William Deringer. *Calculated Values: Finance, Politics, and the Quantitative Age.* Cambridge: Harvard University Press, 2018. 440 pp. ISBN 978-0-674-97187-5, \$45.00 (cloth).

William Deringer's book Calculated Values is impressive in both scope and detail. It explains how financial statistics and the methods by which they are calculated are crucial in understanding the evolution of Britain's civic epistemology in the late seventeenth and early eighteenth centuries. Deringer identifies the Glorious Revolution of 1688 as the catalyst that stimulated a profound change in the social and institutional practices by which British political communities constructed, reviewed, validated, and deliberated politically relevant knowledge occurred (7). Before this period, the detailed use of numbers in argument was held in suspicion as the preserve of the unmanly and the ungentlemanly. After 1688, calculation achieved a rapid ascendency in Britain's political discourse. Deringer's central argument, observable throughout the book, is that the rise of numbers is attributable to the dissent and disputatiousness coincident with the arrival of two-party politics (24). He proposes that by the middle of the eighteenth century there existed a powerful and pervasive belief that numerical facts and figures constituted an especially valuable and virtuous form of public reasoning. However, their purpose in public life and what they purported to show was a matter of fierce partisanship. Hence, calculation is commensurate with values in every sense the word. This was a significant departure from previous eras (6).

Deringer makes a number of other points. First, detailed financial statistics date back a lot further in history than is commonly assumed (16). Second, the move to rely increasingly on calculation in formulating arguments was driven in Britain by people he terms "outsiders" in politics rather than as a function of the centralizing powers of the state (215). Third, the Whig-Tory division in politics can be mapped across to differing approaches to the understanding and purpose of numerical calculation in politics and public life. I will return to all these arguments later.

The theme of party politics as the driver of the adoption numerical calculation by Britain's body politic is skillfully illustrated by a series of case studies (chapters 1–7) which are detailed, rigorous, and illuminating. They are valuable pieces of research in themselves about the events they cover, irrespective of the wider narratives they seek to sustain. Chapter 1 describes the use of calculation by political outsiders in the "country" to penetrate financial obfuscation by political insiders at "court" after 1688 (47). This serves as a prelude to chapter 2, which deals with the process of how the financial compensation for Scotland

in the Act of Union in 1707 was calculated. The fact that such a precise figure, £385 085.50, came to be the point of contention and was widely though inaccurately circulated shows the degree of acceptance and legitimization of financial statistics in public and political discourse by the early eighteenth century (112). Chapter 3 elaborates on the theme established in chapter 1 and sets out the detailed case for a divide between Tories who wished to use detailed calculation to protect the public from misrepresentations and frauds (118) and Whigs who saw the use of raw data as a way of clarifying the debate (119) over trade with France in the 1710s. This depiction of the contrasting political perspectives is followed in chapter 4 by their personification in the lives and careers of John Crookshanks (Whig) and Archibald Hutcheson (Tory) as propagators and disseminators of differing forms of calculative argumentation (185).

Having established his central arguments and illustrated them intelligently with historical evidence and human interest in the first four chapters, the remaining sections (chapters 5–7) covering the South Sea Bubble, Walpole's sinking fund, and problems with calculation in the eighteenth century add relatively little to Deringer's line of reasoning, though he continues to provide a valuable historical perspective on the topics themselves. In terms of criticism, I concur with remarks made elsewhere that at times the narrative appears mono-causal. I also think that the contrast between the use of complex calculations to expose suspicious schemes (21), as opposed to the use of raw data to demonstrate truth (183), does not map as neatly across to Tory court "insiders" wedded to intrinsic value versus Whig country "outsiders" espousing extrinsic value as Deringer suggests. If we take two key figures from the book, Hutcheson (Tory) and Walpole (Whig), it is hard to say whether they were definitively "insiders" or "outsiders." Both of them drove the move toward the increased use of calculation in argument, so was it truly an "outsider" or an "insider" project? I think the answer is both at different times. Similarly, the association between the Tories and the court only lasted as long as the Stewarts. After the Hannoverian succession in 1714, the Whigs became the court insiders. Did it change their view of the primacy of extrinsic value? Given their solid base in the merchant classes, I suspect not. The Hannoverian succession causes another problem for the centrality of calculation. The choice of the elector of Hannover as the British King in 1714 was hotly and violently contested, which ought to make it yet another seminal event in the ascendancy of numbers in argument. However, the book is almost silent on the matter. The reality is that religion, as well as numbers, still played a role in political decision making to a degree almost inconceivable to us today.

In conclusion, Deringer argues that the rise to prominence of numbers in argument in the eighteenth century arose out of dispute, and

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their purpose was to advance political interests. This contrasts with our current times, when numbers are appealed to because they are supposedly apolitical and nonpartisan (301). Deringer contends that this is wrong. Numbers are always political. The attempt to portray them as apolitical is a political act in itself, as well as a source of many misconceptions and deceptions. We should return to the frank and open politics of calculation in the eighteenth century, when calculation was both political and virtuous (316). This is a novel approach which critiques and poses a challenge to the position of both the proponents and opponents of quantitative analysis in our present era. Despite of the quibbles I mentioned earlier, I fundamentally agree with him. Overall this was a scholarly and intriguing read, striking a good balance between rigorous argument, evidential detail, and human interest.

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