has raised similar concerns about the limited possibilities to isolate rational deliberation from its social, relational context.

A second strand of criticism questions the naturalistic foundations of this new theory and policy approach, and argues that the scientific image of the decision maker and his or her choice environment change in tandem (Anderson 2009; Gere 2017). The co-development of environment and decision maker is equally central to the research program on ecological rationality of the Max Planck Centre for Adaptive Behaviour, co-directed by the cognitive psychologist Gerd Gigerenzer and the experimental economist Vernon Smith, both of whom have proved to be among the most outspoken critics of Kahneman and Tversky's, and by implication Thaler and Sunstein's behavioural research program (Gigerenzer and Selten 2002; Gigerenzer and Todd 1999; Schulz 2011; Todd and Gigerenzer 2000; Smith 2007; Lewis 2017; Gigerenzer 2015). From the angle of the history of psychology, Cathy Gere has recently shown the linkages between Bentham's utilitarianism and behaviourism in the nineteenth and twentieth century, thus tracing historically how the image of man as governed by pleasure and pain has always been intimately linked with programs of behavioural control (Gere 2017).

Kahneman himself has been explicit about his debt to Bentham (Kahneman et al. 1998), but Thaler was perhaps even more explicit what this debt entailed in terms of the mechanistic and hedonic assumptions that undergird the behavioural concept of the economic agent. In a series of articles in the 1980s and 1990s on consumer behaviour, Thaler argued that "mental accounting matters," but that the economist lacked access to the accounting rules followed by individuals. For that reason, the economist had to start from the idea of the consumer as a "hedonic machine," guided by a mechanism of pleasure and pain that is itself rooted in inadequate rules of "mental accounting" that are hard-wired in our brain (see, for example, Thaler 1985, 1999). This is why experimental behavioural research had to probe for the optimal "choice architecture" to repair consumer biases. Put otherwise, the experimental program to trace behavioural bias back to mankind's psychophysical make-up and the policy programs that design choice environments for behavioural change are two coins of the same medal. In the research program advocated by Kahneman and Thaler, individual choice behaviour became understood as a natural kind, instead of being socially and historically contingent.

Thaler's choice of words ("psychophysics," "hedonic machines" driven by "pleasure and pain") deliberately refer back to two of the founders of the kind of economic theory that became dominant after the Second World War, Stanley Jevons and Francis Ysidro Edgeworth, who similarly spoke about economic agents as "pleasure" or "hedonic machines," or as "sentients" governed by Bentham's two main springs of human action, pleasure and pain. It was *against* these economists that Lord Robbins had written his famous essay *The Nature and Significance of Economic Science* ([1932] 1935), warning that economists should not be "bamboozled" into believing such "fashionable psychology," because the "postulates" of economics did not rest on Benthamite hedonism, but on the simple idea of choice under scarcity and an individual's capacity to select the right means for the right purpose (Robbins 1932, p. 84). Consumer autonomy was built into standard economics by an appeal to common sense and a rejection of experimental research as a means to uncover the machinery of choice. It was the moment economics and psychology parted company (Lewin 1996; Bruni and Sugden 2007; Hands 2009a, 2009b; Maas 2009; Sugden 2009; Fumagalli 2016; Goodwin 2016). It was also the moment economics excluded the experiment from its scientific toolbox. It was the moment the economic agent became considered autonomous, whatever his or her physiological make-up was and potentially only restrained in its autonomy by external, governmental forces.

Weber's challenge and the history of accounting

Robbins' appeal to "common sense" may nowadays sound overly naïve, but Robbins also, and more sensibly, referred to Max Weber, who had equally criticized the "psychophysical foundation" sought for consumer theory by Jevons and Edgeworth, as well as by industrial psychologists of his days, such as Emil Kraepelin and others (Weber 1975; Brain 2001;

Maas 2009). For Weber, as for Robbins, the foundations of a theory of consumer behaviour were not to be sought in the "revolving drums or other laboratory apparatus" of the experimental psychologists, but—and here Weber diverged strongly from Robbins—in history. According to Weber, if the economist assumed anything, it was a "merchant's soul." According to Weber, economists theorized on the "increasingly true assumption" that "everyone were to shape his conduct towards his environment exclusively according to the principles of commercial bookkeeping—and, in *this* sense, 'rationally'." (Weber 1975, pp. 32-33). In contrast with Thaler, Weber indicated where to find the rules of accounting followed by individuals: in historically evolved material accounting practices.

Traditionally, Weber's criticism of psychophysics has been considered as part of the larger efforts of Weber, Werner Sombart and Joseph Schumpeter to understand the emergence of capitalism from the rise of "protestant ethics" and (double entry) bookkeeping practices. Though historical comparative research has proved what is commonly referred to as the "Weber-Sombart-thesis" as untenable (De Roover 1956; Yamey 2005; Sombart 1998; Most 1976; Wagner-Tsukamoto 2012; Peltonen 2008; Lüthy 1964; Weber 2013; Carruthers and Espeland 1991; Chiapello 2007; Yuan, Macve, and Ma 2017), an increasingly broad scholarship in accounting history that took Anthony Hopwood's appeal in his introduction to a special issue (1994) of *Accounting, Organizations, and Society* on "accounting and everyday life" as a point of reference, has started to re-examine the relation between sustained methods of accounting and record-keeping, rationality, and the formation of the governable self. Key-publications are (Miller and O'Leary 1987; Miller 1992, which both antedate Hopwood's introduction; Walker 1998; Walker and Llewellyn 2000; Llewellyn and Walker 2000). More recently, and following Roland Barthes's incisive essay on Sade, Fourier, and Loyola (Barthes 1971), Paolo Quattrone has examined in a series of fascinating papers on the Jesuits the close relations between sustained accounting and record keeping practices and the unfolding of rationality at the personal and institutional level (Quattrone 2004, 2009, 2015). The result so far is the insight that rationality cannot be thought of as residing in "common sense" (as Robbins had it), or as hard-wired in our brains (as behavioural economists, with all differences between them, would argue), but should be analysed as the emerging and malleable result of sustained administrative procedures that simultaneously shape the rational decision maker and its enabling institutional infrastructure. Elsewhere Quattrone argues that this makes a case for case study research as such insights can only be derived from the detailed study of specific epistemic strategies that have been followed, of which accounting and record keeping procedures are an important part (Quattrone 2006; see also Knorr Cetina 2009).

The present project takes up Weber's (and Quattrone's) invitation for detailed historical case studies by examining three historical episodes in moral accounting that show the historical entanglement of infrastructures of accounting and individual behaviour. No such study exists in the history of economics to date. This project will therefore not only be a valuable addition to the currently existing literature in the history of economics, but also to current research in behavioural economics, because it will highlight the historical and sociological dimensions of our knowledge of and policies for behavioural change. It will be an important addition to two related programs: the priority program funded by the German Research Foundation that is co-directed by Alexander Nützenadel (Humboldt University), and Jochen Streb (University of Mannheim), "Experiences and expectations: Historical Foundations of Economic Behaviour," and the "Network for Integrated Behavioural Science" of the British ESRC, of which Chris Starmer (University of Nottingham) is principal investigator. The focus of the first program is on a historicization of notions of uncertainty and forecasting, while my research is primarily directed at the historicization of infrastructures of behavioural governance. The second program unites current experimental behavioural research of economists and psychologists, which could benefit from a historical and sociological reflection on instances of behavioural governance.

2 Current state of my research

I will present my current state of research in several steps. The first two cover my research in the history of naturalistic explanations of consumer behaviour in economics and the changing relations of economics and psychology. The third covers my research on the history of experimental research in economics. The fourth my current research in the history of self-tracking and self-measurement.

1) In my thesis work and then book on one of the founders of modern economics, William Stanley Jevons, I examined in detail how his theory of choice at the margin was driven by a mechanistic vision of human deliberation that was grounded in Bentham's "springs of human action"—Bentham's theory that man is governed by feelings of pleasure and pain. I show how Bentham's theory in the nineteenth century led to a research program in psychophysiology that at root considered man as a pleasure machine balancing forces of pleasure and pain, perhaps most efficiently summarized in Thomas Huxley's essay of 1874 "On the hypothesis that animals are automata." In three key-publications I examined Jevons's use of mechanistic analogies in building his theory of the marginalist agent, two zooming in in detail on Jevons's mechanical analogies (Maas 1999, 2001), a third examining in detail his (hedonic) physiological reductionism (Maas 2005a). I incorporated these publications in my prize-winning book on Stanley Jevons (Maas 2005b). For the present proposal two features stand out: 1) the strong commitment of early British marginalists to physical reductionism and to measurement and experimental research, which 2) should be used to develop policy pilots which, when successful, should be conducted outside of the laboratory on an expanded scale.

2) In two separate publications, I examined the *resistance* against a mechanistic conception of human deliberation that led to the separation of economics from psychology and a diminished interest of economists in experimental research. The first paper (Maas 2003), on the Scottish Enlightenment philosopher Thomas Reid, provides a prehistory of this split. I show how Reid's resistance to mechanistic reductionism was tied in with his rejection of utilitarian conceptions of the moral and social order and a recourse to "common sense" as evidential ground for the understanding of human conduct. the second paper examined how twentieth century economics detached itself from its mechanistic and hedonic ancestry by taking up Reid's common sense argument, thus largely losing its contact with experimental research in utility measurement (Maas 2009). As a corollary economics and psychology parted company for much of the twentieth century (Bruni and Sugden 2007; Lewin 1996; Heukelom 2014; Moscati 2018, but see Herfeld forthcoming).

3) As part of a major collaborative project on histories of scientific observation with the Max Planck Institute for the History of Science in Berlin and on a personal excellence grant (VIDI) of the Netherlands Organization for Scientific Research NWO on the history of observation in economics, I followed the complex relation between economics and psychology through the twentieth century that resulted in a re-appraisal of the experimental method in economics and the emergence of behavioural economics from Kahneman and Tversky's work in decision theory. This last history was told in thesis work by Floris Heukelom that was subsequently published with Cambridge University Press (2014). The history of the experimental method in economics resulted in a prize winning dissertation by Andrej Svorenčík (2015, Joseph Dorfman thesis award of the History of Economics Society) and an equally prize winning volume I edited with Svorenčík of a witness seminar in which eleven pioneers of the experimental method, including three Nobel laureates, engaged in a moderated conversation on the emergence of laboratory experiments in economics (2018 Blanqui award, European Society for the History of Economic Thought). An important outcome of the witness seminar was the entanglement of experimental setting and experimental subject and the danger of hypostasizing either side. Doing so leads precisely to the

naturalistic a priori of contemporary behavioural economics, in which human nature is taken as a given, precluding the dynamic historical understanding of the relation between choice and choice architecture sought in this proposal. I separately pursued the closely related theme of external validity in "Questions of Scale in Economic Laboratory Experiments," published in *Revue économique et philosophique* (2012).

4) My most recent work is on self-measurement and self-tracking for personal improvement. For the Dutch Rathenau institute that advises the government on technology and society, I wrote a contribution to a collective study on so-called e-coaches (think of smart thermostats, sport apps like Fitbit) in which I explored the design of contemporary budgeting apps against a history of private and family bookkeeping practices (Maas 2015 in Kool 2015). I extended this exploration to a more general exploration of the use of accounting tools as aids in decision making in an essay on moral accounting practices in the Victorian period (Maas 2016) on which I presented at the workshop "Numbers from below" at the Wissenschaftskolleg in Berlin and at a conference dedicated to recent work of Bruno Latour on accounting practices at SciencePo in Paris, both in 2015. In this paper, I engage with personal and household bookkeeping practices that grew out of the earlier use of almanacs, such as Benjamin Franklin's *Poor Richard* and *Poor Richard Improv'd*. I trace their use as self-tracking devices that helped to draw the (moral) balance of wealth and thus their use as aids in long-term decision making. Both studies suggest that one can fruitfully use history to investigate the extent to which, in the words of the Victorian psychologist Alexander Bain "the machinery of intelligence" is co-dependent on "auxiliary instruments," such as accounting tools, that is, co-dependent on the material infrastructure that supports human deliberation.

I further investigated the use of accounting tools as self-tracking and decision-making devices in two subsequent papers that are currently under review with *History of Science* (accepted with revisions) and the *East Asian Science, Technology and Society* (EASTS). The first grew out of a master class I taught as invited professor in the economics faculty of Paris 1 Panthéon-Sorbonne in 2016 and from my keynote lecture at a workshop on the history of self-measurement, organized by the Descartes Centre for the history of the sciences and the humanities in 2017 in Utrecht. In this paper, "François-Marc-Louis Naville and his moral tables," I use so far unexplored and very rich archival materials to trace the use Naville, a pastor and pedagogical innovator who lived in Geneva around 1800, made of instruments of personal control and decision making such as Benjamin Franklin's Moral Algebra and Art of Virtue and Marc-Antoine Jullien's so-called moral thermometer or biometer. The paper shows how moral accounting tools became part of a sustained process of self-measurement and self-tracking to improve individual character and decision making. It invites research into the full history of an intellectual milieu in Geneva with links to Benjamin Franklin, Jeremy Bentham, and Robert Owen and its programs of pedagogical and social reform.

In a follow-up paper, I explored the use of accounting tools in a comparative setting. I first presented this paper at a workshop organized by Hsiang-Ke Chao at the National Tsing Hua University in Taiwan in 2016. When accepted, it will be published in a special issue on diagrammatic reasoning of EASTS that I co-edit with professor Chao. The paper makes a comparison between three different forms of moral accounting: the so-called ledgers of merit and demerit that were advocated by the scholar-bureaucrat Huan Yuang in the late Ming-period (end of 16th century), Benjamin Franklin's Art of Virtue (second half 18th century), and Marc-Antoine Jullien's moral thermometer (early 19th century). The paper shows the fruitfulness of transversal comparisons in fleshing out how different tools for decision making and moral control within different cultural embeddings create different incentive structures for action, adding weight to the idea that behaviour and environment, experimental subject and choice architecture, are co-constructed.

2.3 Detailed research plan

In this project, we will investigate programs of behavioural governance from an historical perspective in order to get grip on the entanglements of behavioural infrastructures and behavioural change. This project will add a historical and sociological dimension to current research in behavioural economics in which the individual agent is commonly taken as a natural kind that remains constant through history. The project concentrates on one kind of infrastructure, which can be captured under the labels of moral accounting or the calculation of everyday life. In moral accounting, accounting tools in a large sense, such as ledgers, diaries, questionnaires and notebooks, and nowadays lifestyle apps and e-coaches, are developed and put to work to gain knowledge about an individual's behaviour by tracking and tracing this behaviour with the aims of control and behavioural governance. This tracking and tracing can be done by individuals themselves, by external surveyors, or by both. The goal of this project is to **to trace the untold history of moral accounting practices to understand their importance in the creation of the autonomous, rational consumer**.

The project consists of three case studies that are divided over three different time periods and geographical areas. Yet they build upon one another in following the development and dissemination of accounting tools for purposes of governance and self-governance. The case studies cover the period from 1800 until the Second World War, that is from the period in which Jeremy Bentham proposed his panoptic system until the stabilization of the notion of the rational and autonomous consumer as self-evident point of departure economic theory. This period saw important changes in the parameters of individual and family household behaviour, from the rise of the factory system to the development of a mass consumption market. For this important period, the case studies in their ensemble show that the idea of the rational, autonomous consumer which became dominant in economic discourse after the Second World War, is not given in nature but the outcome of historical processes in which the development of such mundane tools of governance as the daily planner or the household account book served as enabling devices for individuals to organize their personal, financial, social and moral lives. Moral character and rational choice were not given but could be (self-)taught.

Rather than taking up Bentham's panoptic system directly, the first case study will focus on a group of Swiss-French pedagogical innovators with links to social reformers like Jeremy Bentham and Robert Owen. It engages with Foucault's later work, in which he became susceptible to the idea that tools of governance were not only imposed, but also adopted and adapted by individuals themselves to improve their behaviour (Foucault 1988, 1997). The second is chosen in the second half of the nineteenth century in Britain, when especially women were educated in the art of prudent household management by the teaching of the practical accounting tools to manage daily affairs and when the adoption by political economists of Bentham's "springs of human action" fundamentally transformed the tenets of economic theory. The third case study covers the early decades of the twentieth century in the United States, a period in which there was substantial concern about the consuming behaviour of the new influx of working families in cities, which led to experimental and survey research to develop policy programs targeting the consumption behaviour of women. In all three cases, individuals were taught and trained in methods of accounting to improve their individual, social and financial behaviour. A note on our method of research will follow a description of the case studies and of the sources.

I. Moral accounting in the Industrial Enlightenment

The first case study examines accounting methods that were adapted and newly developed by social innovators with the aim to improve the moral comportment of the working poor in the period Peter Jones recently labelled the Industrial Enlightenment (Jones 2008, 2009). Some of these methods have a long history in personal, agricultural, and religious practices (Perkins 1996; Quattrone 2004; Aho 2005; Coquery et al. 2006; Chiffoleau 2011; McCarthy 2013). We will more specifically zoom in on Geneva as a site where a group of Swiss-French pedagogues, entrepreneurs and scientists exchanged ideas and experiments on how to improve the moral conduct and position of the working poor. In part used for school reform, the reach of their methods extended beyond educational reform into the reform of family and workmen's lives with the aim to improve their character and comportment. Among the Swiss and French pedagogues one can think of the Swiss Pestalozzi, Grégoire Girard, and Francois-Marc-Louis Naville, and the French revolutionary and pedagogical reformer Marc-Antoine Jullien (Mützenberg 1997). Among the scientists and men of business were Marc-Auguste Pictet, successor of Bénédict de Saussure in the Academy of Geneva, and the British utopian socialist Robert Owen. The work of my colleague Thomas Bouchet at the Centre Walras-Pareto on early nineteenth century social reformers in France and Britain, the work of my former colleague Alexandre Fontaine (now at the University of Vienna) on Swiss and French pedagogical reformers such as Pestalozzi, Girard and Jullien, and recent thesis work of Marie Vergnon at the University of Caen on Robert Owen's pedagogical experiments will be used in setting the scene for this case study.

These pedagogues and scientists were particularly inspired by the work of Benjamin Franklin and Jeremy Bentham (Blamires 2008a, 2008b, 2009; Trincado and Santos-Redondo 2017). This case study will examine in detail moral accounting tools such as Jullien's moral thermometer or biometer developed to improve the morality of (young) adults by a system of sustained (self-)registration. These instruments can be considered part of what Marco Guidi (2004, p. 407) with reference to the panopticon has called an emerging "paradigm of the micro-physics of discipline that modern society imposes on its members." With the exception of Jullien's biometer (Lejeune 2011) less attention has thus far been devoted to other accounting and tracking devices such as Marc-Auguste Pictet's diagrammatic balance of pleasures and pains, or Owen's psychograph and "silent monitor" (Vergnon 2013) that were developed and used to strengthen one's character. We will also examine how such tools were adopted and adapted by individual users. This produces the following research agenda for the present case study:

1) Can we reconstruct from the available archival sources the functioning of instruments this group developed to realize their reform ideas into practice? How did they help to create a person's "character"?

2) Does our reconstruction of the functioning of the instruments of monitoring and control validate our conjecture of the co-evolution of a behavioural infrastructure with individual behaviour? Can we identify, following the work of E.P. Thompson and others, forces *resisting* monitoring practices?

Sources

For this case study use will be made of (at least) the following archives: State Archives of Geneva: holdings of the Naville family; BGE (library of Geneva): correspondence of François-Marc-Louis Naville; archives of Pierre Etienne Dumont; Private archives of the Pictet family in Geneva; online archives of Benjamin Franklin (via Franklin House, London); Archives of New Lanark; Archives of Jeremy Bentham at University College London; Bibliothèque nationale de France: holdings of Jullien de la Drôme and Jullien de Paris (1743-1863); Archives of Jullien de Paris in Moscow (these archives have been copied by Pierre de Vargas in Geneva with SNFNS support); Robert Owen Correspondence Collection, The Co-operative College, National Co-operative Archive, Manchester: Edinburgh and Glasgow University Libraries for archival materials related to New Lanark and the Institute for the Formation of Character 1816-1825; Burgerbibliothek Bern: family archives of the von Fellenberg family; Yverdon-les-Bains: Centre de documentation et de recherche Pestalozzi; Bibliothèque nationale de France, papiers Cabet, NAF 18146-18166 ; Etienne Cabet Papers, IISG Amsterdam; use will also be made of the new platform and resource egodocuments.ch.

Because almost all archival sources mentioned are accessible for scholarly inspection, I do not expect serious problems in gaining access to the family archives mentioned and even if such problems would unexpectedly arise, the overall outcome of this case study hinges only to a limited extend on these family archives.

II. Moral accounting in the Victorian period

The second case study will look at the use and development of accounting tools to build character in Victorian Britain in the second half of the nineteenth century. With the rise of consumer society in Britain and then the US, household management became a regular part of women education. In the Victorian period, knowledge of accounting came to be considered as an asset in marriage for women (Walker 1998). A woman of good character should fence off personal and family life from Fortune's wheel and secure the way to wealth for the family and the Nation (Weiss 1986). The spread of accounting tools in the private sphere can be well gathered from the original frontispiece of Charles Dickens' *Dombey and Son* that shows a carrousel of accounting tools and a house of cards, symbolizing Fortune's wheel and the imbalance in which Dombey held is moral accounts. The importance of mundane accounting tools, such as household ledgers, spending registers, daily planners and similar tools can equally be seen from the volume of purchases of such articles in that period as well as from the attention that they received from scientists such as the psychologist Alexander Bain who in his *The Emotions and the Will* of 1859 recommended their use to avoid myopic and emotion driven decision making. Rebecca Steinitz (2011) has recently uncovered a substantial collection of daily planners at the Huntington Library at UCLA. This case study will explore the use of such mundane accounting tools along three dimensions.

1. We will examine publications from amongst others religious denominations that aimed to teach accounting tools use to young adults, especially women, to become prudent citizens, able to take responsible decisions affecting the household's economy and the moral reputation of the family.
2. We will examine examples of such tools that were used by individuals to guide their lives and decision making.
3. We will examine how such tools became theorized by contemporary scientists, such as Alexander Bain, Stanley Jevons and others as mirroring the psychological make-up of individual agents or as tools for improving household consumption (as in the work of the Marshalls).

This third dimension in particular shows how accounting tools for regulating life and to build character were taken as metaphors for mental processes that were subsequently reified as being part of a person's mental make-up.

Sources

In addition to published sources, we will use archival holdings that include, but are not limited to holdings of diaries and daily planners at Cambridge University Library, the John Rylands Library of the University of Manchester, archives of friendly and religious societies in Lancashire, the Huntington Library at UCLA, and the archives of Alexander Bain, Stanley Jevons, Francis Ysidro Edgeworth, and Alfred and Mary Paley Marshall.

III. The Household and home economics movement in the American Progressive Era: The Creation of the Rational Consumer

While nineteenth century handbooks taught women how not to become a Mrs. Lavish or a Mrs. Liberal, but a prudent housewife who would not bring family fortunes to ruin, credit rating companies in the US started collecting information on an individual's "character," which was considered the premier variable indicating the creditworthiness of individual consumers on whom information from various sources and informants had to be collected (Lauer 2017). While Lauer's innovative study on American Credit rating companies illuminates company surveillance of consumer's creditworthiness, we investigate the consumer side. Character could be taught, a position we have already encountered in our first two case studies (Maas 2016; Bankovsky 2018). The goal of this case study is to examine in detail the different tools and instruments that were developed and put into place to teach women "character," or, as Goldstein (2012) put it, to turn them into "rational consumers."

Apart from Goldstein's book scholarship has thus far paid little attention to the first decades of the 20th century, when American progressive scientists and economists from the new-fangled home economics movement sought to improve women's management of their households (Hirschfeld 1997; see however Llewellyn and Walker 2000). This movement was at least in part inspired by the grass-roots Men and Religion Forward Movement, a movement that used socio-economic statistics for evangelical purposes (Bateman 2001). Merging the goals of evangelicals with Thorstein Veblen scathing criticism of "conspicuous consumption" which he blamed on the irrational consumption habits of housewives ([1899] 2017, see also Mitchell 1912), progressive (mainly female) scientists and economists started training housewives to organize their households and consumption efficiently, by using the tools and insights of home sanitation, psychology and the new social sciences (Rossiter 1984, Stapleford 2004). These scientists and economists made part of the so-called home economics movement that had gone through a period of rapid growth from the end of the nineteenth century onwards. Knowledge of the (female) consumer was needed to transform her behaviour, which also made home economics important for product development and the emerging science of marketing. While the links between home economics, product development and marketing have recently been investigated by Goldstein (2012), we will look in more detail at the development of benchmarks for family budgets, at the educational programs that sought to discipline household expenses (and hence consumption), and at personal accounts made by individual women to register and discipline her expenses. In particular, we will examine the tension between the emotional work done through household-accounting (Wilkowske 2017, see also Poovey 2002, Millim 2013), and the intention of the home economics movement to rationalize and improve household- accounts for the public good. This leads to the following research agenda for this part of the study:

1. We will look in detail at the development of benchmarks for family budgets at the newly established Federal Bureau of Home Economics, at the educational programs that sought to discipline women's household expenses (and hence consumption) amongst others through the use of accounting techniques. These benchmarks depended on sustained tracking and tracing of the expenses of housewives over time and therefore depended on the willingness of these subjects to systematically record their expenses and consumer decisions over time. Such research led to the question of how to define a housewife of "good character" (Stapleford 2012).

2. We will investigate the research at the experimental stations for home economics at land-grant universities that all contributed to the study of how to rationalize and improve consumer behaviour for the individual and national good. The outcome of this research would be a redefinition of the female consumer as the consumer tout court, who rationally and autonomously made consumer decisions in the market place.

3. We will investigate examples of individuals who used accounting tools to track and trace their (financial) behaviour over time.

Sources

University of Chicago: Hazel Kirk Papers; Marion Talbot Papers, Margaret Reid Papers, Ruby K. Worner Papers. Cornell University: American Association of Family and Consumer Science (AAFCS) Records; Department of Home Economics Records; HEARTH online archive (including all issues of the *Journal of Home Economics*; Minutes of the Lake Placid Conferences (1899-1908), available online. MIT: Ellen Richards Papers. Vassar College (NY): letters and correspondence of Ellen Richards. University of Wisconsin: Home Economics online collection. Yale University: Catherine Beecher collection. Iowa State: University of Iowa Department of Home Economics records.

Washington National Archives: Bureau of Home Economics: "Records of the Bureau of Human Nutrition and Home Economics;" Bureau of Labor Statistics: "Records relating to the Cost of Living and Consumer Price Index Programs" (257.7.1) & "Records of the Office of Prices and Living Conditions" (257.7);" Office of Price Administration: "Consumer goods price division" (188.8.6).

All archival sources mentioned are accessible for scholarly inspection. No risks in relation to access and management of data are therefore to be expected. Work on the archives of Bureau of Home Economics and of the Bureau of Labor Statistics will benefit from the expertise of Tom Stapleford and Emmanuel Didier, who have been working on these archives and who are experts on survey research in this period. Archival work on the home economics departments of land-grant universities has not been conducted within the history of economics and will provide a valuable addition to current scholarship.

Method

All three case studies will proceed through archival research and textual analysis. Documents will be transcribed, photographed and digitally stored for analysis. We thus create a searchable data-base which enables comparison within and between the three case studies. Part of these archives consist of ego-documents that show the use and experience of individuals with the accounting tools we intend to analyse in detail. These ego-documents are particularly valuable in uncovering the interrelations between the infrastructure of moral accounting and an individual's practice.

Part of the archives for the third case study consists of survey data that show the experience of housewives with the regular recording of their behaviour. These surveys provide insights in first person experiences with accounting tools. We will complement these materials with archival records of women who kept their accounts (daily planners, diary of daily affairs, household accounting books) without taking part in survey research of the Bureau of Labor Statistics.

Research team

The first case study will be performed by a PhD student fluent in French and English, and preferably also in German with a background in history and/or the history of the behavioural sciences/pedagogy. The second case study will be performed by PI. The third will be conducted by a PhD-student fluent in English and well-versed in American history and/or the history of the social and the behavioural sciences. All team members will be involved in the regular organization of workshops and a closing conference. For the duration of the project an IT assistant will be hired for 40% fte to set up a framework for storing and retrieving archival data, and who will design a project website and a dedicated website for the Genevan case of which the archival materials will be presented to the public at large. The emphasis of the IT assistant's work will shift over the duration of the project to the development and maintenance of a public website, especially for the Genevan case. PI is in the process of exploring collaborations with the library of Geneva (BGE) and the State Archives of Geneva (AEG) to make this possible. An advisory board will be consulted on a regular basis for advice and to assess the progress of the project.

Advisory Board

To ensure the viability of the project, an advisory board will be regularly consulted during the duration of the project. Members of the advisory board will be invited to participate at our workshops and closing conference. The advisory board consists of:

Dr. Emmanuel Didier is a permanent researcher at the CNRS, Centre Maurice Halbwachs, Paris. He is a sociologist of statistics and specialist in the history of survey research.
Professor Mary S. Morgan is Albert O. Hirschman professor of history and philosophy of economics, LSE, London and a specialist in the history and philosophy of modelling and measurement in the social sciences. Professor Morgan directed the highly acclaimed Leverhulme/ESRC funded project "The Nature of Evidence: How Well Do 'Facts' Travel?" (Project Leader, 2004-9) and is currently directing the ERC Advanced Grant project "Narratives in Science."
Professor Alexander Nützenadel is a professor in economic history at the Humboldt University, Berlin, and coordinator of the German Research Foundation's Priority Program "Experiences and Expectations: Historical Foundations of Economic Behaviour" (2015-2021).
Professor Sophus Reinert is the Marvin Bower associate professor at the Harvard Business School and a specialist on the rise of commercial society in the early modern period and the Enlightenment.
Professor Thomas Stapleford is associate professor in history of science, University of Notre Dame, USA, and a specialist on the history of American Statistics.
Professor Chris Starmer is a professor in behavioural and experimental economics at the University of Nottingham. He is PI of the ESRC funded Network for Integrated Behavioural Science.

2.4 Schedule and milestones

The first one and a half year of the project will be used for literature study, for archival research and data collection, and for writing the theses' synopsis and detailed workplan. The second half of year 2, year 3 and year 4 will be devoted to data-analysis and to the writing of papers that will be presented within our research group and at relevant international workshops and conferences. The project will be built around three small-scale workshops dedicated to each of the case studies and a synthetic closing conference. There will be an opening workshop with external experts at the end of the first year of the project and dedicated workshops on the project's case study from the end of year 2 until the end of year 4. They will gather external experts and invited participants and members of the advisory board. The workshops of each case study will result in special issues of relevant international, peer-reviewed journals. The output of the PhD students will consist of their thesis and one job-market paper, preferably published before the end of the project's duration. The output of the PI consists of two journal articles on the second case study, and on a manuscript of a synthetic monograph with a prestigious university press. The team will be embedded in the Walras-Pareto Centre for the history of economic and political thought at the University of Lausanne, one of the worldwide leading centres in its genre. In addition, an advisory board will be consulted on a regular basis. As this will be PI's main area of research, PI will devote 40% of his working time to the project.

Task	Jan-June 2020	July-Dec 2020	Jan-June 2021	July-Dec 2021	Jan-June 2022	July-Dec 2022	Jan-June 2023	July-Dec 2023
Reading and thesis outlines	■	■	■					
Data-collection		■	■	■				
Data-analysis			■	■	■			
Workshops		■				■	■	
Closing conference								■
Synthesis and publications							■	■
Data storing and archiving*	■	■	■				■	■
Public website*				■	■	■	■	■

* These last two are approximations. In so far as the work of the dedicated IT assistant is concerned, see the clarification in the funding demanded.

2.5 Relevance and impact

This project investigates through three case studies the importance of accounting tools in the creation of the autonomous, rational economic agent. It uses so far unused archival sources that complement existing scholarship in the history of economics that has traced the making of the modern rational agent through a history of economists' ideas by looking at the practices of moral accounting that were used through history to educate individuals to become rational. We tell this history through three case studies that move from 18th century Geneva, via nineteenth century Victorian Britain to twentieth century United States. It will thus also contribute to scholarship on these separate episodes: the history of Geneva, the Victorian period, and the American Progressive Era. Our studies will also provide a reflection on current research in behavioural economics in showing the historical entanglement of behavioural infrastructures and behavioural change.

As already indicated, our research will be published in the form of journal articles, two theses, and a monograph of the PI with a major university press under the provisional title "Mental Accounting Matters: A history of behavioural governance." The archival materials will be stored and archived and thus be secured for future research. For the first case study we aim to develop a permanent website in collaboration with the Library of Geneva (BGE) and the State Archives of Geneva (AEG). This website will contain digitized documents, such as letters, notebooks and manuscripts from Genevan and Geneva related scientists, pedagogues and other actors, which show their involvement in educational projects that aim to elevate the moral conduct of the population. Our aim is to construct this website as a pilot that might eventually expand to a larger website on Geneva around 1800. We have two examples in mind, the website "Lumières.Lausanne" and the recently launched website and database "egodocuments.ch". This website can be used in course development and teaching.

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