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Aragao, Roberto; Linsi, Lukas

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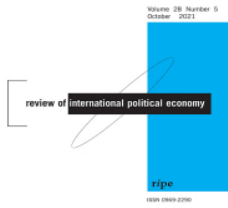
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Many shades of wrong: what governments do when they manipulate statistics

Roberto Aragão^a  and Lukas Linsi^b 

^aDepartment of Political Science, University of Amsterdam, Amsterdam, Netherlands;

^bDepartment of International Relations and International Organization, University of Groningen, Groningen, Netherlands

ABSTRACT

A considerable number of recent analyses report statistical evidence indicating that governments manipulate official macroeconomic indicators. Employing creative strategies to identify systematic biases in statistical outputs, these studies have shown that political manipulation of economic statistics does occur. But they have paid less attention to the question *how* official statistics are being manipulated. To shed light on the processes behind data manipulation, this article examines three recent high-profile cases in depth: Greece's public deficit figures, controversies about Argentina's inflation statistics, and the Brazilian "fiscal pedaling" scandal. We make two main contributions: first, macroeconomic indicators are much more ambiguous than it is commonly realized. Therefore, the line between accurate and manipulated data is more blurry than typical narratives about manipulation acknowledge. Second, in recognition of this ambiguity we introduce a typology distinguishing four types of manipulation: outright manipulation (type 1), politically motivated guesstimating (type 2), the opportunistic use of methodology space (type 3), and indicators-management through indirect means (type 4). The findings from our cases highlight that the politics of statistics do not revolve around "right" and "wrong" numbers. They are better understood as contestations about different shades of wrong.

KEYWORDS

Political economy of statistics; data manipulation; public debt; budget deficits; inflation

Introduction

Incumbent governments want to present bullish statistics on the performance of the economy to their people and the world (such as high growth, low inflation, small deficit, etc.). At the same time, national governmental apparatuses under the control of these same governments are the only ones who possess the necessary data input to produce these figures. In that light, incentives to tweak them in one's

CONTACT Lukas Linsi  l.a.linsi@rug.nl  Department of International Relations and International Organization, University of Groningen, Groningen, Netherlands.

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favor seem clear enough. A notable number of recent academic articles has addressed this problem. Setting out to study political biases in official economic statistics, they have detected patterns of data manipulation by governments throughout a wide range of datasets (Alt et al., 2014; Clark et al., 2017; De Castro et al., 2013; Gandrud & Hallerberg, 2017; Hollyer et al., 2011; Kerner et al., 2017; Martinez, 2018; Michalski & Stoltz, 2013; Samuel, 2014; Wallace, 2016). Yet, while these studies have accumulated substantial evidence that data manipulation does occur, they have focused their analyses on statistical outputs, paying much less attention to the question *how* governments manipulate their numbers.

Against this background, this article examines the processes through which governments interfere with the production of macroeconomic statistics. Our empirical analysis centers on three recent high-profile cases: the Argentinian government's efforts to tweak inflation statistics between 2007 and 2015, Dilma Rousseff's attempts to lower Brazilian debt and deficit figures between 2012 and 2015, and well-known controversies about Greece's public finance statistics in the 2000s.

Building on an extensive review of secondary and primary documents on each case as well as research interviews with people who witnessed these episodes of data manipulation from the inside, our in-depth examination of these instances of (attempted) data manipulation makes two contributions. First, we emphasize that economic indicators are much more ambiguous than is typically recognized in discussions about statistical manipulation. Metrics such as inflation rates or public deficit and debt statistics are socially and politically constructed (and contested) phenomena that have many biases "baked" into them (Mügge, this issue). Theoretical concepts and statistical standards that give rise to them are frequently equivocal – at times intentionally so (Alenda-Demoutiez, this issue; DeVlieger and Tesche, this issue; Alenda-Demoutiez and Mügge, 2020; Jany-Catrice, 2018; Jany-Catrice & Méda, 2013; also Best, 2005, 2012). Simultaneously the administrative challenges that the collection of the underlying raw data necessitates is so considerable that even official statistics from jurisdictions with high statistical capacity can come with significant measurement uncertainties attached to them (Linsi & Mügge, 2019).

Recognizing the ambiguity characterizing macroeconomic statistics is key to their "political anatomy". It enables us to see unassuming political biases in the statistical standards that international organizations seek to diffuse (Harper, 1998; DeRock, this issue; Alenda-Demoutiez, this issue). But it also pushes us to re-evaluate our understanding of "bottom-up" biases in economic statistics: the pathways through which strategic governments can skew "internationally standardized" figures. Herein lies our second contribution. Arguably the most widespread notion of statistical manipulation sketches situations in which one correct estimate of the true economic situation is known, but governments simply push statistical agencies to publish another, politically more convenient, figure instead. This is what we refer to as the *outright manipulation* of statistics, or type 1-manipulation. But such flagrant interventions are not the only way through which governments can (attempt to) bend official statistics in their favor. We suggest at least three other ideal-typical strategies: *politically motivated guesstimating* (type 2), the *opportunistic use of methodology space* (type 3), and *indicator-management through indirect means* (type 4).

In our empirical analyses we find that all four types of manipulation do occur. But although type 1 – the publishing of a number which statisticians know to be wrong and irreconcilable with any legitimate method of calculation – is the most widespread notion in debates about the topic, we find it to happen rarely in the cases we examine. More frequent attempts to manipulate data center on the provision of a politically convenient figure when the actual number is not known (type 2), the adoption of changes in statistical methodologies that lead to more convenient numbers (type 3), or the strategic employment of indirect means that lead to a more favorable (methodologically correctly calculated) figure (type 4).

As Hansen and Porter (2012, p. 415) observe, oftentimes in politics ‘a shift to numbers implies ... a shift toward accuracy and truth’. Animated debates about statistical manipulation in public and academic debates provide a healthy dose of skepticism about such, frequently unstated, assumptions. But discussions about manipulation, we suggest, tend to adopt an ontologically simplistic view of the politics and nature of statistics. As devices used to standardize and rationalize public affairs, indicators are indeed ‘ambiguity-reducing machines’ (Best, 2012). But, like bureaucratic organizations (*Ibid.*), they can only reduce, not eliminate, ambiguity. The inevitable degree of ambivalence that remains, in statistical standards and numbers, is a critical ingredient of the politics that surround them.

Our empirical focus is on the strategic leverage of this ambiguity on behalf of incumbent governments in the context of semi-mature democratic institutions. Although our analysis concentrates primarily on “bottom up” data manipulation efforts driven by government actors, they are of course not the only ones with incentives to tweak official numbers. Biases in official statistics may just as well stem from interventions of other agents, e.g. international organizations, think tanks, media or academics who sanction existing data or release their own. We believe that the typology we develop here will be useful to better understand such cases as well, but more full-fledged investigations of processes of data manipulation beyond the ambit of governments and beyond the topical area of macroeconomic statistics have to be left to future research.

The remainder of the article is structured in the following manner: the next section reviews the existing literature and draws the contours of what we define as the political economy of data manipulation. Section three elaborates the four ideal-types of data manipulation. Sections four to seven present the findings from our three case studies. Section eight offers some reflections on the external validity of our findings. The final section concludes.

The political economy of data manipulation

A rapidly growing number of studies in economics and political science has found evidence of various biases in economic statistics that are consistent with politically motivated behavior. Inspired by the infamous case of Greece, several of them focus on EU member-state budgets. De Castro et al. (2013) and Gandrud and Hallerberg (2017) analyze patterns of revisions in subsequent editions of statistical yearbooks. They find that initial releases of data by national statistical offices tend to systematically underestimate final public debt figures. Von Hagen and Wolff (2006) and Alt et al. (2014) study stock-flow adjustments (i.e. discrepancies between over-time

changes in public debt and deficit figures). Their results suggest that member states tend to under-report public deficits.

Another set of studies analyzes Chinese GDP figures. Comparing provincial GDP growth statistics with changes in electricity production and consumption data, Wallace (2016) and Chen et al. (2019) suggest that subnational GDP figures overstate actual growth rates. Analyzing discontinuities between just meeting or just failing to meet growth targets, Lyu et al. (2018) come to similar conclusions. On the contrary, studying discrepancies between changes in satellite-recorded nighttime lights and aggregate GDP growth rates, Clark et al. (2017) indicate that national Chinese GDP growth rates may understate actual economic growth. Extending the nighttime light approach to a more comprehensive sample of developing countries, Martinez (2018) in turn claims that autocracies generally overstate GDP growth. Furthermore, other studies have found that autocratic countries report more data as missing than more democratic ones (Hollyer et al., 2011), that developing countries tend to strategically sort their GNI per capita figures around World Bank thresholds determining their access to international aid disbursements (what the authors call ‘aid-seeking data management’; Kerner et al., 2017) and that the balance of payments figures of countries in economic distress violate Benford’s law of the frequency distribution of first-digits (Michalski & Stoltz, 2013).

Even if the size of the biases that this body of research highlights is in most cases modest in substantive terms, altogether it has detected a convincing sample of signals indicating that political interference with economic statistics does occur. Among the reasons for data manipulation the literature highlights three triggers in particular: the external imposition of hard targets, the imminence of elections, and financial troubles.

For the first driver, the Maastricht criteria serve as the exemplary case. Several studies (Alt et al., 2014; Gandrud & Hallerberg, 2017; Milesi-Ferretti, 2004; Von Hagen & Wolff, 2006) show evidence that the EU’s imposition of fiscal targets has boosted governments’ motivation to manipulate statistics, thereby - akin to Goodhart’s law - undermining the purpose of the targets in the first place.

With regards to the second trigger, several studies have identified electoral cycles as another driver of data manipulation initiatives: Wallace (2016) found evidence that provincial GDP estimates in China diverge most strongly from electricity production patterns at times of leadership turnovers. Focusing on European countries, Alt et al. (2014) and Martinez (2018) similarly indicate that patterns suggestive of manipulation are particularly strong before elections, and Gandrud and Hallerberg (2017) report them to be particularly salient before unscheduled ‘surprise’ elections (i.e. when incumbents are pressed to find alternatives to the use of fiscal *stimuli* that take time to implement).

Finally, there is also some evidence that financial difficulties can reinforce governments’ attempts to improve the picture of the economic situation through “other means”: Wallace (2016), Alt et al. (2014) and Martinez (2018) all report stronger evidence of manipulation during times of crisis and low growth; Gandrud and Hallerberg (2017) find manipulation efforts to correlate with levels of debt; and Michalski and Stoltz (2013) find similar associations with a range of indicators of economic distress, e.g. negative net foreign asset positions, negative current account balances, vulnerability to capital flow reversals and fixed exchange rates.

Simple numbers, complex construction

By focusing on the identification of statistically detectable biases in data *output*, this body of literature has shed useful light on potential drivers of manipulation efforts, calling analysts to engage cautiously with official statistics. At the same time, the adoption of this research strategy has by necessity somewhat sidelined questions surrounding the input side; that is, the question *how* governments manage to fake their books (cf. Kerner et al., 2017, pp. 6–7). Intentional or not, the setup of most existing studies implies that, in principle, there is one correct estimate of the indicator in question, which is known. The government’s executive arm then pushes statistical offices to publish another, politically more convenient figure, which they know to be wrong. Yet, statistics are more ambiguous and less precise estimates than such depictions of data manipulation processes may presume. Turning economic life into numbers is a powerful tool that can drastically simplify and standardize complex realities into manageable, governable categories (Desrosières, 1998; Porter, 1995). Numbers make the future calculable and the present governable (Callon, 1998). Their air of precision gives them authority as presumably objective ‘conveyors of facts and truth’ (Hansen & Porter, 2012, p. 415). Their appearance of neutral transparency is attractive to believers in technocracy (e.g. Ban et al., 2016, p. 1020), especially in twenty-first century information societies. Yet their precision, objectivity and transparency are also an illusion. An illusion, which obscures the “conventions” (Alenda-Demoutiez, this issue) and actor-networks (Hansen & Porter, 2012) that give rise to them. For, as Jacqueline Best (2005, 2012) has argued, standardization and classification through numbers can reduce ambiguities, but not eliminate them. On paper they may ‘appear to be unambiguous – all of the boxes neatly filled out and capable of tabulation and analysis’ – but as soon as one ‘tries to interpret the actual relationship of the[ir] ... contents to the world beyond’, they will invariably ‘produce[s] all sorts of ambiguities’ (Best, 2012, p. 90).

Headline figures are not uncontroversial “mirrors” (Herrera, 2010) of an economic reality out there. They do not only reflect, but also shape the outcomes they seem to merely measure (Broome et al., 2018; Doshi et al., 2019; Heimberger & Kapeller, 2017; Kranke & Yarrow, 2019; Lockwood, 2015; Stellinga & Mügge, 2017). Rather than objective, precise figures, they are ambivalent, contested estimates that come with (oftentimes significant) error margins attached to them.

Statistics in general and economic indicators in particular are far from straightforward objects to be measured. Frequently there is no clear-cut consensus among statistical experts what precisely the actual state of the economy and public finances is (Bloch & Fall, 2015; De Vlioger & Mügge, 2018; Jany-Catrice, 2018; Jany-Catrice & Méda, 2013). This ambiguity inherent in economic statistics derives primarily from two sources: first, to be implementable at the global level, international statistical standards have to be able to accommodate wide national disparities in economic structures, policy priorities, resources and intellectual traditions (cf. DeRock and van Heijster, this issue, DeRock, this issue; Alenda-Demoutiez, this issue). For that purpose, as Jacqueline Best (2005) has observed for other types of international rules, they oftentimes maintain a deliberate degree of ambiguity by design. Most notably, international statistical guidelines normally do not prescribe one single method of calculation, but provide a range of measurement options. The SNA manual setting out the rules for the estimation of GDP, for instance, dedicates a full section to ‘applying

the central framework in a flexible way', recognizing that 'no universal recommendation can be made' because 'according to analytical requirements and data availability, the attention paid to various aspects of the central framework may vary' (United Nations Statistical Commission, 2009, p. 37). And also the IMF's *Balance of Payments Compilation Guide* highlights that 'different national experiences have created different approaches as to the most appropriate methodology. Consequently, it is not possible to present a single methodology suitable in all cases. Instead, the Guide outlines various options that may be available' (International Monetary Fund, 2014, p. 2). In other words: international statistical guidelines are more flexible than the air of accuracy surrounding presumably "hard" numbers suggests. As De Vlioger and Mügge (2018) show for public debt statistics and Damgaard and Elkjaer (2014) for FDI stock measures, estimates can vary fairly widely, depending on which calculation method is being followed. Calculating the value of Denmark's unlisted FDI equity liabilities with the range of estimation methods accepted in the latest issue of the IMF's *Balance of Payments Manual*, Damgaard and Elkjaer for instance find that, depending on which calculation procedure is being followed, the headline figure can vary between 22 and 156 percent of GDP. While the example may be extreme, it underlines the observation that the range of correctly calculated estimates, all in principle based on established international statistical standards, can be wide and contingent on legitimate measurement choices.

A second important driver of ambiguities are (unintentional) measurement inaccuracies. Data collection procedures are frequently complex, requiring high levels of statistical capacity to be followed correctly. Furthermore, headline statistics can be based on the compilation of a wide variety of data sources, collected independently by dozens of disparate government agencies for various purposes. The collection of balance of payments statistics, for instance, involves the work of customs authorities (for information on merchandise and some services trade), port authorities (for transportation services), immigration authorities (for the number of short-term and long-term migrants), tourism authorities (for expenditures of foreign visitors and residents travelling abroad), insurance and banking regulators (for cross-border lending and securities flows), external affairs departments (for operations of embassies), tax authorities (for residents' external assets and liabilities and income from abroad), the compiler of the international transactions reporting system (for financial flows), the central bank (for banking sector activities and reserve assets), and many more.¹ In view of the considerable complexity of these operations, it is unsurprising that measurement errors will seep in at some stages of the process. As analyses of discrepancies in bilateral mirror statistics on volumes of merchandise trade that country pairs report to exchange with each other have shown, even counting containers crossing the border is fraught with difficulties. Including merchandise trade statistics from internationally integrated high-statistical capacity economies can come with significant error margins (Linsi & Mügge, 2019). And it seems altogether plausible that such issues will be more significant in lower-statistical capacity countries (Jerven, 2013) as well as for conceptually more abstract measures (Lipsey, 2009, 2010; UNECE et al., 2011).

In brief, economic indicators are not as "hard" as the air of precision with which they are commonly presented may suggest. Often there is no one obviously correct number that a truthful government would have to report. The resulting

malleability of headline indicators can have important implications for the processes available to governments eager to manipulate their economic statistics.

Four ideal-typical manipulation strategies

What does the “manipulation” of economic statistics entail? A useful definition is offered by Prewitt (2010, p. 228), who describes political interference in statistics as ‘the attempt to gain partisan or regional advantage by shaping the production of a statistical product against the judgment of a nonpartisan and apolitical statistical agency’. The definition highlights two key aspects: a perpetrator seeks to shape a number to his/her benefit, and the efforts go against the preferences of independent statistical experts. At the same time, the open-ended emphasis on ‘shaping the production’ of indicators implies that governments may be able to go about it in various ways. We suggest four such ways.

The most blatant approach entails representatives of the executive branch simply forcing statistical agencies to publish a number which is more favorable for the government than the estimate calculated by technocratic experts. This is what we refer to as the *outright manipulation* of statistics, or type 1 manipulation: a situation in which a (roughly) “correct” number is known, but the government is able to pressure responsible agencies to publish a different figure, which is wrong, misleading and not reconcilable with legitimate statistical methodologies – an approach that broadly corresponds to predominant conceptualizations of data manipulation in public debates. Yet it represents a strategy that comes with at least two important drawbacks: its successful implementation requires an extraordinarily strong executive; and the bluntness of the intervention make it a rather risky approach that smells of political scandal. In effect, we will argue that it is rarely the most appealing strategy available. Instead, productive uses of the ambiguity inherent in statistics can open up space for other, less flagrant ways to influence the statistical production process.

A first potential alternative avenue is particularly relevant in contexts in which statistical capacity is low. Accounts of type 1 manipulation implicitly work on the assumption that a (roughly) “correct” estimate of the quantity of interest is available. In environments of low statistical capacity, this needs not to be the case. As Morten Jerven’s field research in statistical offices in Western African countries illustrates with dramatic effect (Jerven, 2013), governments quite often genuinely do not know the (roughly) correct figures. Jerven shows that this can be the case for numbers as fundamental to a government’s statistical enterprise as a population count or an estimation of national income (Jerven, 2013). Under such circumstances, when ‘figures are little better than random numbers’ (in Jerven, 2013, p. 21), politicians may in effect not need to apply much force to encourage statisticians to provide a number that is politically more convenient than the one they may have guessed otherwise. In some sense, there is no need to twist any number since the number does not exist in the first place. At the same time, statisticians responding to political pressures may not feel like they are lying since they honestly do not know what the actual number is. In brief, when the level of statistical capacity is so low that statisticians are left to guesstimate, it seems plausible that politicians can fruitfully leverage this uncertainty about the “actual” value of economic indicators to their advantage by pressuring statisticians to simply adapt their guesses. This is what we refer to as *politically convenient guesstimating*, or type 2 manipulation.

Whereas type 2 strategies can represent an attractive alternative approach to data manipulation in environments of low statistical capacity, they are less relevant when statistical capacity is higher and bureaucrats are reasonably well-equipped to collect the required input data. But also in these circumstances, we suggest, there are at least two important ideal-typical alternative approaches through which shrewd politicians can shape the production of statistical products – both of which in many cases can arguably be more attractive to politicians than type 1 interventions.

As discussed, international statistical methodology manuals provide some freedom to statisticians to adapt global standards to local peculiarities through the offering of alternative measurement choices. The resulting ambiguity opens up other avenues that allow politicians to interfere with the production of economic statistics. We refer to it as the *opportunistic use of methodology space*, or type 3 manipulation. Unlike type 2 manipulation, it is particularly relevant when national statisticians have a fairly clear idea of what the “actual” number may look like. But in contrast to blunt type 1-interventions, politicians do not need to push statisticians to publish a number that they know to be “wrong”. Instead, they encourage them to exploit the available methodology space – the flexibility that internationally accepted standards deliberately maintain – in a manner that will produce the politically most convenient figure. Unlike in type 1-manipulation, statisticians do not publish a figure that is consensually inaccurate. But, following Prewitt’s (2010) definition, it may still be considered as manipulation since the published figure is different from the one statisticians would have published in the absence of political pressures. The key advantage of such strategies is that they do not violate international statistical standards and that they can be pursued in environments in which levels of statistical capacity are high. On the other hand, they still do require politicians to have some leeway to exercise pressure on statisticians. If the independence of statistical producers is strong and legally protected, they may fail.

The final ideal-type of data manipulation that we introduce, particularly relevant in environments characterized by strong statistical capacity and independence, is type 4-manipulation: *indicator-management through indirect means* – a type of manipulation that violates neither the methodology in place nor data itself. Making productive use of the inherent ambiguity of statistical constructs in a slightly different way, it is centered around politicians’ strategies to influence the statistical production process by adapting operational procedures that are under their own control with the aim to tweak the raw data feeding into statistical headline indicators in their favor. It is a strategy that is more sophisticated than the other three. Other observers have described it as “nonstructural fiscal measures” (Milesi-Ferretti & Moriyama, 2006), “creative accounting” (Koen & van den Noord, 2005; Von Hagen & Wolff, 2006) or “cosmetic measures” (Dafflon & Rossi, 1999). The key difference of type 4-behavior in comparison to the other three is that there is no direct attempt to interfere with the calculation of the number itself. Instead, the strategy leverages the ambiguity of indicators to influence them *indirectly* through governments’ ability to manage financial flows or other items that are part of the targeted statistic, in a way that biases methodologically correctly calculated numbers in politically convenient directions.² As a corporate finance specialist put it: ‘Creative accounting is not against the law. It operates within the letter of both the law and the accounting standards but it is quite clearly against the spirit of both’ (in Dafflon & Rossi, 1999, p. 78). In comparison to

Table 1. Schematic overview of the four ideal-types of statistical manipulation.

	Type 1: Outright manipulation	Type 2: Guess- timing	Type 3: Methodology space	Type 4: Indirect means
Do technocratic experts broadly agree on what the “actual” number is?	✓ Yes	✗ No	✓ Yes	✓ Yes
Operationalization:				
Do politicians pressure responsible experts to change estimated headline figure?	✓ Yes	✓ Yes	✗ No	✗ No
Do politicians attempt to influence methodological choices?	✗ Not necessarily	✗ Not necessarily	✓ Yes	✗ Not necessarily
Bluntness of intervention	++++	+++	++	+
Most likely to occur when:				
Statistical capacity	Irrelevant	Low	Relatively high	High
Independence of statistical apparatus	Very low	Low	Relatively low	High

the other three types of manipulation, the room for maneuver that can be gained *via* type 4-interventions will in most cases be more limited. But they have a key advantage: they can be fully accomplished by governments on their own without the complicity or consent of national statisticians.

The conceptual key differences among the four types of manipulation we have theorized are summarized schematically in [Table 1](#). The remainder of the article sets out to examine these dynamics empirically through qualitative case studies.

Manipulation in practice: three case studies

Our empirical analysis focuses on three recent high-profile cases in which governments allegedly manipulated their statistics: the skewing of Argentinian inflation statistics in 2007–15, interferences with Brazilian debt and deficit statistics in 2012–2015, and Greece’s public deficit figures in the 2000s. Since we focus exclusively on well-known cases in which governments were caught in the process of manipulating their statistics, our research design does not allow us to make inferences about how common data manipulations are in general. Statistical approaches are better suited for that purpose, and we reviewed a number of those already existing in the preceding section. Instead, the purpose of our research – and our contribution to the existing statistical analyses – is to study the processes through which governments have manipulated their statistics.

A practical advantage of our focus on well-known cases, surrounded by a whiff of scandal, is that a large amount of materials is available. For each case, we first conducted an extensive review of existing pieces of evidence, assembling several hundred documents covering the three cases. These documents vary from previous work by academics, government reports, court documents, reports by international organizations (e.g. the IMF, Eurostat and the European Commission), reporting in the news media, specialized blog posts, and archival material. In addition, we conducted almost a dozen research interviews with people with close knowledge of the cases, including former finance ministers of Greece and Brazil as well as the

director of the department responsible for Argentinian inflation statistics who was ousted by the Kirchner government.

During our review of the materials we first sought to identify the critical juncture moments at which politicians interfered with the production of economic statistics. Then we delved into the micro-processes to understand the motivations of the involved politicians, the ways through which they attempted to change the statistical output, and the reaction of the statistical authorities and other third parties to the attempted meddling. We used the interviews to triangulate the written accounts and gain additional insights into the technicalities of the respective manipulation efforts. The following sections summarize our findings. Their overall aim is to demonstrate that statistical manipulation in these high-profile cases centered more on the use of types 2-4 strategies than type 1.

Argentina: statistical bullying ain't easy

Argentina in the Kirchner period offers an intriguing example of a country in which the executive branch interfered with determination in the production of economic statistics. The suggestion that Argentinian inflation statistics were manipulated has been widely publicized in the international news media (especially after the decision of the IMF to censure Argentinian data in 2013–14). Several scholarly investigations have examined the politicization of Argentinian inflation statistics since 2007 (Boräng et al., 2018; Daniel & Lanata Briones, 2019; Lury & Gross, 2014). We revisit the case here in an attempt to examine the exact processes that the government used in order to influence headline inflation indicators in a more analytical manner. Our analysis suggests that the episode started with an attempted type 4 intervention. When this did not produce the desired result, the government shifted to type 3 channels. When also these efforts were frustrated, interventions became increasingly blunt, approaching type 1 behavior towards the end. Yet those efforts were short-lived and generated a considerable backlash. While statistical manipulation in Argentina is often described as a case in which the government simply dictated headline figures as they saw fit, our investigation thus reveals that the underlying processes were rather more complicated and sophisticated.

Our analysis focuses on the case of the inflation rate at the center of the scandal. The manipulation effort began in 2006 under Nestor Kirchner and extended until the election of Mauricio Macri in 2015. Throughout most of the period the initiative was allegedly spearheaded by Guillermo Moreno (Stornelli, 2007), a former Peronist militant and close confidant of Nestor and Cristina Kirchner with a brash, confrontational leadership style.³ The vaunted objectives of the project were twofold: to downplay inflationary concerns in an election year (research interview with Graciela Bevacqua, Skype, 8 January 2019), and – rather shrewdly – to reduce interest payments on the government's inflation-indexed borrowings by under-reporting the official, legally binding inflation rate (Jueguen, 2009).

The roots of the enterprise stretch back to the Argentinian default in 2001 when the government had offered its creditors the option of converting foreign exchange denominated debt into local currency bonds adjusted by a new mechanism called *Coeficiente de Estabilización de Referencia* (CER), a daily measure of the main Argentinian inflation indicator (IPC-GBA)⁴ produced by the Argentinian National Institute of Statistics and Censuses (INDEC). By 2007, 39 percent of the

Argentinian public debt had been linked to this mechanism. Since interest payments on this part of public debt were directly linked to the IPC-GBA, growing inflationary pressures risked to sharply increase payments due. In this context, the government started to look for unconventional tools to improve its fiscal position. As court documents reveal, from early 2006 Guillermo Moreno, Kirchner's appointee as Secretary of Domestic Trade, had started to explore ways to reduce IPC-GBA headline figures.

First, in May 2006, Moreno requested a meeting with INDEC technicians under the pretense of wanting to better understand how the inflation indicator was being measured (Fiscalía de Investigaciones Administrativas, 2007). At the meeting, he pressured Graciela Bevacqua, director of IPC (the department at INDEC responsible for the IPC-GBA indicator), and her team to disclose the precise items and addresses of the shops at which the envoys of the statistical office collected the price data used to calculate the inflation rate (research interview with Graciela Bevacqua, Skype, 8 January 2019). Moreno's goal, presumably, was to use this information to engage in a type 4 manipulation strategy: to shape the headline inflation index by pressuring shop owners to adjust the prices of products in the inflation basket.⁵ Yet, supported by Argentinian laws, the technicians refused to reveal such sensitive operational information.

During the following months, Moreno's pressure on INDEC's staff increased. He ordered several members of his own team to closely follow the production of the inflation indicator, questioned the prices INDEC collected and repeatedly suggested changes in the index (Fiscalía de Investigaciones Administrativas, 2007). The requests and threats became daily (research interview with Graciela Bevacqua, Skype, 8 January 2019). But Moreno also increasingly realized the considerable difficulties he faced. Manipulating the prices of goods and services in the inflation basket required simultaneous interventions on multiple fronts and coercing a considerable number of people. The processes of collection and double checking of data were rigid, supported by a secure IT platform and the requirement to cross-check all data entries (*ibid.*). The system in place was also fairly transparent, meaning that interferences could be noticed by other interested parties (*ibid.*). And finally, due to the complexity of the algorithm feeding the inflation index, 'getting the headline index you want by simply changing single prices in the basket is a very challenging, near-elusive task' (*ibid.*). At this point, Moreno started to shift from a type 4 towards a type 3 strategy. He argued that the current methodology was 'unpatriotic' and that some changes would be necessary to 'improve' the Argentinian indicator (Jueguen, 2009). Again, INDEC staff refused to cooperate.

With his attempts to manipulate the indicator having been frustrated for several months, Moreno's "breakthrough" occurred in January 2007. At the end of that month, the prices of lettuce and prepaid mobile phone cards experienced unexpected variation, with implications for the way in which INDEC should measure its inflation indicator (Fiscalía de Investigaciones Administrativas, 2007). The administration seized the opportunity to push out Bevacqua and replace her with Beatriz Paglieri, a government loyalist, as the new director of the IPC. After Paglieri's appointment, efforts to manipulate the inflation statistic intensified. At first, changes were limited to revising the sources of information in health services, tourism, and food supplies (Berumen & Beker, 2011). IPC decided to pick a new modality of health insurance, which had a smaller variation in price than the one

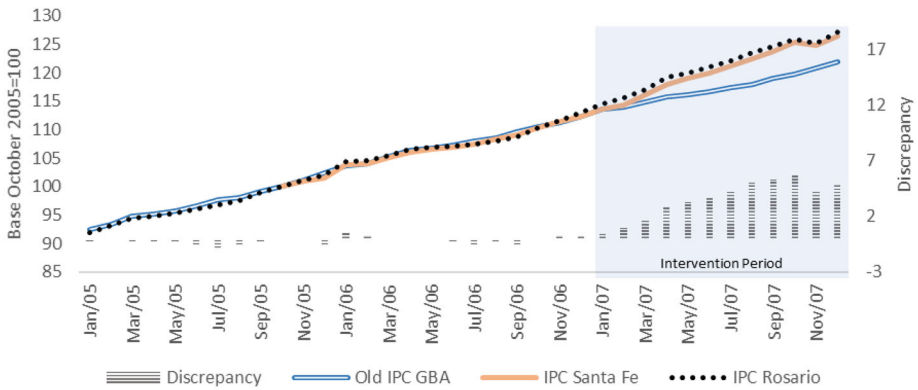


Figure 1. Cumulative change in inflation levels according to IPC GBA and similar indexes from Rosario and Santa Fe, January 2005–December 2007 (October 2005 = 100). *Note:* Lines track the accumulated change in inflation over time in comparison to October 2005, the base reference indexed to 100. Discrepancy measures indicate the monthly difference between IPC-GBA and the average value of IPC Santa Fe and IPC Rosario in percentage points. *Source:* Elaborated by the authors with data collected from the websites of INDEC (2018) and Gobierno de Santa Fe (2018).

previously used. Instead of directly surveying hotels, the index started to rely on secondary data prepared by the government-controlled Tourism Secretariat. And the new team decided to exclude certain food products from the index if they showed ‘abnormal’ price variation (ibid). Although lowering the statistics somewhat, these measures however soon proved insufficient to keep the inflation index under control. As a result, interventions became more and more aggressive. Soon they started to systematically exclude all prices that increased more than 15 percent, ‘replac[ing] them with data from other sources, mainly prices decided in agreement between the Secretary of Commerce and Chambers of producers or distributors’ (ibid, p. 8).

To evaluate the effects of these interventions, we can compare the evolution of the Greater Buenos Aires inflation index that was used as the national headline figure (and determined interest payments on CER-linked debt contracts) with the evolution of the two other, lower-profile provincial indexes from Rosario and Santa Fe that are calculated independently by subnational agencies. As we can see in [Figure 1](#), these indexes correlated fairly closely up to 2007, when the IPC-GBA started to diverge systematically from the other two.

There is also some evidence that Moreno’s intervention did indeed have the desired effects for some time. Once the manipulative measures started to bite, the government did use the opportunity to pay down IPC-GBA-indexed debt. In effect, by the end of 2013, when Moreno was ousted as Secretary of Domestic Trade, a large share of these contracts had been repaid at a favorable price (cf. [Figure 2](#)).

In the longer run, however, the initiative started to run into problems. The difference between the official and personally experienced inflation rates was so large that suspicions were raised. Furthermore, the interventions had proven to be too blunt to be hidden from attentive analysts and the press. Nationally, the official statistic started to lose its relevance as a reference point as domestic users increasingly switched to alternative measures to re-adjust prices (Cavallo et al., 2016). At the same time, international pressure grew and some international magazines as well as the IMF started to censure official Argentinian indicators in 2013–14. As a

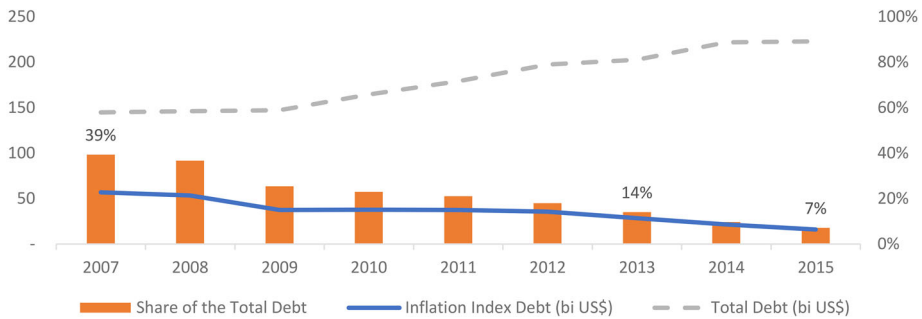


Figure 2. Evolution of Argentinian total and IPC-GBA-inflation-indexed debt over time. *Source:* Elaborated by the authors with data collected from the website of Ministerio de Hacienda Argentina (2018).

result, the inflation index, and all other statistics produced by the INDEC, lost credibility – which they have not fully recovered until today.

In the broader picture, the Argentinian case shows that although it can be feasible for a determined executive with a strong hold over the government apparatus to manipulate macroeconomic statistics, the implementation of such strategies remains fairly challenging. At least in the case of Argentina, technocrats were able to undermine the initial attempt of a type 4 manipulation for several months. Once they were over-ruled, a type 3 manipulation was implemented. It had some effects in reducing measured inflation while staying out of the public limelight, but the interventions proved technically insufficient to manage inflation statistics tightly enough. More aggressive type 1 interventions were the last resort. But as soon as the government moved towards such strategies, data manipulation efforts became publicly known, triggering a domestic and international backlash and loss of credibility, which reverberates until today.

Brazil: accounting acrobatics with a hard landing

After a decade of strong economic growth, unfavorable international conditions and growing political uncertainties in the early 2010s acted as a drag on the Brazilian economy. The slowdown put the Brazilian government under growing fiscal pressures (cf. Ban, 2013), which created a dilemma for Dilma Rousseff's administration. On the one hand, with the crisis of 2008 still fresh in mind, signs that the economy was stuttering were diagnosed as a serious problem calling for a new round of stimulus. On the other hand, with the 2014 elections around the corner, the government was also concerned to maintain the appearance of healthy public finances, meaning that the fiscal space for such an operation was small (Villaverde, 2016). In this context, the Brazilian government began actively exploring spaces to adjust its fiscal statistics. Its efforts centered primarily on two strategies: changing the methodology used to measure public debt (type 3), and the use of public banks to accounting-technically remove expenditures on social programs and credit incentives from the calculation of public deficit figures (type 4).

The first approach aimed at reducing the Brazilian headline public debt figure. In 2010, a now controversial paper by Reinhart and Rogoff (2010) that caught the attention of the financial press, global investors and policy makers claimed that developing countries' debt to GDP ratio should not exceed 60 percent. At the time,



Brasília, July, 2013

To:
CHRISTINE LAGARDE
 Managing Director
 International Monetary Fund
 700 19th Street, N.W.,
 Washington, D.C., 20431

Dear Ms. Lagarde,

I am writing to you in order to request a methodological review of the IMF measurement of the Brazilian Gross General Government Debt.

Fiscal policy stance in Brazil is focused on responsibility and transparency. Remarkable results have been obtained in the last decade such as a decreasing debt-to-GDP ratio, a lengthening of the debt profile, and debt de-dollarization. With such accomplishments we have been able to face the 2008 financial crisis and its recent developments without major fiscal difficulties.

The Fiscal Responsibility Law, implemented in 2000, prohibited any bond issuance by the Central Bank of Brazil and assured total segregation between the fiscal and monetary policy functions, aligning Brazil with the best international public management practices. Since then, monetary policy uses only securities issued by the National Treasury, both in outright and repurchase operations.

Until 2008, Gross General Government Debt (GGGD) statistics included the entire National Treasury securities portfolio at the Central Bank. Since then, the monetary authority has improved the methodology in order to register as part of GGGD only the corresponding value of repurchase operations, given that this amount is associated to National Treasury debt held by the public. In other words, GGGD does not include the bonds that are held under custody of the Central Bank and are not being used as collateral in repurchase transactions. Therefore, they are merely held for technical reasons and do not correspond to private agents' assets. Only when they are used in

operations with the public, are they considered part of the GGGD. By doing so, the new methodology provides a better picture of the Government's fiscal situation over time.

The Fiscal Responsibility Law provided the Central Bank of Brazil with a portfolio of National Treasury securities to be exclusively used for monetary policy purposes. It also limited purchases of Treasury securities by the Central Bank to the amount required to refinance the maturing bonds at prevailing market conditions observed in a public securities' auction. Also, the Central Bank is obliged to refinance all securities in its portfolio at their maturing date (by which they acquire a perpetuity feature). The portfolio under the monetary authority's custody does not have a fiscal nature and does not create refinancing risks for the Government. Hence, the operations between the Treasury and the Central Bank do not interfere with public debt market conditions under any circumstance.

It is important to highlight that at any given moment part of the Treasury securities that constitute the Central Bank's portfolio is being used by the institution in its open market operations. Such securities are used as collateral in repurchase operations, which aim to absorb excess liquidity. Repo operations represent Government liabilities with the public. This is the reason why only this part of the Central Bank's portfolio of Treasury securities is taken into account in the methodology introduced in 2008 for calculating the GGGD. However, the part of the Central Bank's portfolio that is not being used as collateral is included in the IMF's debt statistics about Brazil, clearly distorting debt statistics. Therefore, public debt is being substantially overestimated, as shown below, generating a misperception about the fiscal situation.

	GGGD					% of GDP
	2008	2009	2010	2011	2012	2013
Gross General Government Debt (Central Bank of Brazil concept)	57.4	60.9	53.4	54.2	54.2	58.7
(+) Repurchase operations	10.7	14.0	7.7	8.3	11.9	
(-) Federal Public Debt (held by Central Bank of Brazil)	16.3	19.7	18.7	18.1	20.6	
(-) Nonfinancial Public Corporations Debt	0.5	0.2	0.6	0.6	0.6	
Gross General Government Debt (IMF concept)	63.3	66.8	65.0	64.7	68.0	

Source: IMF and Central Bank of Brazil. Produced by Ministry of Finance in Brazil

Furthermore, according to the Fiscal Monitor April 2013, on page 55, only a limited number of emerging market countries, such as Brazil, have nonfinancial public corporations included in the IMF's definition and coverage of General Government.

The Brazilian Government understands that standard criteria for national statistics are necessary for the IMF. However, since the current criteria distort the estimation of Brazil's Gross General Government Debt, we request a methodological review.

In recent years, this issue has been thoroughly debated by the Brazilian Government and the IMF staff; nevertheless, the understanding of Brazil's institutional arrangement seems not to have improved and the required methodological changes have yet to be

made. I request your assistance in bringing this matter to a satisfactory conclusion. My staff is ready to continue to cooperate with IMF staff in this matter.

Yours sincerely,



CC: DAVID LIPTON
 First Deputy Managing Director, IMF

CC: EXECUTIVE DIRECTORS

CC: MARTIN KAUFMAN
 Division Chief, Western Hemisphere, IMF

Figure 3. Letter from Guido Mantega to Christine Lagarde requesting a change in the methodology used to calculate Brazilian debt. Source: Brazilian Ministry of Finance, answer to request number 16853006415201823 of September 10th 2018 on the Brazilian freedom of information website (<https://esic.cgu.gov.br/sistema/site/index.aspx>).

Brazilian public debt was floating just above this threshold. Eager to increase the confidence of foreign investors in the economy, Minister of Finance Guido Mantega approached the IMF, seeking their approval for a methodological change in the way Brazilian public debt was calculated. In a personal letter to Managing Director Christine Lagarde (cf. Figure 3) that we were able to obtain through a freedom of information request, Mantega argued that, when applied to Brazil, the IMF's preferred methodology led to a situation in which Brazilian 'public debt [was] being substantially overestimated ... generating a misperception about the [Brazilian] fiscal situation'.

As the letter explains, Brazilian monetary policy requires the Brazilian Central Bank (BCB) to absorb existing excess of liquidity in the economy through repurchase agreement operations (REPOs), which use National Treasury-issued bonds as collaterals. These bonds have a perpetuity aspect because, at the BCB's request, the National Treasury substitutes them for new bonds at their due date. In light of this practice, according to the Finance Minister, they do not have a fiscal nature and do not affect the refinancing conditions of the government. Yet they are to be included in public debt estimates according to IMF methodology. In other words, the Brazilians argued that the way in which they manage their monetary policy was artificially inflating its public debt figures without consequences for the real solvency of the country.

The issue had been recognized by the BCB already in 2008, when the Bank had introduced an alternative public debt methodology that "corrects" for this accounting practice. The substantial differences between the two estimates are illustrated in Mantega's letter in a tabulation, which we reproduce in Table 2. In 2012, for instance, levels of public debt measured according to BCB's methodology stood at 58.7 percent of GDP, compared to 68 percent according to the estimate following IMF conventions.

Table 2. Brazilian public debt according to BCB and IMF methodologies.

	2008	2009	2010	2011	% of GDP 2012
Gross General Government Debt (Central Bank of Brazil concept)	57,4	60,9	53,4	54,2	58,7
(-) Repurchase operations	10,7	14,0	7,7	8,3	11,9
(+) Federal Public Debt (held by Central Bank of Brazil)	16,3	19,7	18,7	18,1	20,6
(+) Nonfinancial Public Corporations Debt	0,5	0,2	0,6	0,6	0,6
Gross General Government Debt (IMF concept)	63,5	66,8	65,0	64,7	68,0

Source: Mantega's Letter to the IMF.

The BCB had made available both estimates on its homepage for several years. Yet, presumably, Mantega and his staff had found the IMF platform and reports to be more widely used than those coming directly from the BCB.

In response to the government's lobbying efforts, the IMF recognized the issue in the 2014 Article IV consultation report. In the statistical appendix to the document it partially accepted Mantega's argumentation. It included a discussion of the methodological differences and highlighted that 'the negligible refinancing risk of public debt held by the central bank was acknowledged in the discussion of risks in staff's Debt Sustainability Analysis for Brazil' (International Monetary Fund, 2015, p. 61). Official IMF reports, however, continued referring to Brazilian debt figures in line with IMF methodology. The statistical appendices of the Article IV report received little attention and a majority of investors kept referring to IMF numbers.⁶

Yet, the Brazilian government's initiatives to improve its statistics were not limited to this attempt. The second major effort focused on a type 4-strategy, the manipulation of indicators through indirect means. The operation was overseen by Arno Augustin (Peres, 2015), Brazil's longest-standing National Treasury Secretary who occupied the position from June 2007 throughout January 2015. He is described as a discreet operator, strongly committed to his party, the President and her development ideology.

In a nutshell, the operation aimed at concealing substantial public expenditures through the creative use of public banks' balance sheets. This was possible since payments of some government programs were made using public banks as intermediaries. For instance, the payment of unemployment benefits, *Bolsa Família*, and some wage allowances were made using the publicly owned bank *Caixa Econômica Federal*. The same applies to subsidies for production (BNDES), agriculture (*Banco do Brasil*), and housing (FGTS). In practical terms, these financial institutions accumulate credit with the federal government for the payment of end-users of these governmental programs. In principle the government ought to settle these positions without much delay, but there is no formal obligation in that respect. Having grown gradually from mid-2008 onwards, the amount of pending payments started accumulating dramatically in 2012–14 (see Figure 4), having an impact not only on the public banks' financial capacities, but also on headline public debt and deficit statistics. Since public banks were technically providing a service to the government, these outstanding payments were not included in the calculation of public debt; and because Brazilian public deficit statistics are based on the cash method of accounting,⁷ they also did not appear in public deficit statistics. As a result, the

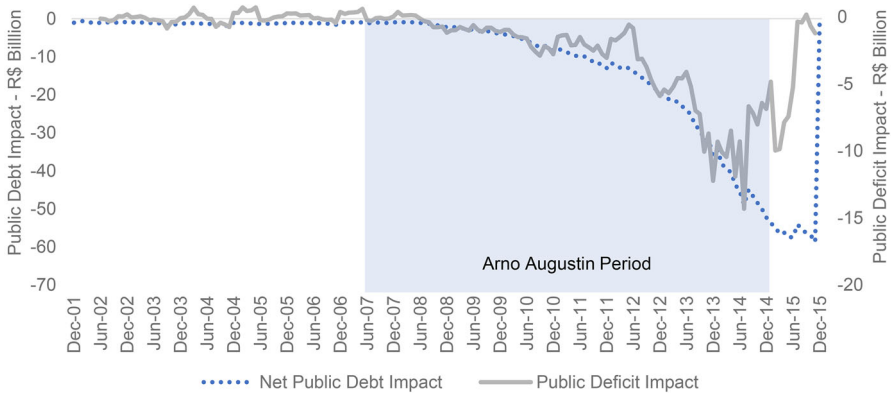


Figure 4. Evolution of the government-held passive position with public banks. *Note:* The public deficit impact refers to a 6-months moving average variation in nominal public deficit. A negative value for the public deficit impact indicates that the published Brazilian public deficit was smaller than it would have been without the maneuver. *Source:* Calculated by the authors based on the technical paper 766/2016-BCB/DIPEC from the Brazilian Central Bank available in Ofício n° 57/2016 from the Parliamentary Inquiry Commission that investigated Mrs. Rousseff impeachment request.

Brazilian government was spending on its social and stimuli programs with no fiscal indicator capturing it.

Behind the scenes, the legality of these operations was strongly debated. Some legal advisors argued that previous governments had employed similar measures, meaning that there was precedent allowing their use (Villaverde, 2016). Others argued that under previous governments the delayed payment had been due to short-term arrears, not a deliberate strategy, thereby giving the ongoing operations a different connotation (ibid). In either case, the operations constituted an ostensibly “free lunch” for Rousseff’s government for some time: governmental programs were being paid by the public banks, without the spending showing up in headline public debt and deficit figures. Even though data on the delayed payments was being recorded and published in more detailed accounts, the simple fact that they were excluded from headline indicators were sufficient to keep them away from public discussions for a while.

Ultimately, the measures taken proved disastrous for Rousseff’s presidency. Seeing her popularity and support in Congress sink dramatically after her narrow re-election in 2014, the opposition started exploring legal avenues to initiate impeachment proceedings. Siding with the legal experts that considered the government’s type 4-strategy illegal conduct, the Federal Court of Auditors (TCU) rejected the government accounts of 2014. Their decision opened the possibility to prosecute Rousseff with charges of fiscal irresponsibility that finally led to her impeachment in August 2016.

Two conclusions from the Brazilian case merit emphasis. First, the type 3 attempt to change IMF’s public debt methodology highlights how political power relations shape the degree of statistical ambiguity that is deemed acceptable – and when it stops. Even though the Brazilian government’s intellectual argument was valid, the IMF in practice rejected the request because it was judged to go beyond the space for flexibility that international standards already incorporate. Second, the type 4 manipulation of debt and deficit figures highlights the political risk of pursuing such strategies. The government might have been able to reach its fiscal

target at the time, but as Nelson Barbosa points out, considering that in its peak the “pedaladas” amounted to less than 0.8 percent of Brazilian GDP, the price ended up being disproportionately high “in the form of higher interest rates, credibility loss, and ... [ultimately] judicial problem[s]” (research interview with Nelson Barbosa, Brasília, 7 August 2019).

Greece: looking for a number in a dark room

The alleged manipulation of Greece’s fiscal statistics in the run-up to the Euro-crisis is probably the single most widely known instance of data manipulation in recent history. Dominant narratives in the media – as well as, notably, the European Commission’s preferred framing of the Euro-crisis’ “Minsky moment” – portray these events as a clear instance of type 1-behaviour: Greek politicians misled financial markets and EU officials by strategically lying about the actual state of their finances (e.g. Davíðsdóttir, 2015; Kyriakidis, 2016; also Moschella, 2016). Our third case analysis revisits these events. Needless to say, the case of Greek statistics is complex, and we cannot cover all its dimensions here. But our findings emphasize that dominant narratives of *how* Greek officials were able to bend their statistics merit a re-assessment. The manipulation of statistics in Greece unfolded differently from the cases of Brazil and Argentina. In light of our case comparison, one feature in particular stands out: the existence of much greater levels of genuine uncertainty about the “actual” state of finances and the economy. While it is true that Greek officials did at times use statistics in deliberate attempts to mislead foreign stakeholders, an important element that was necessary to make this work was that the actual numbers were not known. In this sense, we suggest, many infamous instances of manipulation of Greek data are more akin to politically motivated guesstimating (type 2) than outright lying (type 1).

Discussions among statistical experts about the reliability of official Greek statistics stretch back quite some time. The existing concerns became more widely known in 2004 when the new government of New Democracy claimed publicly that preceding PASOK administrations ‘had been presenting cooked books to the world’ (Konstandaras, 2004). To underline their accusations, the new Greek government invited Eurostat to undertake an in-depth audit of Greece’s national accounts (OECD, 2005). Eurostat’s resulting report (Eurostat, 2004) confirmed the existence of serious issues throughout the Greek statistical apparatus, including public debt and deficit indicators. Eurostat’s re-estimation of Greece’s public deficit is illustrated in Table 3. According to their analysis, official figures had understated the size of the deficit by several percentage points of GDP throughout 1997–2003. The principal reasons they identified were the non-recognition of substantial military expenditures and a lack of information about social security expenses – issues that have been ‘in the agenda of contacts between Eurostat and the Greek statistical authorities since 1994, or even before’ (Eurostat, 2004, p. 16). The first point of contention related to long-standing discussions about how to account for sensitive data, such as the acquisition of fighter jets, tanks and battleships. The second resulted from the fact that reliable surveys to support the estimations presented for the surplus of social security organizations and other public entities did not exist.

Remarkably, five years later, when PASOK returned to govern the country, none of these issues seemed having been solved. Upon invitation of the new government,

Table 3. Eurostat revisions of Greek deficit figures, 1997–2003.

Deficit (% of GDP)	1997	1998	1999	2000	2001	2002	2003
March 2004	4,0	2,5	1,8	2,0	1,4	1,4	1,7
Reclassification of VAT receipts							0,9
Reclassification of EU funds							0,3
Reclassification of Postal Savings Bank revenue							0,2
Military expenditure	0,2	0,1	0,9	1,9	1,2	1,7	0,7
Surplus of Social Security Funds				0,0	1,0	0,4	0,6
Under recording of interest	1,0	0,3	0,1	0,3	0,1	0,1	0,1
Capital injections	0,9	1,0	0,7				
Reclassification of DEKA	0,2	0,2	0,1				
EU grants	0,2	0,2	–0,2				
September 2004	6,6	4,3	3,4	4,1	3,7	3,7	4,6

Source: Eurostat (2004).

the European Commission performed another audit of Greek statistics. Their assessment concluded that data supplied by Greece were inconsistent and contradictory (European Commission, 2010).

One of the most telling aspects of these in-depth audits of Greek statistics is the fact that also the auditors themselves remained deeply unsure of the “actual” state of Greece’s public deficit and debt. To illustrate this point, Figure 5 plots various Eurostat estimates for the years 1997–2008: the original figures for 1997–2003 (dotted line), the revisions thereof in the 2004 audit (dashed line), revised figures for the years 2001–2008 from the 2010 audit (double line), and the most recently published time-series (line). Remarkably, even though they follow the same methodology, figures vary widely. For instance: according to the latest Eurostat data, revisions in the 2010 audit may still have underestimated Greece’s debt and deficit; at the same time, *ex post* the revisions of 2004 may have substantially overestimated levels of public debt.

As the auditors highlight explicitly in their report, the problems with Greek statistics do not simply boil down to “hidden” figures. To a significant degree, they are the result of remarkably low levels of statistical capacity. In the words of Eurostat’s auditors (European Commission, 2010, p.4):

[There are] two different but in some instances linked sets of problems: problems related to statistical weaknesses and problems related to failures of the relevant Greek institutions in a broad sense. The first set of problems concerns methodological weaknesses and unsatisfactory technical procedures in the Greek statistical institute (NSSG) and in the several other services that provide data and information to the NSSG, in particular the General Accounting Office (GAO) and the Ministry of Finance (MOF). The second set of problems results from inappropriate governance, with poor cooperation and lack of clear responsibilities between several Greek institutions and services responsible for the EDP notifications, diffuse personal responsibilities, ambiguous empowerment of officials, absence of written instruction and documentation, which leave the quality of fiscal statistics subject to political pressures and electoral cycles.

The infamous controversies about Greek finances in 2009 need to be considered in this context. As is well known, the subsequent revisions of estimates of Greece’s public deficit figures for 2009 were stunning. Within months official estimates skyrocketed from an initial 2 to 15.4 percent of GDP. Yet, while strategic dishonesty on behalf of Greek officials surely did play a role in these events, the underlying reasons are more nuanced than it is commonly recognized.

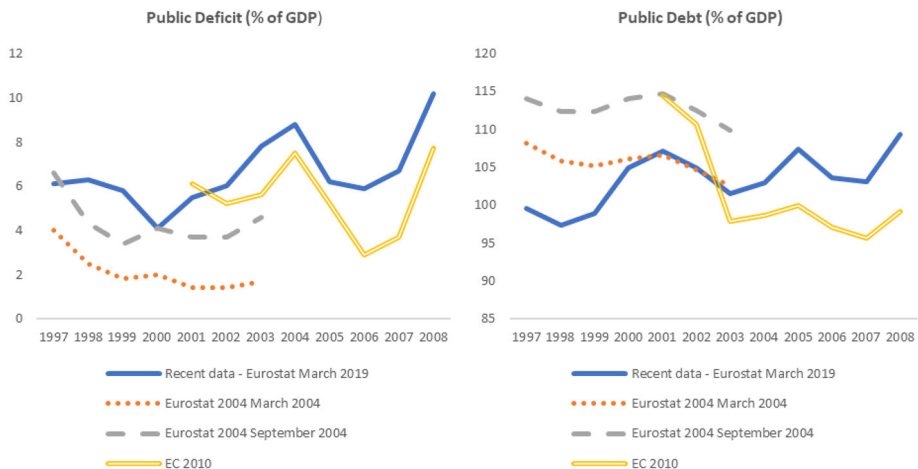


Figure 5. Inconsistencies in Eurostat's estimations of Greece's public deficit and debt statistics across series. *Source:* Eurostat and EC.

First off, the initial estimate of 2 percent was only a forecast (released in December 2008), not an estimate based on actual observations. In mid-2009, based on actual data from the first two quarters, the forecast was revised upwards to 6 percent. The most dramatic revision occurred a few months later after the general elections in October, which saw PASOK's George Papandreou return to power. The new government set out to re-assess the situation of Greek finances with the help of Eurostat and the IMF. In the end of October, they announced that the size of the public deficit for the year was likely to reach 12.7 percent of GDP. Subsequently, based on observed data for all four quarters, this figure was further revised to 13.6 (estimates of April 2010), and finally 15.4 percent (October 2010).

What are the reasons for these dramatic upwards revisions? One reason relates to technical capacities. As George Papaconstantinou, Greece's Finance Minister from October 2009 to June 2011, openly admits: 'until the IMF came to town, the Greek state did not really know how to prepare and execute a robust annual budget, let alone a multi-year programme' (Papaconstantinou, 2016, p. 124). As such, the greater involvement of the IMF and Eurostat arguably led to a better implementation of appropriate methodologies and the use of more realistic assumptions in forecasting models (research interview with George Papaconstantinou, Skype, 13 December 2018). A second reason are significant unbudgeted expenses of Karamanlis' government in the election year (*ibid*). Finally, an important third reason relates to substantial unrealized government revenues, which were a direct consequence of the economic crisis itself that the economy was going through. According to some estimates unrealized government revenues were responsible for as much as half of the upwards revisions (*ibid*).

Taking the three reasons into account has important implications for how we think about the Greek government's fiddling with its statistics. In all likelihood Greek officials knew that the forecasts they were releasing were situated on the very low end (if not below) of realistic outcomes. But at the same time there are good reasons to think that, especially in the first half of 2009, they were not entirely aware of the dramatic size of their underestimations. On the one hand,

they lacked data input and technical expertise necessary to arrive at more solid estimates. On the other hand, substantial parts of the increases were due to unpredictable developments that occurred during the year and as such could hardly be included *ex ante* in the forecasts. In sum there are good grounds to suggest that the manipulation of Greek data was primarily based on politically convenient guesstimating in the face of real uncertainty (type 2) rather than the deliberate hiding of a known figure (type 1).

This conclusion also casts a different light on the role of the European Commission in these events. In their own account of the unfolding of the euro-crisis, the Commission has put a lot of effort into portraying themselves as deceived victims who were taken by surprise by the large statistical revisions. Yet there are several pieces of evidence putting this historiography into question. As we have seen, Eurostat has highlighted the existence of serious issues with Greek statistics since the early 1990s. Long-lasting problems with debt and deficit figures were flagged in both the 2004 and 2010 audits, for instance. Furthermore, there are indications that also the 2009 revisions were partly foreseen by insiders. Former Greek Finance Minister Papaconstantinou recalls that already in early 2009, based on an evaluation of Greek data on the first quarter, the EC circulated an internal note to all Eurozone Finance Ministers, which warned: ‘should these trends continue over the year the central government deficit would exceed 10% of GDP’ (Papaconstantinou, 2016, p. 29). Without denying responsibility of Greek officials in managing their finances and statistics, this raises some questions about the communication strategy chosen by the European institutions. *Ex post* one is left to wonder whether making these warnings public earlier as well as recognizing the justifiable parts behind the revisions more explicitly would not have constituted better crisis management than the path chosen, which was to use the occasion in order to cultivate the image of Greek authorities as an untrustworthy partner.

External validity

Our sketching of causal processes behind the manipulation of macroeconomic statistics is derived from a set of cases in which (alleged) data manipulation efforts were spearheaded by national governments operating in the context of semi-mature democratic institutions. Many other attempts to manipulate statistics unfold under distinct circumstances. For one, the manipulation of statistics reaches far beyond the realm of macroeconomics. For a large number of politically sensitive figures, including immigration numbers, climate change statistics, covid 19-death rates and many others, political agents can have incentives to skew statistics similar to what we have observed in the context of economic policy-making. Second, not only governments can have incentives to bend numbers one way or another. As controversies about Chile’s position in the World Bank’s Ease of Doing Business ranking attest (cf. Zumbrun & Talley, 2018), staff at international organizations – just like academics, journalists, think-tanks or civil society organizations – too may employ strategies aimed at exploiting statistical ambiguity to suit their interests. And finally, many governments operate in institutional environments that are different from the cases we have focused on. Differences in institutional setups can have important implications for how attractive various strategies can be. For instance, as we indicate in the bottom rows of [Table 1](#), high levels of statistical capacity may

make the use of type 3 or 4 strategies more suitable than type 2, whereas low degrees of independence of the statistical apparatus facilitate type 1 and 2 strategies. Within the ambit of this article we cannot do justice to such considerations. But we believe that the typology we propose will be useful to improve our understanding of data manipulation in diverse contexts.

Given its centrality to the global economy and the wide attention it has received in the recent literature on the manipulation of macroeconomic statistics, the applicability of our typology to the case of China deserves some further reflection. The case of China is different from the cases of Argentina, Brazil and Greece not only in terms of political regime, but also in terms of who is attempting to deceive whom. While the cases we have studied centered on situations in which national governments sought to mislead mostly foreign investors with a clear information disadvantage, in China it is primarily local governors at the subnational level attempting to deceive the central government (Chen et al., 2019; Lyu et al., 2018; Wallace, 2016). In this context, while incentives to manipulate (subnational) numbers are particularly strong due to their importance in determining the career prospects of local cadres, the information disadvantage of the “deceived” is considerably smaller. The central government is clearly aware of manipulation efforts, as attested by common downward corrections of subnational figures by the central statistical office (Chen et al., 2019). Severe punishments for data manipulation introduced with the 2009 Statistics Law (Lyu et al., 2018) and deliberate efforts by the central government to reduce the available methodology space through the nation-wide uniformization of statistical standards (DeRock and van Heijster, this issue) arguably make type 1 and 3 strategies more difficult to implement. Whereas type 2 strategies may still be feasible in less developed areas of the country (Dollar in Chen et al., 2019, p. 132), type 4 strategies are likely to be the most widely used tools in more developed provinces (Lyu et al., 2018, p. 326). But these are merely hunches at this point. We are hopeful that future research will shed more light on them.

Conclusions

The manipulation of statistics has generated significant controversies in recent years in academic research, policy deliberations, and public debates. Our case studies make two contributions to these discussions. Firstly, they show that the distinction between “right” and “wrong” numbers is not as clear as accusations of manipulation tend to imply. Economic statistics are inherently ambiguous and strategic manipulations by governments are just one out of many biases “baked” into headline figures. Recognizing the ambiguity of statistics as one of their key features can substantially recast our understanding of the politics of data manipulation. More often than not, there is no one “right” number out there to be tampered with by shrewd politicians. Rather, the politics of data manipulation play out over different shades of “wrong”.

Besides pushing us to reconsider the broad theoretical parameters of data manipulation, the recognition of the ambiguity of statistics also invites us to re-examine the processes through which politicians can bend official statistics. Herein lies the second key contribution of our analysis. We have shown that the outright fabrication of headline figures (type 1), although dominating conventional

narratives of the prominent cases of data manipulation we examine, remains a high-risk last resort strategy that is likely to be shunned in practice. Instead, data manipulation efforts center on deliberately optimistic guesswork when no credible number is known (type 2), convenient changes in statistical methodologies (type 3), or the upstream manipulation of financial flows that feed into headline numbers (type 4).

Our re-visiting of much-discussed cases of manipulation with the typology at hand challenges many received wisdoms about these well-known instances of data manipulation. At the same time, it also raises important other questions. If it is indeed the case that all macroeconomic figures are inherently biased and all of them are “wrong” (even if to different degrees), then what is it that made the well-known cases of data manipulation we re-visit well-known cases of data manipulation? What defines the boundary between an acceptably wrong and an unacceptably wrong – that is “manipulated” – figure? Who has the power to draw boundaries between what constitutes a legitimate and what an illegitimate attempt to bend numbers in one’s favor (cf. Abbott, 1995)? In light of our analysis, it is thus not only the manipulation of data itself that deserves being subject to an anatomy – as we have done here –, but also the political construction of manipulation “scandals” that surround them. This is an important next step for future research. Given the extraordinary power of numbers in public life, the biases “baked” into them deserve our fullest attention. We are hopeful that the typology we propose will contribute to a more nuanced and ultimately more realistic understanding of how power and politics can shape the numbers through which we see the world.

Notes

1. This list is drawn from *Balance of Payment Compilation Guide* (International Monetary Fund, 2014).
2. A concrete case of type 4-manipulation is described in detail by Dafflon and Rossi (1999): just before entering the EMU, the French government agreed to take on the pension liabilities of the partially privatized company France Télécom in exchange for a one-off payment of FRF 37.5 billion. Using a loophole in the European system of national and regional accounts (ESA), the government was able to record the lump sum as a receipt while deferring pension payments to the indeterminate future – a trick that made a critical contribution in bringing the French deficit just below the three percent target defined in the Maastricht criteria. Another typical example is the case of trade credits analyzed by de Vlioger and Tesche (this issue). Further examples can be found in chapter 4 of Savage (2005).
3. He reportedly used to carry a revolver during high-stake meetings and brought his boxing gloves on other occasions (see Webber, 2011).
4. IPC-GBA was the official inflation indicator of Argentina from 1943 to 2013. Although it was the official inflation indicator for the entire economy, it only tracked prices in the Greater Buenos Aires Area (GBA).
5. As the instance illustrates, type 4 strategies might also involve the exercise of political pressure. But in contrast to types 1-3 the exercise of political pressure is typically not aimed at forcing a change in methodology or the headline indicator itself.
6. See Wagner (2016) for a broader overview of the production (and relevance) of IMF numbers.
7. Which, in contrast to the accrual method, does not oblige parties to record a payment until it is made.

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Notes on contributors

Roberto Aragão is PhD candidate in political economy at the Department of Political Science at the *Universiteit van Amsterdam*, Netherlands. His research focuses on the creation and solidification of statistical institutions, strategies of statistical manipulation, and Brazilian economy and politics. He is an associate researcher at the Fickle Formulas research group.

Lukas Linsi is assistant professor of international political economy at the Department of International Relations and International Organization (IRIO) at the *Rijksuniversiteit Groningen*, Netherlands. His research and teaching focus on the social and political origins and implications of economic restructuring in the early twenty-first century. He is affiliated to the Fickle Formulas research group at the *Universiteit van Amsterdam*.

ORCID

Roberto Aragão  <http://orcid.org/0000-0001-9698-7900>

Lukas Linsi  <http://orcid.org/0000-0001-6962-4493>

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