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An institutional theory of identity

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Abstract: Identification forms a key part of all but the least sophisticated economic and political transactions. More complex or significant transactions demand more formal identification of the parties involved. In this paper we develop a public choice economics of identity. We distinguish between a Demsetzian evolutionary view of identity and a 'legal-centric' view of identity. In the former view, identity is a contextual, fluid and subjective attribute. In the latter, identity is uniform and permanent. Governments have an interest in identity insofar as identity is used in the process of tax collection (and previously conscription). Private organisations free-ride off state-provided identification services. The paper concludes with a discussion about technological change and identity management. We characterise two possible futures: one in which blockchain and related technology enables states to create more comprehensive uniform identities, and one in which these technologies enables identities to be 'federated' and transferred to citizens.

1. Introduction

Identity is a coordination problem. Who are we transacting with and how do we know they are who they say they are? Identification forms a key part of all but the least sophisticated economic and political transactions. Market participants frequently find themselves having to prove who they are in order to exchange. A promise – in a market, social, or political realm – requires first that the promiser verify their identity so that the later fulfilment of that promise can be followed through. Contractual agreements cannot be made without identification. All market transactions that rely on reputation are dependent on identity.

More complex or significant transactions demand more formal identification of the parties involved. Identity is necessary for credit markets. Intellectual property has an identity function. Trademarks are a technology of identity – to signal quality in the presence of asymmetric information - and trademark piracy an attempt to subvert identity verification. Banks and insurers need to recognise customers with whom they have existing relationships and obligations. Governments need to recognise voters to confirm they have a right to vote and recognise recipients of social security to confirm their entitlements. Government seek to identify taxpayers to verify that they pay what is owed.

Identity institutions are crucially important and valuable infrastructural technologies of any complex society. This paper develops an institutional theory of identity. We distinguish between two theories of the development of identity which we draw from the literature on the development of property rights. In the *evolutionary Demsetzian theory of identity* (see Demsetz 1967), identity 'emerges' as part of the need to facilitate exchange in a world of positive transaction costs. Identity technologies are adopted by market participants in order to prove and verify identities as markets gain complexity. (When we write 'identity technologies' this is shorthand for technologies that allow individuals to provide evidence of their identity and counterparties to verify those claims.) This approach to identity sees identity as fluid, contextual and subjective. Individuals possess many 'identities' depending on the social, economic, and political context in which they are working. By

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contrast, in the *legal-centric theory of identity* (see Riker and Sened 1991; Sened 1997), identity is singular, uniform and permanent. Governments establish identity in order to extract revenue and distribute rents. Market participants free-ride off government provided identity technologies to facilitate market transactions.

Here we are working in the framework of institutional cryptoeconomics. Drawing on the transaction cost school of Coase (1937, 1960) and Williamson (1985), institutional cryptoeconomics studies economic, social and political structures in the light of the development of distributed, decentralised ledger technologies (Berg 2017; Berg, Davidson and Potts 2017a, 2017b; Davidson, Filippi and Potts forthcoming). Ledgers map identities to relationships.

This paper proceeds as follows. In Section 2 we outline the two theories of identity. In Section 3 we use these theories explain the empirical evolution of identity technologies. In Section 4 we provide some basic public choice economics of identity technologies. In Section 5 we describe two possible technological futures for identity: one in which governments exploit digital technologies to develop a single uniform identity across political and economic domains, and one in which identity is both digital and decentralised through blockchain technology. Section 6 concludes.

2. Two views of identity

Evolutionary

In the Demsetzian view of property rights, such rights emerge from the needs of economic interaction. Participants in exchange develop and expand notions of property rights where the benefits of internalising costs outweigh the costs of that internalisation. The drivers of these changes can be new technologies, changes in relative prices, or the expansion of the size of the market. Property rights are endogenous to the market, and are recognised by the state after their emergence.

We draw an analogous approach to identity. Like property rights, identity is an institution of coordination that requires two-sided recognition – identity must be affirmed and not falsified (trespassed).

The evolutionary theory of identity suggests that identity and identity management arises from needs of complex market interaction. Where exchanges between buyer and seller are simple, the quality of the good being exchanged is easy to assess, and the transaction is final (payment is not subject to credit, and there is no possibility of a charge back), neither buyer and seller will be overly concerned about formally identifying their counterparty. This situation changes as the complexity of the transaction increases. In the presence of information asymmetries about the quality of goods, sellers may want to use a record of past dealings to provide information about quality. However, buyers need some way to verify not only that those past dealings have occurred (reputation) but also that a particular seller is in fact the seller to who the reputation refers. Identity technologies – such as brands and trademarks – in this case are developed by sellers to exploit market reputation. A similar situation occurs where borrowers seek to establish their credit-worthiness to lenders. Here identity technologies are used to verify past dealings.

Any contractual relationship – any promise – involves an identity element. Parties to a contract need some level of assurance it will be settled *ex post*. Each party needs to know that their counterparty was in fact who they said they were and had the authority to make the agreement. Mistaken or falsified identity in a contract could mean that a service is delivered to one person and the bill for that service sent to another, quite innocent, person. The identity technology we most typically use for this is a signature, which, while not quite unforgeable, provides a high degree of verifiability.

In this evolutionary theory identity technologies enlarge the scope of possible market exchange in a world of positive transaction costs. States then enforce contractual arrangements (through the civil or criminal law) that are first established by market-provided identity technologies.

Legal-centric

The weakness of the Demsetzian property rights view is that it provides little account of exactly how property rights 'emerge' in the face of change. In that context, Eggertsson (1990) describes this as a 'naïve' theory, as it does not factor in the cost of coming to a social agreement about the nature and bounds of the new property right. Riker and Sened (1991) place politics at the centre of the development of property rights. Property rights are established (rather than emerge) when a sequence of conditions are met. As in the Demsetzian theory, 1) the rights must be scarce, and 2) rights-holders must desire the right. Riker and Sened add two further conditions: 3) rule-makers (that is, the state) must want to recognise the right and provide enforcement of that right. Finally, 4) duty-bearers (that is, other market participants) must respect the right.

In the legal-centric view, identity is provided by the state and then used by market participants. As in the evolutionary view, identity emerges as part of the need for exchange. The state however provides the foundational infrastructure on which the right is established. The state has to want to enforce an identity for it to be valuable. Duty-bearers – that is, those who individuals ask to recognise identities – must affirm identities and not fraudulently claim them.

The legal-centric approach emphasises political rather than economic exchange. Governments establish foundation identities at core moments in life – providing birth certificates at birth, marriage licenses for reproduction, and death certificates – on which other identity technologies base themselves. Birth certificates are necessary for a range or other government identity documents (voting registries, marriage and drivers' licenses, passports to travel, etc), which are then used as inputs into commercial and business management of identity (for example, for employment contracts, to open a bank account, transfer large assets, and so on). We continue this discussion further in Section 5.

3. Institutions and technologies of identity

In a tiny community (such as a group of less than fifty people) each member of the community knows everyone else. The identity technology in this community is common knowledge dispersed uniformly across that community. Each member has knowledge of the existence of each other member mapped to information about their trustworthiness, their position in the political, economic and familial hierarchies, their interest and abilities, and so forth. Identification is done by sight, as today we do with family members, colleagues and friends.

In a small-scale society – too large for knowledge to be uniformly dispersed – social networks provide the key identity technology. An individual can prove who they are by reference to other people who know them. This approach – a precursor to the 'web of trust' model of digital identity – is reciprocally socially verified on a network. However, the network approach to identity in small-scale society does not scale. Social network identity is costly in a more subtle way as well. The frequency of complex economic transactions places a burden on social network verifiers – it would be a great burden if, for example, you had to bring a neighbour or relative to the bank with you every time you wished to make a withdrawal. Nor is a social network robust to high rates of change in members of the social network itself. First, new members disrupt the patterns of knowledge, increasing entropy. Second, new members to the community are unable to immediately exploit the social network to prove their identity – they have an 'onboarding' problem.

As societies grow, identities become more formal. Scott (1998) describes the establishment of surnames as identification. Small societies relied on first names and, where occasionally necessary, a second descriptive name (such as 'baker'). In fifteenth century Tuscany and England wealthy families adopted family names in order to establish a sort of corporate branding. Among the small literate population of the medieval world, personal seals operated as technologies of "identification, designation, and recognition" for personal and commercial communication (Bedos-Rezak 2000). So far this process accords with the evolutionary model of identity – identity technologies develop (evolve) in order to facilitate market transactions as social orders grow.

However, the development of permanent identities across the social orders tracks the expansion of the fiscal powers of the state. Temporary additional family descriptors like John 'baker' or John 'short' became permanent and heritable even when those descriptors no longer applied. States and state-like entities (manors, churches) applied surnames for taxation records. Governments co-opted private organizational registries kept by village leaders, or church records, into public registries, beginning with existence records. The development of social security entitlements also necessitated a new identity management technology. As part of its labour price fixing the 1563 Elizabethan Statute of Artificers imposed obligations on labourers to carry documentation when traveling between parishes and the 1662 Poor Law used 'settlement certificates' to allocate families to the parishes that were responsible for social security entitlements (Tadmor 2017). Torpey (2000) describes the imposition of passports as the imposition of formal identity in the process of the state claiming a monopoly on the legitimate means of movement. The state first had to 'embrace' society – that is, take administrative command of – before it was able to 'penetrate' society – impose control and extract rent.

Today government imposed identity technologies form the basis of identification in the market, as the legal-centric view predicts. For example, the Australian government's 100 points of identification standard[1] requires identity provers to provide set of documents that would verify their identity. This scheme (or a variation of it) is used by both government agencies and private firms. For example, creating a new phone connection with the telecommunications provider Telstra requires customers present 100 points of identification.[2] All of the 'primary' documents (at least one of which must be part of the list) are government issued identifications – passports, birth certificates or citizenship certificates. Of the second most valuable document category (documents that have a photograph and a name) all except identification cards issued to students by a tertiary education institution are government issued documents – drivers' licenses, boat licenses, and government employment identification cards. Purely private forms of identification (such as mortgage documents, credit cards, utilities bills, and so forth) are the lowest ranked documents. In fact in order for individuals to obtain these lowest ranked documents they almost always have to provide higher level (government-issued) identity documents to these private organisations.

As this suggests, the underlying, foundational identity document is the birth certificate. Birth certificates are a formal document that indicates the existence of an individual on the state's birth register. Birth certificates confirm Australian citizenship for the purpose of getting an Australian passport.[3] Acquiring citizenship also requires a birth certificate from the country of origin.[4] Until the

[1] The 100 points of identification standards have since been formally replaced by the 2014 National Identity Proofing Guidelines, but are still commonly used in government settings (see for instance https://www.border.gov.au/Licensing/Documents/100-points-identification-guidelines.pdf)

[2] https://www.telstra.com.au/support/category/account-billing/manage-account/acceptable-forms-of-identification

[3] https://www.passports.gov.au/passportsexplained/theapplicationprocess/eligibilityoverview/Pages/confirmingidentity.aspx

mid-nineteenth century, birth registers (along with registers of marriage and death) were managed by parish clergy. The British government took over birth registration in 1837 and Tasmania became the first British colony to introduce civil registration a year later (Kippen 2002).

Nevertheless, parish registration itself was not an emergent evolutionary institution. The system was established in 1538 during the reign of Henry VIII as a uniform national requirement for baptisms, marriages and deaths. Higgs (2003) argues that parish registration was intended to support market exchange, with Thomas Cromwell describing the system as

> for the avoiding of sundry strifes and processes and contentions arising from age, lineal descent, title of inheritance, legitimation of bastardy, and for knowledge, whether any person is our subject or no. (cited in Higgs 2003)

Taking a stronger view, Elton (1976) concludes that the purpose of the parish requirement was to facilitate taxation.

How does the case of parish registration help us navigate the difference between the legal-centric and evolutionary views? Both Higgs' (2003) facilitation model and Elton's (1976) predatory model are legal-centric. The property-supportive argument explains Riker and Sened's (1991) second and fourth conditions, and the property-extractive argument explains the third condition. However, Szreter (2013) offers an alternative, Demsetzian argument. Parish registration post-dated a more general development in documented identification and record keeping occurring across state, ecclesiastical and commercial sectors. As Clanchy (2012) has explored, documents proliferated throughout England from the twelfth century on. Additionally, many groups of New England settlers established parish registration for local commercial purposes even though there was no national requirement to do so. Szreter (2013) concludes that the significance of parish registration in 1538 was not that it created a technology of identity, but that it was national in scope. This national uniformity may have been a major contributor to England's long-run growth (Szreter 2007).

We can conclude this brief overview with a provisional conclusion echoing Szreter's. The Demsetzian view of identity explains the development of identity institutions and technologies in small scale societies. Identity facilitates commercial and political transactions, is demanded by the participants to those transactions, and the state later provides and enforces identity institutions. However, the state is not benevolent and provides more identity institutions – and institutions of a different character – than the market would provide in order to 'penetrate' society, extracting rents and ensuring power.

4. Government and identity

Identity has public good attributes. As a public good it can be publicly or privately provided. The means of provision affects the quantity of the good provided. Public goods can be undersupplied (due to free riding) or oversupplied (due to rent seeking and knowledge problems). From this we derive two theses.

> *Thesis 1) Individuals want a variety of identities for subjectivist, efficiency and privacy reasons*
>
> *Thesis 2) Governments want individuals to have one and no more than one uniform and stable identity for taxation, conscription, and entitlements.*

Thesis 1 describes the incommensurable preferences about the quantity and quality of public good provided. Thesis 2 suggests the possible oversupply of the public good.

[4] https://www.border.gov.au/Trav/Citi/Appl/What-documents-do-you-need/identity-documents

Psychological and sociological approaches to identity emphasise that individuals harbour multiple coexisting 'identities' (Bendle 2002; Giddens 1991; Suh 2002). Our identities at work, with family and friends, in community settings vary depending on the face we wish to present to the world. An entrepreneur might also be (and see themselves as) an amateur tennis player, taxpayer, mother, high-school sweetheart, holder of good credit, and property owner. Each of these identities assume distinct entitlements and responsibilities, of both legal and social character. Individuals have reasons to separate those identities out depending on context - when acting as a taxpayer no value is gained by emphasising or assuming the attributes of an amateur tennis player. In other words, these multiple identities are both subjective and efficient, in the sense that they are information cost minimising. These identities also change over time – a 'daughter' might add 'mother' to their identity and subsequently add 'grandmother'.

Individuals also maintain multiple identities for privacy reasons. Jourard (1966) related multiple identities used in social interaction to privacy when he described the psychological need for privacy as a space to "simply *be* rather than *be respectable*" (emphasis in original). Individuals seek to compartmentalise their interactions with other impersonal organisations – such as firms or the state – for both these psychological reasons and practical reasons: there is no need for a tax authority to know about our hobbies, or for firms to know about our property holdings. Privacy is also protective in this context. Minimising the information provided to the tax authority limits the extractive capacity of the state. The evolutionary view of identification institutions says that these multiple identities evolve and emerge from the needs of the market participants: our entrepreneur wants to prove and allow lenders to verify their credit and property holdings but provide no more information than necessary.

As that suggests, the state has quite different interests in identity. For the purposes of taxation, the state wants all potential taxpayers visible – *legible* in Scott's (1998) sense, or *embraced* in Torpey's (2000). This means that each individual has to have at least one legal identity on which tax assessment and extraction can be established. A least one identity is also desirable for conscription. However, the state has a countervailing interest in ensuring that its subjects have *no more than one* legal identity. Modern governments provide entitlements, such as unemployment insurance, disability and old age pensions. Individuals with multiple legal identities might be able to claim multiple entitlements. Multiple legal identities also might allow individuals to avoid tax progressivity: an individual who was able to split their income between legal identities unbeknownst to the state would pay tax at lower tax brackets than someone who had to bundle their income. Likewise, a single legal identity is desirable from the perspective of the state for the purposes of voting.

What does this incentive for state-sponsored single (legal) identity suggest? The state has an incentive to impose on its subjects a uniform, immutable and fixed identity that encompasses all relevant and potentially relevant information. With a uniform identity, information relevant in one domain can be cross-referenced against information relevant in another, from which conclusions can be drawn.

The development of state identity provisionally follows this pattern. The establishment of civil registration in Victoria was seen (and is still seen) as particularly innovative because it included alongside birth registration the ages of the mother's other children (McCalman et al. 2015), allowing the state to map not just births but relations and family structures. Australia has had a long history of attempts to harmonise identity in Australia through a single token – what Clarke (1994) calls a multi-purpose inhabitant registration scheme – such as the ill-fated Australia Card. Certain e-Government initiatives that promise a single entry point to state services also present pseudo-inhabitant registration schemes.

Our two theses give direct policy shape to the two views of identity. Citizens have a normative interest in the Demsetzian view, viewing their identities as subjective, private and contextual. States

have a normative interest in the legal-centric view, seeing identity as a tool of fiscal surveillance and redistribution.

One poignant example of the intersection of subjective networked identity and uniform legal identity is indigeneity. Indigeneity – that is, an identity attribute as an indigenous person – has been heavily associated with exploitation and oppression by governments. As part of an effort to right past wrongs, modern governments often have 'affirmative action' for indigenous citizens measures for thing like higher-education scholarships and grants. Both historically and contemporaneously governments have had an interest in determining who is indigenous and who is not. Indigenous births were frequently not recorded in colonial Australian civil registries. Avoiding registration was a way of avoiding the negative regulatory consequences of the recognition of indigenous status by the state, such as child removal policies (Chesterman and Galligan 1997; Victorian Law Reform Commission 2013). Avoiding government identification was a 'weapon of the weak' for Aboriginal Australians in the sense described by Scott (2008).

McCorquodale (1986) found 67 definitions and classifications of Aboriginal Australians in 700 pieces of Australian legislation. In the first few decades after white settlement indigenous status was defined by region, then by 'blood' and until the 1980s anyone who is a member of the 'Aboriginal race'. Since 1981 Australian governments have used a three-part definition: an Aboriginal person is a person of Aboriginal descent, who identifies as an Aboriginal person and is accepted as such by the community in which they live (Gardiner-Garden 2003). The three-part definition incorporates 'objective' and subjective, networked measures of identity to come to a legal identity attribute.

A similar example is national identity. In his study of the cultural roots of nationalism Anderson (2006) describes the development of a socially-constructed (networked) identity that creates a boundary between who is and is not a member of the nation. National identity is one subjective identity attribute that is held more strongly or weakly in some part by inhabitants in a given territory. As Anderson describes it, this national identity is an evolutionarily developed after the growth of vernacular language, print media, and the decline of transnational elite identities like 'Christendom'. It is in the attempts to give these identities concrete form that we experience a clash between evolutionary and legal-centric theories, as the evolved identity of nationalism or indigeneity is given positive structural form for the purposes of taxation or entitlement.

5. Possible futures

Identity institutions are sensitive to technological change. The increasing literacy rates and norms about record-keeping documented by Clanchy (2012) were 'technologies' that which enabled the Tudor system of parish registration. Recent technological change concerning the digitisation of services and decentralised distributed ledgers (blockchains) materially affects the possibilities for identity in coming decades. Here we distinguish two possible futures, one in which blockchains and related technologies enable states to create more comprehensive uniform identities, and one in which these technologies enables identities to be 'federated' and transferred to citizens.

Centralised digital identity

Digitisation – of both the basic information about identity and individual interactions with government and commercial services – presents an opportunity for governments to impose (or offer) a single uniform identity that links all government services. From the government's perspective, such an identity would permit more close and fine-grained surveillance of individuals for the purpose of taxation and entitlement assessment. It is easy to imagine how market interactions could free ride off government identity services. A 'single sign in' authentication would provide an off the shelf authentication possibly more efficient than the existing government documents which provide identity

today. Such a centralised identity could store more identity attributes than needed for government services (such as property ownership and credit worthiness), as the legal-centric view suggests.

Such a centralised digital identity has obvious risks. Single centralised identities present a single weakness (a 'honey pot') for identity fraud. Permissioning single identities presents complex challenges: would service providers have access to information that is exists in the central identity but is not necessary for their service responsibilities. (For example, would Medicare authorities have access to criminal records or creditworthiness information?) The Australian government has a poor record in preventing unauthorised access to personal information. More efficient tax surveillance is not necessarily in the interest of citizens either. While the legal-centric theory suggests pressures for the development of such a single centralised digital identity, the analysis here also predicts that the identity institutions in this view would be oversupplied, with consequences for privacy and reduction in personal control over subjective identity.

Federated, decentralised digital identity

An alternative future follows the evolutionary path. In this future, identity is cryptographically secured and decentralised, giving individuals ownership and permissioning control over multiple identity attributes along various systems. The invention of the blockchain – the distributed decentralised digital ledger system invented to operate the digital currency Bitcoin – is fundamentally an identity validation engine that does not require a central authority to achieve consensus. Blockchains (and allied technologies) allow for probabilistic certainty that a specific individual is the owner of a given attribute.[5] Public, secure blockchains remove the need for individual service providers (firms or governments) to store information about their clients centrally. Asymmetric cryptography and distributed consensus ensures that verifying entities are able to cheaply verify identity attribute claims but are unable to alter them. With allied technologies such as non-interactive zero-knowledge proofs, it is possible to verify the existence and correctness of a claim without ever sharing that claim with the verifying entity.

Such decentralised identity applications present efficiencies in terms of exchange facilitation. Under such systems, identities can be 'federated' (Chadwick 2009). Services providers rely on separate identity providers to prove and validate identities which allow access to those services. Protocols allowing the use of multiple identify providers for a single exchange would additionally give individuals control of the release of information about attributes according to context.

6. Conclusion

In this paper we have provided an institutional theory of identity. We distinguished between two views on the origins of identity institutions and technology, derived from the literature about the origins of property rights. The first, the Demsetzian view, conceives of identity as an emergent and evolutionary response to market complexity, which is then enforced by the state. The second, the legal-centric view, conceives of identity as first established by the state on which market exchanges free ride. We have presented some evidence for each view, suggesting a new range of possible research questions. We offer two theses on the incentives for states and individuals to seek uniform and multiple identities respectively. Finally we conclude with some possible futures in light of technological change.

[5] 'Probabilistic' because of the near absolute, but not absolute, security of any cryptographic system

7. References

Anderson, B 2006, *Imagined Communities: Reflections on the Origin and Spread of Nationalism*, Verso.

Bedos-Rezak, BM 2000, 'Medieval Identity: A Sign and a Concept', *The American Historical Review*, vol. 105, no. 5, pp. 1489-533.

Bendle, MF 2002, 'The crisis of 'identity'in high modernity', *The British journal of sociology*, vol. 53, no. 1, pp. 1-18.

Berg, C 2017, 'What Diplomacy in the Ancient near East Can Tell Us about the Blockchain', *SSRN*.

Berg, C, Davidson, S and Potts, J 2017a, 'The Blockchain Economy: A beginner's guide to institutional cryptoeconomics', *Medium*.

---- 2017b, 'Byzantine political economy', *Medium*, 25 October.

Chadwick, D 2009, 'Federated identity management', *Foundations of security analysis and design V*, pp. 96-120.

Chesterman, J and Galligan, B 1997, *Citizens without Rights: Aborigines and Australian Citizenship*, Cambridge University Press.

Clanchy, MT 2012, *From Memory to Written Record: England 1066 - 1307*, Wiley.

Clarke, R 1994, 'Human Identification in Information Systems: Management Challenges and Public Policy Issues', *Information Technology & People*, vol. 7, no. 4, pp. 6-37.

Coase, RH 1937, 'The nature of the firm', *Economica*, vol. 4, no. 16, pp. 386-405.

---- 1960, 'The problem of social cost', *The Journal of Law and Economics*, vol. 56, no. 4, pp. 837-77.

Davidson, S, Filippi, Pd and Potts, J forthcoming, 'Blockchains and the economic institutions of capitalism ', *Journal of Institutional Economics*.

Demsetz, H 1967, 'Toward A Theory of Property Rights', *American Economic Review: Papers and Proceedings*, vol. 57, no. 2, pp. 347-59.

Eggertsson, T 1990, *Economic Behavior and Institutions: Principles of Neoinstitutional Economics*, Cambridge University Press.

Elton, GR 1976, *England 1200-1640*, Cambridge University Press.

Gardiner-Garden, J 2003, *Defining Aboriginality in Australia*, Parliamentary Library, Canberra.

Giddens, A 1991, *Modernity and Self-identity: Self and Society in the Late Modern Age*, Stanford University Press.

Higgs, E 2003, *The Information State in England: The Central Collection of Information on Citizens since 1500*, Macmillan Education UK.

Jourard, SM 1966, 'Some psychological aspects of privacy', *Law and Contemporary Problems*, vol. 31, pp. 307-18.

Kippen, R 2002, 'An indispensable duty of government: civil registration in nineteenth-century Tasmania', *Tasmanian Historical Studies*, vol. 8, no. 1, p. 42.

McCalman, J, Smith, L, Silcot, S and Kippen, R 2015, 'Building a Life Course Dataset from Australian Convict Records: Founders & Survivors: Australian Life Courses in Historical Context, 1803–1920', in *Population Reconstruction*, Springer, pp. 285-98.

McCorquodale, J 1986, 'The legal classification of race in Australia', *Aboriginal History*, pp. 7-24.

Riker, WH and Sened, I 1991, 'A political theory of the origin of property rights: Airport slots', *American Journal of Political Science*, pp. 951-69.

Scott, JC 1998, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, Yale University Press.

---- 2008, *Weapons of the Weak: Everyday Forms of Peasant Resistance*, Yale University Press.

Sened, I 1997, *The political institution of private property*, Cambridge University Press, Cambridge.

Suh, EM 2002, 'Culture, identity consistency, and subjective well-being', *Journal of personality and social psychology*, vol. 83, no. 6, p. 1378.

Szreter, S 2007, 'The right of registration: development, identity registration, and social security—a historical perspective', *World development*, vol. 35, no. 1, pp. 67-86.

---- 2013, 'The Parish Registers in Early Modern English History: Registration from Above and Below', in *Identification and Registration Practices in Transnational Perspective*, Springer, pp. 113-31.

Tadmor, N 2017, 'The Settlement of the Poor and the Rise of the Form in England, c.1662–1780', *Past & Present*, vol. 236, no. 1, pp. 43-97.

Torpey, J 2000, *The Invention of the Passport: Surveillance, Citizenship and the State*, Cambridge University Press.

Victorian Law Reform Commission 2013, *Birth registration and birth certificates*, Victorian Law Reform Commission.

Williamson, OE 1985, *The Economic Institutions of Capitalism*, Free Press.