Money: communicative functions of payment and price

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Abstract

Money is rich in semiotic potential and its capacity to express social identity and collectivity is well established. This essay explores a range of communicative functions of money, focusing in particular on the ways in which payments and prices may serve as cultural signals. It asks how the communicative significance of money might change as a result of the introduction of new types of currency, payment systems and pricing techniques, and suggests that such developments are likely to involve revisiting two key tensions: between state or corporate power on the one hand, and individual autonomy and privacy on the other; and between money's power to generate collectivity and its power to divide and exclude.

Keywords

Money; markets; price; payments; communication.

Recent years have seen a resurgence of interest in scholarship on money, and this has coincided with a period in which money itself appears to be undergoing a series of changes. At a time when there is growing agreement about money's nature (see Ingham 2004, Graeber 2011), the forms it takes seem increasingly fluid. There are debates in many countries about the desirability and likely consequences of a move towards cashlessness; there has been an apparent growth in electronic and non-state currencies; and there have been significant changes in the payment industries and in forms of payment. How might this affect the culture of markets? The expansion of modern monies and financial instruments has, as Guyer (1995, 2) notes, made the "currency interface" an area of great dynamism; from the perspective of cultural studies of money and markets, recent developments raise questions about how money might change in the popular imagination, and about the kinds of practices that might coalesce around new payments technologies or currencies.

This essay is particularly concerned with the communicative aspects of money and monetary practices. Money is rich in semiotic potential, and although it may be understood pragmatically in terms of what it does and the kinds of action it makes possible, it can also be understood in terms of what it signifies and how it accrues meaning. Moreover, like other “marketplace icons”, part of what makes money distinctive its capacity to point beyond itself, to be both universal and particular, “fully public and objective”, yet also intimately connected to the construction of subjectively meaningful experience (Konings 2015, 27-28). In what follows I explore several elements of money’s changing semiotic reach, focusing in particular on the connection of currency, payments and prices to questions of identity, collectivity and belonging, and asking how contemporary developments in pricing and payments technologies might alter these relations.

Currency symbolism

Money’s capacity to communicate is typically associated with the symbolism of payments media, and especially coins and notes issued by the state. For this reason, most analyses of money’s signifying properties focus on its connection to nationhood and national identity. Money is one of Billig’s (1995) examples of banal nationalism – the manifold small ways in which the nation is flagged in the details of everyday life – and territorial currencies are viewed as a symbol of the sovereignty of the nation-state (Helleiner 1997). This is most clear when such projects seem premature or when they are thwarted: in 2014, for example, the militant group and proto-state ISIS announced its intention to mint its own currency, despite not being recognized by any other country; by contrast, the Palestinian Authority has not been able to establish a currency more than twenty years after the Oslo Accords set up a Palestine Monetary Authority to serve as a central bank. Similar parallels between the strength of a state and the strength of its currency can be seen in the case of currency substitution (the partial or full replacement of a national currency by a stronger one from elsewhere), which is taken as a sign of serious crisis or failure, or conversely in the use of the currencies of the wealthiest and most powerful states outside of their borders (Cohen 1999).

Elsewhere currencies have been characterized as a “cultural medium”, even a “media text”, connoting particular ideas about national or (in the case of an entity like the EU) supra-national identity (Fornas 2012, 5). These are usually linked to its power and historical achievements, but may also connote perceived characteristics in more subtle ways, as in the case of the pixelated, ‘modern’ design chosen by the Norwegian central bank in 2014, or the bridges and doorways of euro notes, suggesting carefully structured opportunities for connection. While the first functions of currency design are to instill trust, guarantee authenticity, and minimise counterfeiting (Lauer 2008), a wide array of symbolic properties can be mobilized alongside this, and coins and notes have historically been an interesting indicator of how a nation or other territorial entity understands its history, place in the world, and relationship to others. One example of this is the way that women have figured on banknotes: female figures have often been used to personify abstract or idealized qualities, such as Justice, Liberty or Law, but portraits of actual women (and especially women other than monarchs) have been relatively rare (Hewitt 1994). Similarly, Hewitt (1999) points out that while we associate bank note design with national identity, this in fact only became a global feature in the second half of the twentieth century with the emergence of newly independent post-colonial states. Prior to this there were many parts of the world where one would find banknotes that combined images of colonial authority with romanticized images of subject lands and peoples. What was connoted or expressed here was precisely not nation alone, but relations between nations.

Currency takes many forms in addition to coins and banknotes. From personal cheques and credit cards to payment systems like PayPal and MPesa, these other forms of money and payment may evoke quite different forms of collectivity and identity. The Brixton Pound, a local currency set up in Brixton, south London in 2009 to support the local economy and protect it from large retail chains, uses an iconography that explicitly focuses on local identity and history, including famous past residents, such as CLR James and David Bowie, as well as local activists and familiar neighbourhood architecture. Alternatively, consider recent developments in credit card design. These have for some time used different colours to communicate the size of the line of credit that the bank will make available to the cardholder, moving from gold to platinum to black, with ever more exclusive offers and services at the upper end (Langley 2008, 192). Yet some banks now also allow customers to choose the colour of their own cards, and also to personalize them further, with a favourite photograph or image. In this respect, banks appear to recognize that payment cards are not just extensions of the bank, but also of the individual (McLuhan 1994) – not just mute technical objects but a “medium of communicative growth” (Cooley 1913), allowing people to engage with more and more complex problems (Braudel 1981), and over ever larger distances.

One way of thinking about the symbolism of money, then, is in terms of the types of social identity and forms of collectivity that monetary media organize or permit. In an era of territorial currencies and the widespread use of cash, relations between the individual and the collective seemed inevitably linked to the nation state and national identity and belonging. Yet as more transactions take place without cash, and the denominating currency of transactions seems less important than it once did – at least for some people – the significance of this has shifted. The multiplication of currencies and forms of payment creates, in effect, a clash between different forms of identity. Customers are in some cases able to use payments media to express their identity, yet access to certain types of monies is more and more linked to privatized forms of classification and categorization made by banks and other credit providers. Alternative currencies allow users to express non-national forms of social collectivity, but the growing feasibility of paying for goods with phones, or indeed wearable forms of payment (Birch 2014), means that in many contexts social classifications and affinities (whether chosen or imposed) remain invisible. The tension between this apparent expansion of personalization on the one hand, and persistent forms of social classification on the other, will be explored further below.

Payments

Money does not only communicate through the iconography of currency. Everyday uses of money – in savings, transfers and payments – can be both symbolic and strategic, and are often implicitly recognized as forms of communication. There is substantial evidence that people’s ordinary uses of money reflect efforts to give it specificity and meaning, even in the face of its apparent genericness and generalizability. Zelizer (1994) shows that symbolic practices of earmarking, decorating or re-naming money (e.g. “pin money”) and creating alternative tokens have all historically been used at a small scale for interactional purposes such as creating or dissolving social ties, marking rites of passage or maintaining status distinctions. Such practices show that special purpose monies (i.e. those that can be used only for certain goods or services) are not just created from above, for example in the form of companies’ frequent flier miles or reward card points, but also from below. In this respect, the claim that money is a “symbolically generalized medium of communication” (see Borch 2011 for a discussion) only captures part of the story: while money is certainly communicative in the sense of being broadly mutually comprehensible and enhancing the possibility of social coordination, much of its power to do so is worked out locally through the customs and practices. There are, as Zelizer demonstrates, many conventions about how and when particular types of money, and modes of payment, may and may not be used; but these are not universal and, more importantly, do not inhere in money itself but rather are negotiated in the context of specific relationships and spheres of exchange. It is not the fact of money that establishes mutual comprehension and coordination, but rather the relationships, customs and forms of social differentiation built up around it.

One particularly powerful illustration of the communicative capacity of money – as well as its complexity – comes from the case of compensation payments. As Pat O'Malley (2009, 2011) argues, it is of great – if under appreciated – significance that money has come to be the predominant sanction in criminal, civil, and regulatory law; the proliferation of monetary sanctions such as fines and damages has in many contexts tilted justice itself towards being a "monetized apparatus for the pricing and distribution of risk" (2011, 547). The apparent "meaninglessness" of money, he suggests, is part of what makes these developments possible, but to settle a claim through monetary payment can, paradoxically, itself be a highly significant act. A clear example of this is the use of reparations payments in human rights law. In these contexts, making a payment is often taken as settling a real or figurative debt, but the practice can also be charged with communicating sorrow, acknowledging wrongdoing or harm, and perhaps naming a desire to move forward (see Moon 2013). Yet such officially sanctioned forms of monetary communication are often controversial. While the payment of reparations is now regarded as a human right, such payments can also "regulate the range of political and historical meanings with which the crimes of the past are endowed, and through which they are interpreted and acted upon" (Moon 2013, 256). In the case of Argentina's "mothers of the disappeared", for example, Moon shows that their refusal of the financial and memorial reparations offered by the Alfonsin government was linked to their belief that it was an attempt to "buy their silence" and to avoid offering the retributive justice of bringing perpetrators to trial. Refusing a payment, in this context, is also a way of refusing to stop talking about something. In the case of post-apartheid South Africa, on the other hand, the decision by the Truth and Reconciliation Commission to pursue symbolic reparations rather than material ones was contentious precisely because it left the severe material inequalities caused by apartheid unaddressed. In addition, the focus on party political violence and the role of the state seemed to ignore actors such as multinational corporations who had benefited economically from the political system (Moon 2013, 264). The decision by some South Africans to pursue compensation claims against multinational corporations was thus a way of emphasizing the material costs of apartheid but also a way of asserting different sites of culpability from those captured by the formal TRC process.

Debates about money’s capacity to communicate versus its tendency to silence are also common in more mundane market contexts. Albert Hirschman (1970) famously argued that the forms of expression characterizing the market and the polity were fundamentally different: “voice” was more often associated with the political sphere, while in markets communication usually took the form of “exit”, i.e. withdrawing one’s money from an organization or firm. Yet as Hirschman noted, things are rarely so clear in practice, with the likely balance between “speaking up” (voice) and more indirect forms of communication mediated by money (exit) depending not only on the elasticity of demand and extent of competition, but also on institutional design and the availability of effective communication channels. Developments in digital communication may be making “voice” a more plausible route for consumers, but in an era of apparent political polarization, where consumer boycotts and the lobbying of advertisers may become more common, the debate has again emerged as to which of these is more effective, and indeed whether campaigns that operate through the removal of funds are best understood as a form of speech or an attempt to censor. In this context and others the implication is often that money and speech are fundamentally different kinds of thing, and should not be mixed. Yet money is routinely used as a means of communication, and it is not clear that this should be stopped, even if that were possible. The issue, rather, is that the capacity to use money in this way is often so unevenly distributed. As Rebecca Spang (2015a) notes, monetary history is full of examples of people using money and currency to engage in a “dialogue of sorts”; what varies is that at crucial moments “some voices were much louder than others and some interlocutors proved almost completely deaf” (2015, 7).

Sometimes it is not the fact of payment itself, but rather the form it takes, that is most symbolically powerful. On two occasions between 2000 and 2006, the UK government made payments to those seeking asylum using a voucher system that restricted their spending to food and drink in a limited number of supermarkets, and did not give change. Refugee groups argued that compared with cash payments, this system stigmatized asylum seekers, and thereby damaged community relations. Government research into the first version of the system found that many asylum seekers felt embarrassed using the vouchers and experienced hostility from other supermarket customers (Travis 2006). Whilst denominated in the national currency, the use of a distinctive payment system here signified categorical differences in the nature of users' relationship to the nation-state, creating, in effect, a separate class of person with a demonstrably more restricted relationship to the use of the pound.

The use of crypto-currencies such as Bitcoin as an alternative form of payment can likewise be seen, at least in part, as the assertion of a critical attitude towards the nation-state, and towards the private companies and payments intermediaries who sometimes operate as proxies for them. Maurer et al (2013) suggest that one of the motivations for the creation of Bitcoin was annoyance at governments' reaction to the financial crisis of 2007-08, but more specifically at the role of banks and other private sector payment intermediaries. In addition to extracting profits through their monopoly on transactions, these intermediaries were also held responsible for invading people's privacy, and in some cases for using their power to censor organizations or shut them down – as in the case of Wikileaks, where PayPal froze the accounts of those accepting donations, under pressure from the US government. A pervasive sense that governments may exercise power arbitrarily, and that private sector actors are even less accountable, is a strong motivation for the formulation and use of alternative forms of payment.

Prices

In market contexts, one of the main ways money communicates is in the form of prices. Economists typically see price as the outcome of supply and demand, but it is also understood as a signal, and Hayek (1945) in particular attributed to price a dynamic, communicative function, describing price as a "telecommunications system" (albeit one that operated only semi-consciously). Within economic sociology, prices may be said to have a social or cultural determination insofar as they can be traced to non-economic factors such as social networks, institutional regulations, cultural meanings and various kinds of market devices or performances (see Beckert 2011, Caliskan 2007). There is, however, relatively little work in this tradition that explores the communicative dimensions of price directly, although one notable exception is Velthuis (2005; see also Preda 2009), whose work on the art world has shown that prices have (often quite fixed) cultural and symbolic as well as economic meanings, and that they are usually embedded in stories or "scripts" designed to justify and explain them.

In the art world context described by Velthuis, prices are also to be understood in terms of a "Veblen effect", in which part of the utility of a good derives from the price paid for it. This fact – that "price itself [is] valued as a cultural signal" (Beckert and Aspers 2011, 10) – has been much exploited by marketers, who typically display a much stronger sense that price can be a force in its own right (rather than simply the outcome of supply and demand), acting to shape the market and to segment customers (see e.g. Kotler and Armstrong 2014). Indeed it is in marketing that prices find their most explicit communicative role: "psychological" pricing is widespread, and one element of this is the aim to shape the "reference prices" – the "prices that buyers carry in their minds and refer to when looking at a given product" (2014, 341). One of the consequences of this strategic or psychological use of price is that over time certain prices may become iconic. The widespread use of prices ending in 99, for example, as well as the existence of 99p stores, may have begun as a psychological pricing strategy of appearing to cost less than the rounded number, but has since taken on a tropic quality in commercial discourse. Similarly, distributional analyses of number use have found a higher-than-expected frequency of sixes and their multiples, something attributed to their prevalence in market contexts, for example in the packaging of eggs or bottles of wine (Coupland 2011, 35).

Prices can be communicative or symbolic in other ways too. There is some evidence that people prefer round numbers in everyday contexts where there is a need for ease of use and manipulation, and where the demand for precision is low (Coupland 2011). Yet when found in commercial contexts round numbers may be read quite differently: recent research from the ride-sharing platform Uber found that people distrusted its "surge pricing" multiple when it was a round number, and were less inclined to book a ride when the multiple was 2.0 than when it was 2.1 (Dahl 2016). The implication was that the round number appeared to consumers to be the result of human agency, rather than the output of an algorithm processing "objective" data about the state of the market. There is an understandable comfort in the feeling that the market is impersonal, and that the same algorithm is being used for everyone, because historically the depersonalization of exchange, and the anonymity of mass market society, has been seen as a countervailing force against the potential for discrimination in face-to-face bargaining contexts.

How might the growing ability to "personalize" prices change money's capacity to signify? A range of developments linked to automated data collection and machine learning now make it possible to set prices on an individual basis, linked not only to aggregate supply and demand but also to individual qualities such as amount of phone battery remaining, or how much one has been willing to pay in the past. The assumption is that this capacity will be used to extract maximum prices from consumers. While this will almost certainly be the goal in most cases (and may not necessarily be 'unfair'), the volumes of data collected about consumers means that price fluctuations may also be used in other strategic ways, including to incentivize safer driving, as in the case of motor insurance, or to drive the use of energy during off-peak rather than peak periods (Moor and Lury 2017). The most significant changes are likely to be communicative and informational. Customers will in future be less likely to know the prices offered to (and paid by) others, reducing the ability of price to act as a signal. In the past, price variations have been well publicized, regardless of whether they are linked to identity and socio-demographics (e.g. being a pensioner or student) or to supply and demand (going to the cinema is cheaper during the day). The personalization – or individualization – of price will still depend upon forms of segmentation and classification, but these will be more likely to be hidden, and it will be harder for people to recognize the ways in which they have been classified. This in turn may make it harder for them to communicate with others about the fairness or unfairness of a price – something that in turn may have significant welfare implications – and it may also limit the capacity of price to function symbolically in the public sphere.

Conclusion

Money has long been understood to be rich in semiotic potential, not only in the form of currency design and payments media such as credit cards, but also in the organization and nature of those payments, and in the strategic and communicative uses of price and numbering by companies. What we see in these diverse communicative operations is not only the desire to express a sentiment or communicate a message, but also the urge to sponsor and instantiate forms of social identity, affiliation and collectivity1. One of the key questions surrounding cultural and communicative uses of money is therefore the degree of autonomy that ordinary people have to use money and payment in these ways, rather than to be merely subject to the classifications and orderings of more powerful institutions.

In the most optimistic accounts of the future of money (e.g. Hart 2001, Birch 2014), a proliferation of independent currencies and forms of exchange, facilitated by the internet and digital media, will make it more and more possible for ordinary people to take control of their economic lives. In this view, the ability to process and record large amounts of data about transactions will form part of the context for a "re-personalization" of economic life, and people will increasingly be able to designate their own money of account, perhaps tied to locality or community, and not necessarily linked to a national currency (Hart 2001, 278-79). This in turn will "extend considerably our capacities to buy and sell without relying on some exogenous source of employment… to finance our activities", and should "extend the range of economic activities that individuals can participate in, if the wider market economy does not yield them the money they need" (281-82).

Yet there are reasons to be cautious about what a re-personalization of money might look like in practice. As Hart's remarkably prescient book acknowledges, the same technology that potentially transfers more power and agency to consumers can also be used to target them more carefully, singling out the wealthiest consumers for special treatment and ignoring or rejecting those deemed insufficiently valuable. From this perspective, one possibility is that "personalization" will, in effect, mean a return to different currencies – or at least, substantially different monetary experiences – for rich and poor (see also Spang 2016). At the heart of the forms of personalization currently being developed by commercial actors are ever more nimble, but also increasingly opaque, forms of classification, which are made on the basis of complex and shifting variables of which users themselves may have little awareness.

In this form of personalization, what is at stake is in fact the isolation of consumers from other market actors, depriving them of any kind of overview of market activity and of information about the prices paid by other consumers. Prices and payments organized by large corporations with proprietary databases of transaction information therefore have the potential to interrupt some of the connections between the individual and the collective that national currencies and fixed, open prices made possible. Indeed in more dystopian visions of the future, the growth of "wildcat" and other private or non-state currencies (Castronova 2015) is threatening precisely because it may break the link between individuals and the state, hollowing out the state's capacity to act in the interest of community, and giving people less and less reason to feel invested in, or connected to, those most proximate to them (Spang 2015b). Similarly, one can easily see how the "dark side" of the potential to create multiple currencies – perhaps motivated by shared location, or shared affinities and values – may be that "the shared desire to minimise transaction costs for 'us' at the possible expense of transaction costs for 'them'" (Birch 2014, 97) will actually introduce new forms of discrimination and division into the realm of exchange, on top of those that exist already.

Money's communicative capacities are tied to many things, but among the most important are community, connection and collectivity. This harks back to an ancient association between "communication" and "communion": as James Carey (1989, 18) puts it, communication in this view is oriented "not toward the extension of messages in space, but toward the maintenance of society in time". Currency, payments and prices can "send a message", but this is often done in the service of wider goals such as creating bonds between the individual and the collective, or indeed rejecting those links and creating new ones. As forms of money and payment evolve, it looks likely that they will face many of the same questions that can be traced throughout monetary history – that is, the tension between state or corporate power on the one hand and the autonomy and privacy of ordinary people on the other, and the tension between money's power to generate collectivity and its power to divide and exclude.

Notes

1. This does not of course exhaust money's semiotic possibilities: as a 'communicated', as well as communicative, phenomenon one could equally consider the ways money is appears in the news or in popular culture.

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References

Beckert, Jens. 2011. *Where Do Prices Come From? Sociological Approaches to Price Formation*. MPIfG Discussion Paper 11/3

Beckert, Jens. and Patrik Aspers, eds. 2011. *The Worth of Goods*. Oxford: Oxford University Press.

Billig, Michael. 1995. *Banal Nationalism* London: Sage.

Birch, David. 2014. *Identity Is The New Money*. London Publishing Partnership

Borch, Christian. 2011. *Niklas Luhmann*. London and New York: Routledge.

Braudel, Fernand. 1981. *The Structures of Everyday Life: The Limits of the possible*. London and New York: William Collins, trans. Sian Reynolds

Caliskan, Koray. 2007. 'Price as a market device: cotton trading in Izmir mercantile exchange'. *The Sociological Review* 55(2): 241-260.

Carey, James. 1989. A cultural approach to communication, in *Communication as Culture*. Winchester MA and London: Unwin Hyman.
Castronova, Edward. 2015. *Wildcat Currency: how the virtual money revolution is transforming the economy*. New Haven and London: Yale University Press.
Cohen, Benjamin. 1999. The new geography of money, in E. Gilbert & E. Helleiner, eds. *Nation-States and Money: The Past, Present, and Future of National Currencies*. London: Routledge.
Cooley, Charles H. 1913. The Sphere of Pecuniary Exchange. *American Journal of Sociology* 19(2): 188-203.
Coupland, Nikolas. 2010. How frequent are numbers?. *Language and Communication* 31: 27-37.
Dahl, Melissa. 2016. People get suspicious when the Uber surge price is a round number. *New York Magazine* available at http://nymag.com/scienceofus/2016/05/people-get-suspicious-when-the-uber-surge-price-is-a-round-number.html, accessed 27th April 2017.
Fornäs, Johan. 2012. *Signifying Europe*. Bristol: Intellect Books
Graeber, David. 2011. *Debt: The First 5,000 Years*. Brooklyn: Melville House.
Guyer, Jane, ed. 1995. *Money Matters: Instability, Values and Social Payments in the Modern History of West African Communities*. Portsmouth, NH.: Heinemann
Hart, Keith. 2001. *Money in an Unequal World: Keith Hart and his memory bank*. New York and London: Texere
Hayek, Friedrich. A. 1945. The use of knowledge in society. *American Economic Review* 35(4): 519-530
Helleiner, Eric. 1997. *One Nation, One Money*. ARENA working paper 17, available at http://www.sv.uio.no/arena/english/research/publications/arena-working-papers/1994-2000/1997/wp97_17.htm, accessed 4th May 2017.
Hewitt, Virginia. 1994. *Beauty and the Banknote: Images of Women on Paper Money*. London: British Museum Press.
Hewitt, Virginia. 1999. A distant view: Imagery and imagination in the paper currency of the British Empire, 1800-1960. in E. Gilbert & E. Helleiner, eds. *Nation-States and Money: The Past, Present, and Future of National Currencies*. London: Routledge.
Hirschman, Albert. O. 1970. *Exit, Voice, and Loyalty*. Cambridge, MA. and London: Harvard University Press.
Ingham, Geoffrey. 2004. *The Nature of Money*. Cambridge: Polity.
Kent, Stephen A. 1990. The Quaker Ethic and the Fixed Price Policy: Max Weber and Beyond. in W. H. Swatos, ed. *Time, Place, and Circumstance: Neo-Weberian Studies in Comparative Religious History*. New York: Greenwood Press

Konings, Martijn. 2015. *The Emotional Logic of Capitalism: What Progressives Have Missed*. Stanford, CA.: Stanford University Press.
Kotler, Philip and Gary Armstrong. 2014, 2012. *Principles of Marketing*. Edinburgh: Pearson Education, fifteenth edition
Langley, Paul. 2008. *The Everyday Life of Global Finance*. Oxford: Oxford University Press.
Lauer, Josh. 2008. 'Money as Mass Communication: US Paper Currency and the Iconography of Nationalism'. *The Communication Review* 11(2): 109-132.
McLuhan, Marshall. 1994 [1964]. *Understanding Media*. Cambridge, MA and London: MIT Press
Maurer, Bill. et al. 2013. 'Perhaps the real problem is money itself! The practical materiality of bitcoin'. *Social Semiotics* 23(2): 261-277.
Moon, Claire. 2013. Money as the measure of man: values and value in the politics of reparation. in M. Cowburn et al., eds. *Values in Criminology and Community Justice*. Bristol: Policy Press.
Moor, Liz. and Celia Lury. 2017. Personalized pricing: markets, discrimination and personhood. unpublished paper.
O'Malley, Pat. 2009. *The Currency of Justice: Fines and Damages in Consumer Societies*. Oxford and New York: Routledge.
O'Malley, Pat. 2011. 'The Currency of Freedom?'. *Social & Legal Studies* 20(4): 546-556.
Preda, Alex. 2009. *Information, knowledge, and economic life*, Oxford: Oxford University Press.
Travis, Alan. 2006. Asylum seekers forced to return to using supermarket vouchers. *The Guardian*, 20th March, available at https://www.theguardian.com/politics/2006/mar/20/immigrationandpublicservices.immigration, accessed 4th May 2017.
Spang, Rebecca. 2015a. *Stuff and Money in the Time of the French Revolution*. Cambridge, MA.: Harvard University Press
Spang, Rebecca. 2015b. 'Monetary Heterodoxies'. *Enterprise & Society* 16(4): 957-963.
Spang, Rebecca. 2016. 'The Currency of History'. *World Policy Journal* 33(3): 39-44.
Velthuis, Olav. 2005. *Talking Prices: Symbolic Meanings of Prices on the Market for Contemporary Art*. Princeton: Princeton University Press
Zelizer, Viviana A. 1994. *The Social Meaning of Money: Pin money, paychecks, poor relief and other currencies*. New York: Basic Books.