The computer says 'DEBT': Towards a critical sociology of algorithms and algorithmic governance

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Abstract

This paper uses Australia's automated processes to identify and recover social security overpayments as a case study to critically analyze the role of algorithms in government and public administration. The paper analyzes the algorithm in terms of: its performance with respect to its purpose; its role in public administration processes and principles; its impact on citizen-service users; and its role in politics. The paper concludes with a discussion of policy and public administrative principles that can be adopted for public sector governance and accountability with government by algorithm.

Keywords – algorithm; welfare fraud; social security; Australia; procedural justice.

1   Introduction

"Automated data matching systems governed by flawed algorithms are immensely problematic: the Coalition [government] needs to take responsibility for the deeply flawed IT projects it unleashes on the public." (Asher Wolf quoted in Hunter 2017)

In the lead up to Christmas 2016 and into the New Year, several media outlets published a series of exposés about Australia's social security delivery agency, Centrelink, automated issuance of about 20,000 'debt' letters a week to current and former clients. These letters had been automatically issued to people following "discrepancies" algorithmically found in data-matching income data held by Centrelink with that held by the Australian Tax Office (ATO). The letters asked individuals to log into their government account and confirm or correct their income for the financial year in question, their response was then used to algorithmically determine if a debt was owed, and then automated recovery processes, either by withholding social security benefits or by referring the matter to private debt collectors, with an automatic ten percent debt collection charge added to the alleged debt (Pett & Cosier 2017).

This media coverage was not driven by a fascination of government's use of automation in new ways, but by a concern of its effects on many vulnerable Australians and of what seemed to be an error-riddled, unaccountable and politically-driven process.

Dubbed 'Robodebt', this case study of government by algorithm demonstrates the urgent need for a critical analysis of algorithms that interrogates both the socio-technical design and development of algorithms, as well as the socio-organizational location of their operation. From a government practitioner perspective, Robodebt demonstrates the need for governments' development and use of algorithms to be acutely aware of the social-embeddedness of their use – that algorithms interface with complex social circumstances that are not readily encoded – and not just to think of algorithms as a technical challenge of algorithmic design for administrative efficiency.

By carefully engaging with the various dimensions of Robodebt – including misunderstandings in law, miscommunications, breaches of procedural justice, dismissive Ministers and civil servants, and suicide, this paper draws out the various dimensions and dynamics of a critical sociology of algorithms. It also explicates the practical implications and practitioner principles for designing government by algorithm that add public value and avoid private misery.

2   Unpacking the Robodebt phenomenon

Analyzing government by algorithm is tricky because of limited awareness of an algorithm's presence, the highly technical and complex nature of algorithms that are often impenetrable 'black boxes', and government sensitivity around administrative processes, particularly when algorithms are developed and operated by third party contractors. Accordingly, government by algorithm can typically only be analyzed by their reported effects and by

abstract accounts of what government and others say about them.

Accordingly, this paper draws extensively on publicly reported accounts of Robodebt's operation and effects, Australian Senate and Commonwealth Ombudsman inquiries into the matter (Australia 2017; Ombudsman 2017), and my personal knowledge of Centrelink's administrative, legal and ICT settings based on two decades of both research and in that domain.

The ensuing analysis focuses of four separate domains of government by algorithm. The first domain considers whether the Robodebt algorithm performed according to its purpose or technical specifications. The second domain examines how the operation of the Robodebt algorithm reconfigured administrative practices including its encoding of different processes and principles. Thirdly, the effects of Robodebt on citizen-service users is studied. Finally, the politics of Robodebt is observed.

2.1 Algorithmic performance

An obvious place to begin an analysis is with the algorithm *qua* algorithm. What does it do and does it do what it is intended to do? The implicit purpose of 'Robodebt' system was to automate the:

a) identification of disparities in personal income data held in Australia's taxation and social security systems that could indicate an individual had received more social security benefits to which they were entitled;

b) communication of such disparities to individuals to seek their input to confirm or correct their income; and

c) consequent debt recovery process. For current Centrelink clients recovery involved automatically withholding a proportion of fortnightly benefits, whereas for past clients identified 'debt' was allocated and on sold to private debt collectors to obtain.

To be sure, Robodebt is more than one algorithm, but an automated system that involved input from Centrelink clients, a system akin to Bovens and Zouridis' (2002) concept of 'system level bureaucracy'. While several elements in this process had been previously automated (Henman 1997), there was also considerable human involvement by government officials and had not been joined-up. With 'Robodebt', once the algorithm started, the chain of events operated without input from government officials.

Did the Robodebt algorithm perform as intended, or as publicly described? Based on media reports and an understanding of the *Social Security Act*, the short answer is 'no'. In short, individuals who had correctly reported their income to both Centrelink and the ATO, and had their entitlements appropriately assessed on that information, subsequently had debts raised by the Robodebt system. Failure of the Robodebt algorithm to correctly deduce overpayments using income data (phase (a) above) is evident in at least two ways.

In some cases the name of the employer organization was listed differently in the ATO and Centrelink databases, yet were the same employer (Pett & Cosier 2017). This may have been due to differences in publicly recognized names reported by Centrelink clients to Centrelink, compared to formally registered business names reported to ATO by businesses. In such cases, the client had accurately reported income, but Robodebt concluded that the individual had exactly double the income than they had declared; the same income from two employers which were in fact the one. A more sophisticated algorithm could have been designed to detect that the two different names were the same organization.

In other cases the Robodebt algorithm failed to correctly apply the definition of income to assess eligibility as defined in the *Social Security Act*. Eligibility for and payment levels of several income support benefits (including the unemployment benefit Newstart and Parenting Payment) is based on an individual's fortnightly income in order to provide assistance at periods of no or minimal income, whereas income in the tax office as annual. Robodebt turned the annual income from the ATO into an average fortnightly income and applied this to the benefit income test (Pett & Cosier 2017; Purtill 2016). This annualized application of income in many cases is erroneous and does not represent the actual fortnightly income for most recipients who have fluctuating incomes and periods on and off benefits. Robodebt used this averaged fortnightly income to conclude that some individuals were being paid benefits at times during the year at a rate higher than the benefit payable. In short, the algorithm failed to correctly apply the law.

In both two cases, debts for alleged overpayments were raised when under the *Social Security Act* recipients had received exactly what they had been entitled to receive. (A later Ombudsman report stated that the algorithm worked correctly with appropriate data, but substituted averages for missing data (2017: 1)).

2.2 Algorithmic administration

Algorithms typically automate pre-existing administrative practices undertaken by other means including humans and paper forms. Such automation has effects. Algorithms change administrative processes, be it speeding them up, reducing ambiguity, increasing consistency, and removing (some) humans from the process. They can also enable new forms of administration possible (Henman 1997; 2010) and

disrupt administrative principles (c.f. Henman 2005). These dynamics were evident in the Robodebt debacle in several ways.

One, human Centrelink officers were removed. Prior to Robodebt, outcomes of data-matching suggestive of possible 'overpayment' were reviewed by Centrelink officers for checking. With Robodebt, not only did human checking of possible 'overpayments' cease, but Centrelink officers were directed to not intervene to halt Robodebt procedures even when human officers suspected the algorithm had incorrectly raised a debt (Knaus 2017a). This extraordinary (non-)intervention fundamentally breached public administrative principles of good administration and public governance.

Centrelink officers in walk-in offices and telecall centres were also directed not to engage with clients who sought to challenge their debts, but direct the clients to the online system to contest their alleged debt, even when that system would not work for clients (McGrath 2017b). At its best, this practice constitutes poor public service delivery.

Two, Robodebt dramatically narrowed the scope, nature and substance of client-Centrelink interaction. In addition to removing Centrelink officers from the process, clients could only engage in very limited ways with Robodebt notices. In the initial directive for clients to confirm, correct or contest their income, clients' responses were limited and processes complex and hard to understand. The ability of clients to lodge an appeal to an alleged debt was also heavily constrained; it had to be done online through a newly constructed webpage that was reported to have been inoperable at times and very difficult to follow when operable (Senate 2017: 110). Clients were not able to lodge it with human Centrelink officers. Clients were thus configured by Robodebt in limited ways (c.f. Woolgar 1990). As evidenced by Robodebt, algorithms define the modes of interaction and scope of acceptable input, and in doing so, constrain the types and data formats of responses.

Three, Robodebt reversed the legal principle of innocent until proven guilty in several ways. Once an income discrepancy was observed and a letter was sent to a client to confirm, correct or explain the discrepancy, clients had 21 days to respond. In the case of no response, the Robodebt system automatically assumed the algorithm's calculations were correct and automatically raised a debt, which was automatically garnished from future social security payments (for ongoing clients) and automatically sent and on sold to private debt collectors in the case of former clients (Ombudsman 2017: 1-2). This occurred when the address to which letters were sent were out of date (which DHS acknowledged occurred in more than 6,500 of the 217,403

notices issued to March 2017) (Knaus 2017b) and when clients, for various reasons, were unable to respond in the time frame (Senate 2017: 111). Debt collection procedures also started in cases when clients contested the validity of the debt. The assumption of guilt was also evident in the automatic application of a 10 per cent debt collection surcharge for cases where clients had not responded or who did not provide a 'reasonable excuse' for the income disparity via the highly constrained online reporting tool (Senate 2017: 110). Under *Social Security Law* the ten per cent loading can be applied to uncooperative clients, but the Robodebt algorithm assumed clients 'uncooperative' until proven otherwise.

Four, Robodebt reversed "a basic legal principle that in order to claim a debt, a debt must be proven to be owed" (Senate 2017: 109). In other words, Robodebt reversed the onus of prove of debt from Centrelink to the client. Clients had to verify income as far back as six years (even when Centrelink advises that evidence of income only needs to be held for six months, and the Australian tax system requires evidence for five years). Moreover, even when Centrelink itself held copies of evidence providing income data, this was ignored by Robodebt, was not allowed to be included in the process by human operators (Knaus 2017b), and was reportedly declined to clients who sought to obtain that evidence from their personal Centrelink files. In short, Robodebt required clients to prove they did not have debt to Centrelink, even when Centrelink had the evidence such a debt did not exist.

Five, Robodebt radically restricted information disclosure. This is evidenced in the just mentioned practice of not providing clients with their own evidenced previously provided to Centrelink. More significantly, Robodebt processes provided no explanation of how alleged debts were calculated (Ombudsman 2017: 2). People were simply told they had a debt, without explanation. Nor were people (clearly) told that the calculated debt could be erroneous or how they could contest it.

The foregoing discussion demonstrates how Robodebt destabilized administrative processes, procedures and principles in reducing administrative discretion, removing human intervention, curtailing transparency and information provision, assuming guilty until proven innocent, and reversing the burden of proof. Indeed, Robodebt algorithmically encoded a "fundamental lack of procedural fairness" throughout its various procedures (Senate 2017: 107; Ombudsman 2017). These observations highlight that algorithms do not simply reproduce less or non-automated administration in an equivalent fashion; they can fundamentally recast administrative principles, as Henman

(2005) previously observed in the increasing use of administrative profiling and targeting policy and services.

2.3 Algorithmic effects

Robodebt not only algorithmically reconstituted Centrelink's administrative practices, procedures and principles, its operation had profound effects on current and former Centrelink clients, who by definition were at some time highly financially disadvantaged, many who are multiply disadvantaged and some highly vulnerable. Indeed, Centrelink clients are more likely to be less educated, have a disability, chronic or mental health condition.

The negative social, health and financial effects of Robodebt were considerable (Butler 2017; Senate 2017). People paid debts that they did not owe (Senate 2017: 111). Many people reported repayments being enforced or coerced. The Senate inquiry reported that

> "In many cases, these enforced debt payments meant the person could no longer pay for basic necessities, such as travel or food for their children. In other cases, individuals felt coerced to pay off debts using their credit card, resulting in payments of both debt recovery fees as well as credit card interest rates" (2017: 112).

Disadvantaged people were pushed further into a spiral of disadvantage.

Front-line Centrelink staff anonymously reported to the media that all the clients contacting them about Robodebt letters had been "extremely anxious, fearful, confused and frustrated" (McGrath 2017b). This was entirely predictable, and even more so for 'vulnerable' clients suffering from homelessness, domestic violence or mental health. In at least one case, this stress allegedly led to suicide (Hunter 2016; McKenzie-Murray 2017). Despite Centrelink recording certain clients as 'vulnerable' and requiring particular care when dealing with them, this was ignored by Robodebt (it was fixed in later updates of the system), Robodebt applied the same processes. As the deceased's mother aptly summarized: "He's always had mental health issues, and they were aware of that. *The algorithm did not pick up on that.*" (ibid, emphasis added).

2.4 Algorithmic politics

Algorithms do not exist in a vacuum. Their location within the technical, computer world is intimately enmeshed with the social world (c.f. Bijker 1997; Latour 2005). Robodebt was created as an administrative technology, seemingly bereft of politics, but its operation quickly led it to enter the world of politics (c.f. Henman 1997; Winner 1980) and in doing so it became clear that it was birthed in politics.

Once Robodebt began being reported in the mass media in late 2016, it became political. The reports provided sufficient evidence to cause political concern that Robodebt was both not achieving and overreaching its assumed objective to identify and recover overpayments from current and former Centrelink clients based on under-reporting of income to Centrelink (compared to the taxation office). The algorithm appeared to be making mistakes. Apart from making mistakes, the Robodebt process of identification and recovery of debt appeared to depart from standard Centrelink procedures and do so in a way that was inconsistent with good public administration and governance.

The operation of the system concerned journalists, welfare-related non-government organizations and opposition politicians (Belot 2017a). Australia's peak welfare body, the Australian Council of Social Services (ACOSS) made several public statements calling for investigations and cessation of the Robodebt program until apparent problems could be fixed (ACOSS 2017a; 2017b). Meanwhile, the network of welfare rights Community Legal Centres quickly prepared facts sheets to provide assistance for people receiving such notices. The online political movement GetUp! built an online tool, www.fraudstop.com.au, to make it easier for people to lodge an appeal to an alleged debt, and a separate www.notmydebt.com.au website was created to collect stories of those affected by Robodebt. There was also discussion of a class legal action.

Politicians and others referred the matter for investigation by the independent Commonwealth Ombudsman (2017), the Australian National Audit Office (who declined an investigation citing the Ombudsman's investigation), and the Senate's Community Affairs Reference Committee (2017). The Ombudsman reported in April 2017, and the June 2017 report of the Senate Committee included a dissenting report by government Senators.

The politicization of Robodebt was exacerbated by the Government's initial non-response and then dismissive response to the concerns raised. Alan Tudge, the Minister for Human Services with responsibility for Centrelink, rejected reports that the system was flawed, saying in January 2017 that "The system is working and we will continue with that system" (Anderson & Belot 2017). His response also demonstrated his lack of knowledge of his portfolio; his advice to affected clients contradicting Centrelink's processes (*ibid*). A similar politicalizing response came from the civil service. The head of the Department of Human Services, Kathryn Campbell, sought to blame clients for the problems arising from the Robodebt system, and refused to meet with the welfare peak body ACOSS and the staff union (Knaus 2017b). Journalist's

Freedom of Information requests for documents relating to the system were rejected on what appeared to be spurious grounds (McGhee 2017). While Centrelink officers were warned of possible criminal offences in leaking internal communications and information about the system (McGrath 2017a), Centrelink itself publicly released personal information about some client cases who had publicly complained about their treatment in the debt identification and recovery process in order to 'correct the public record' (Belot 2017b). Centrelink staff also went on strike to protest rising and unsustainable workloads exacerbated by Robodebt (Belot 2017c).

While the extreme partisanship, that seems most *de rigueur* in contemporary politics, provides an explanation for the government's reactive, high-stakes response, it is also necessary to understand that Robodebt was a techno-political design at its genesis. It was a major budget-announced savings initiative to reduce government debt that itself had been demonized by the government when in opposition.

Robodebt was born as a political actor, but clothed in technical efficiency and objectivity. It was a guise to redesign the administrative principles by which Centrelink operates and enact an abuse of power by a sovereign state over its most vulnerable citizens.

3 Discussion and Conclusion

Robodebt is a breathtaking example of government by algorithm in its audacious system-level automation, its encoded disruption of administrative principles, and the politicization it generated. It also provides considerable lessons both for critical analysis of government by algorithm and for the development of good practice as algorithmic government expands.

In advancing the critical analysis of government by algorithm, and for a wider sociology of algorithms, a number of positional elements need consideration.

One, algorithms are socio-technical artefacts; they are both technical and social. This means that in addition to understanding and analyzing the technical constitution and operation of algorithms, it is also essential to understand and analyze their social formation and operation. Although it is difficult to untangle the technical an social elements, on the first ledger key considerations involve questions of whether the algorithm performs to specifications, is efficient, cost effective and robust, what are the risks of it not working properly, and how amenable to system change and redesign it is. This side of the ledger could also include whether the algorithm meets legislated or required standards such as privacy and data protection, usability and accessibility (e.g.

for disability and digital literacy), and at what level of performance.

On the social ledger, analysis needs to consider the purposes for the algorithm, and reasons it is created and what its use is seeking to achieve beyond its technical performance. For example, Robodebt was created as a way to substantially increase the identification and recovery of overpayments (involving increased revenue) and also to reduce operating costs. The analysis should also look at the role of the algorithm in its social context, including organizational processes and how users are configured to interact with it. It involves considering if the algorithm requires, enacts or assumes different organizational processes than heretofore. A social analysis of algorithms will also examine their symbolic performance and its social effects. For example, are they perceived as unquestionably correct that silences doubt, as in Little Britain's 'the computer says "no"'?

Sitting within the socio-technical space is a need to analyze the nature and assumption of data encoded in variables, collected and calculated (Henman 1995). What categories are created (c.f. Bowker & Starr 2000)? What data is collected and what is overlooked? What are the assumptions of the data (e.g. annual or fortnightly income)?

Two, algorithms do not simply automate previous processes. They are not simply one type of operational technology replacing another; not like with like. They are not functionally equivalent, even if they are superficially. Algorithms have effects (c.f. Henman 1996).

There are, however, fundamental challenges to critical analysis of government by algorithms, notably relating to the black boxed nature of algorithms themselves, but also of government processes in which they operate. In addition, understanding the lived experiences of algorithms' effects may require an ethnographic approach to capture the nuance and depth of the complex dynamics involved, a methodology that is research and resource intensive.

The above observations point to a few preliminary considerations for practitioners in building and engaging with government by algorithm. As with all computer system development, algorithms require a robust understanding of the social context of work and citizen users in which algorithms will be deployed. This is always necessary for success. But it is also necessary to identify changes in organizational or social processes that may fundamentally recast administrative principles and rights enacted by government by algorithm.

An implication is that just as privacy and data protection rights have been developed over the decades in response to

computerization, new citizen rights need to be considered. In the case of Robodebt, it is clear that administrative rights of natural justice and due process were not protected, and even the government's conduct was exempt from consumer debt protections (Senate 2017: 112).

A new administrative requirement to ensure accountability could be enacted that necessitates the use of government by algorithm be accompanied with clear publicly- available documentation (such as flow charts and database specifications) about the algorithm's operation, its purpose, assumptions and data sets/variables. Or at the very least ensure access to commented high level code for scrutiny (c.f. Henman 2002).

While government by algorithm is arguably new in academic and popular awareness, computer algorithms have long been operating to automate and extent the role, reach and conduct of government. As algorithms become increasing complex and nuanced, so too does their critical investigation.

Acknowledgements

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