3 The (mis)use of statistics in referendum votes

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Introduction

Lying in politics is hardly a new phenomenon (Jay 2010), but concepts such as "fake news", "alternative facts" or, more generally, mis- and disinformation have gained prominence in public and scholarly debates in the wake of the Brexit vote in the United Kingdom and the election of Donald Trump as US president. While Donald Trump is known for his relentless attacks on the "fake news media", he is himself criticized for his tendency to create his own reality. One well-known example of his assaults on facts were his statements on the official US unemployment rate of 4.9 per cent, which he repeatedly denounced as "phony numbers" during his campaign for the presidency.[1] This example nicely illustrates the importance of statistics – and their occasional misuse – in political campaigning.

Based on the example of Switzerland, the paradigmatic case of direct democracy, this chapter aims at shedding light on how statistics can be misused in referendum campaigns. We start from the widely shared normative thrust in public opinion research that a well-functioning (direct) democracy requires factually informed citizens, who have sufficient knowledge about the relevant facts, proposed policy alternatives, and likely consequences when they are called to the ballot box (e.g., Berelson et al. 1954). Yet reality often cannot meet these normative standards. Political science has long been concerned about uninformed citizens and their lack of knowledge of politics (e.g., Bartels 1996, Delli Carpini and Keeter 1996). Low levels of political information are also documented for Switzerland (e.g., Kriesi 2005).

Recently, scholars have directed attention to yet another problem: many voters are not *un*informed about politics, but *mis*informed. These voters do not lack information, but they use inaccurate information to form their policy preferences

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1 For instance, in his victory speech after winning the New Hampshire Republican primary on 9 February 2016, Donald Trump urged his supporters: "Don't believe these phony numbers when you hear 4.9 and 5 per cent unemployment. The number is probably 28, 29, as high as 35. In fact, I even heard recently 42 per cent". (https://www.youtube.com/watch?v=Ss7 Pg7Zx_Rs; at 11 min 21 sec [accessed 9 August 2019]).

(Kuklinski et al. 2000). This points to the role of referendum campaigns in providing citizens with correct, factual information.

In this chapter, we focus on how statistics – a type of seemingly factual information due to its scientific character – can be (mis)used in referendum campaigns. Starting from a widespread conceptual distinction between misin-formation (unwittingly false information) and disinformation (knowingly false information) (e.g., Born and Edgington 2017), we propose a novel typology of the ways in which statistics are misused by political actors. We identify four major types of misuse: (1) flawed statistics about the current situation before the adop-tion of a policy, (2) false predictions about expected policy effects, (3) mislead-ing examples, showing only the most extreme or unrepresentative cases to shed a positive or negative light on a policy proposal, (4) manipulated numbers. We empirically illustrate each type of misuse based on statistical examples found in the official information booklet by the national government (Federal Council), campaign ads, and posters from recent referendum votes in Switzerland. More specifically, we discuss the following cases: the popular initiative for tax breaks for married couples in 2016 (flawed statistics); the campaign around the Corporate Tax Reform II in 2008 (false predictions); the referendum campaign on the Energy Act in 2017 (misleading examples); and the two federal decrees concern-ing simplified naturalization of second- and third-generation immigrants in 2004 (manipulated numbers). The analysis shows that the misuse of statistical informa-tion often implies far-reaching political and legal consequences. Interestingly, this not only holds true for the most obvious cases of intentional disinformation (manipulated numbers), but also for cases of misinformation, when false information is unwittingly shared. Thus, we demonstrate that while misinformation may not be spread with the intention to cause harm, as argued by Wardle and Derakhshan (2017, 20–1), it can nevertheless have harmful effects on democratic decision-making (see Baume in this volume). The chapter concludes with a discussion of strategies for further research.

The value of information in (direct) democracy

According to a widespread premise in public opinion research and classic norma-tive democratic theory, an informed citizenry is essential for a well-functioning democracy. Delli Carpini and Keeter eloquently expressed this view in their book about citizens' political knowledge in the United States, where they named politi-cal information as "the currency of citizenship" (1996, 8). In order to effec-tively engage in politics, they argue, citizens need knowledge in three broad areas (1996, 63–5). First, they need to understand the "rules of the game", that is, they need some knowledge about the basic structure of government, such as the separation of powers, the role and functioning of the main institutions, the party system, civil liberties, or citizen participation. Such information is important to make sense of the political world and understand how to act. For instance, citi-zens who are dissatisfied with deteriorating public services need to understand at which level of government decisions on public services are made. Second, citizens

need knowledge about "the substance of politics", that is, they need issue-specific facts, such as the poverty rate or the budget deficit, to connect to political debates and form opinions that reflect their own preferences. Berelson, Lazarsfeld, and McPhee (1954) already formulated this idea in the final chapter of *Voting*, a landmark publication in public opinion research. They stated that:

> The democratic citizen is expected to be well informed about political affairs. He is supposed to know what the issues are, what their history is, what the relevant facts are, what alternatives are proposed, what the party stands for, what the likely consequences are.
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> (1954, 308)

Arguably, this kind of issue-specific knowledge is particularly important in a direct democracy, where citizens have to decide on concrete policy matters. Third, given that one of the central responsibilities of citizens is to periodically elect and evaluate their representatives, they also need knowledge about "people and parties", for instance, where the main parties stand on the most important issues in an election.[2]

However, reality does not hold up to the classic ideal of informed democratic citizenship. Indeed, citizens' lack of interest in and knowledge of politics is one of the best documented and most consistent findings in the political science literature. Berelson and his co-authors already noted that the voter falls short of the normative democratic ideal (1954, 308). However, the academic debate about the knowledge and rationality of voters was mostly triggered by Converse's seminal article about the nature of mass belief systems (2006 [1964]), which showed that on most political issues, the opinions of a vast majority of the American people lack consistency and temporal stability. Since then, numerous studies relying on survey data have documented that the average American citizen is poorly informed about political institutions and processes, substantive policies, and important political actors (e.g., Bennett 1989, Bartels 1996, Delli Carpini and Keeter 1996). Low levels of political information are also documented in Switzerland, the paradigmatic case of direct democracy, where citizens are called

2 Although these normative works are based on the premise that people who know more about politics differ from those who know less, and that those who know more are "better" citizens, much research has evaded the fundamental question of if and how differences in political information matter for democracy (Druckman 2005). For a review of some empirical literature providing evidence on how knowledge is tied to attributes of "good" citizenship, see, e.g., Delli Carpini (2005, 34–5). However, note that the importance of political information is called into question by the so-called heuristics model of opinion formation, which claims that citizens can compensate for a lack of political information by using information shortcuts, or heuristics (e.g., party cues), that allow them to mimic the behaviour of knowledgeable citizens (e.g., Sniderman et al. 1991, Lupia 1994, Lupia and McCubbins, 1998). Swiss studies have also shown that citizens make use of heuristics in direct-democratic votes (e.g., Kriesi 2005, Nai 2014).

to the ballot box several times a year and on all state levels to decide about specific policy proposals. Indeed, a systematic study of almost twenty years of post-vote surveys on the national level has shown that more than a quarter of voters have no knowledge about the title or substantive content of the policy proposals on which they recently voted and are unable to voice clear opinions on the key arguments of the campaign (Kriesi 2005, 90). Low levels of political knowledge are however only one problem for democracy, as Kuklinski and his co-authors (2000) have compellingly argued. Democratic decision-making not only suffers when voters are merely *un*informed, that is, when they simply lack information about public policy, but also when they are *mis*informed. Misinformed citizens firmly and con-fidently hold inaccurate factual beliefs, and use them to form their policy prefer-ences (2000, 792). On the aggregate, this can lead to collective preferences that are far different from those that would exist if people were correctly informed.

It would be unfair to blame the citizens alone for their lack of (correct) infor-mation. As noted by Kriesi (2005, 10–11) and others, the quality of citizens' choices in a direct democracy crucially depends on the information provided by the political elites during the campaign preceding a popular vote. When citizens are expected to make information-based choices, they must have access to the rel-evant domain-specific facts that allow them to understand a policy proposal and evaluate its likely consequences (Kuklinski et al. 2000, 791). Experiments have indeed shown that providing citizens with accurate factual information on policy issues can affect their attitudes in a way that they sometimes change their initial opinion and abandon incorrect beliefs (e.g., Gilens 2001, Boudreau and Lupia 2011, Sides 2016). But even if citizens engage in so-called heuristic opinion-formation[3], they are dependent on the political elites who provide issue-specific voting recommendations that poorly informed citizens can use as shortcuts to mimic the behaviour of more knowledgeable voters (e.g., Lupia 1994, Lupia and McCubbins 1998, Kriesi 2005). Acknowledging the central role of political elites in citizens' opinion-formation process, we focus in the following on the use of a specific type of information provided by political elites during direct-democratic campaigns: evidence-based arguments, more specifically the (mis)use of statistics.

The (mis)use of statistics in direct-democratic campaigns

The campaigns preceding a direct-democratic vote play a central role in providing information to citizens and in structuring vote choices. Given the binary nature of most direct-democratic choices, these campaigns generally comprise two adver-sarial camps: one that advocates the acceptance of a policy proposal and one that recommends its rejection. Both camps are composed of a wide variety of political elite actors – ranging from public officials, elected politicians, and political parties to interest groups, social movements, and different experts – who confront their

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3 The distinction between two paths of individual opinion formation, a heuristic and a system-atic path, comes from social psychology (e.g., Eagly and Chaiken 1993).

issue-specific arguments in favour of or against the propositions submitted to the vote. To substantiate their arguments and persuade the citizens of their position, these actors also resort to evidence, defined as "research-based information (e.g., policy evaluation studies) or other scientifically investigated material (e.g., statistics and surveys)" (Stucki 2018, 148). We focus on the use of evidence, more specifically of statistics, rather than on other types of arguments, because evidence-based arguments are most clearly related to the normative assumptions of democratic citizenship, where citizens are expected to form their preferences based on the "relevant facts" (Berelson et al. 1954, 308).

However, although evidence is seemingly objective, factual information, its use in direct-democratic campaigns is often politically motivated. As Stucki aptly puts it, evidence is perceived as a "contested good" (2018, 148). In direct-democratic campaigns, political actors do not merely provide information, but they also pursue interests. They want their preferred policies to prevail, and look for ways to sway the electorate in the desired direction. To do so, both camps try to select fitting evidence to substantiate their own position in favour of or against a proposition submitted to a public vote. This is possible because scientific knowledge is sometimes uncertain and subject to distrust and contestation (Schmidt 2012, 99; Wesselink et al. 2014 cited by Stucki 2017). For instance, because it is often impossible to precisely evaluate the financial implications of a policy reform or future demographic or economic developments, the authorities often offer a range of projections and scenarios that are grounded on different assumptions about future developments. Political actors can then pick the statistics that best serve their own cause. As Kuklinski and colleagues note, "when elected officials do cite facts, it is to dramatize their own cause, not to educate and elucidate" (2000, 791).[4] In the same vein, Maurer and Reinemann (2006) note that it is wrong to assume that political actors are generally interested in telling the complete truth; instead they often present irrelevant, incomplete, and misleading facts and thus wittingly disinform citizens. In other words, if the average citizen lacks (correct) factual information and holds inaccurate beliefs, it is not just because of his or her incompetence or disinterest in politics. It is also because political actors often fail to provide correct information during the public debate that precedes a direct-democratic vote.

The politically motivated use of evidence, specifically statistics, can be placed in the context of the wider current (political and academic) debate about "information disorders" (Wardle and Derakhshan 2017). While many terms – such as "fake news", "alternative facts" or "post-truth" – circulate in the public debate, several scholars have noted their analytical deficiencies (e.g., Wardle 2017). While the academic literature usually prefers the concepts of "misinformation"

4 The Director of the Federal Statistical Office in Switzerland, Georges-Simon Ulrich, made a similar statement in a recent interview: "Many politicians just look for statistics that fit and help them" (https://www.aargauerzeitung.ch/schweiz/verdrehte-fakten-falsche-zahlen-wie-die-statistiker-dagegen-ankaempfen-130790343 [accessed 29 March 2019]).

and "disinformation",[5] the scholarly debate has not yet settled on a common definition. Wardle and Derakhshan (2017, 5), for instance, describe the differences between these two concepts based on the criteria of harm and falseness. From this perspective, both are false information, but while no harm is intended with misinformation, disinformation is wrong information that is knowingly shared to cause harm. For others, the difference between the two concepts lies in intent: disinformation is intentionally false or inaccurate information that is spread deliberately, while misinformation is unintentionally promulgated inaccurate information (e.g., Born and Edgington 2017, 4). In the same vein, Weedon and co-authors (2017) add that in the case of misinformation, the sources often believe the content to be true, while in the case of disinformation they are aware of the inaccuracy of the information (and spread it deliberately). Still others agree that disinformation is always purposeful, but contend that it is not necessarily composed of false information. Instead, it can be composed of mostly true facts, but stripped of context to support the intended message and fuel public cyni-cism, uncertainty or distrust (e.g., Jackson 2017). In line with most authors, we conceptualize the distinction between mis- and disinformation mainly with respect to intent. In our understanding, misinformation in direct-democratic campaigns refers to situations when political actors unwittingly use wrong sta-tistics. These statistics often turn out to be wrong in retrospect, after the direct-democratic vote has taken place. In cases of disinformation, in contrast, political actors knowingly use selected statistics that substantiate their own position for or against a proposition submitted to a popular vote. In line with Jackson (2017), we acknowledge that these statistics are not necessarily inaccurate. However, they are wrong in the sense that they do not refer to the specific policy proposal at stake, but to broader trends that are not directly linked to the specific content of the proposed policy reform. We do not retain the criteria of "harm" to differenti-ate between our cases. As the discussion of our empirical examples will show, all cases can cause harm to various degrees. Not just cases of disinformation, but also cases of misinformation can be consequential for public opinion-formation, and have far-reaching political and judicial implications (see Baume in this volume). Figure 3.1 illustrates our novel typology of four ways in which statistics can be (mis-)used by political actors in direct-democratic campaigns. The figure also indi-cates the empirical cases that exemplify each type and that will be discussed in the empirical section.

We identify two cases of misinformation. The first one refers to *flawed statistics* about the status quo, that is, about the problem that needs to be tackled by a planned reform. When citizens have to decide about a policy reform, they must first understand what the current problem is and how it has evolved before they reflect on the likely consequences of a proposed policy solution. For instance, citi-zens may want to know about the (evolution of the) unemployment rate before

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5 Some authors add a third concept, for instance, malinformation (e.g., Wardle and Derakhshan 2017) or propaganda (Born and Edgington 2017).
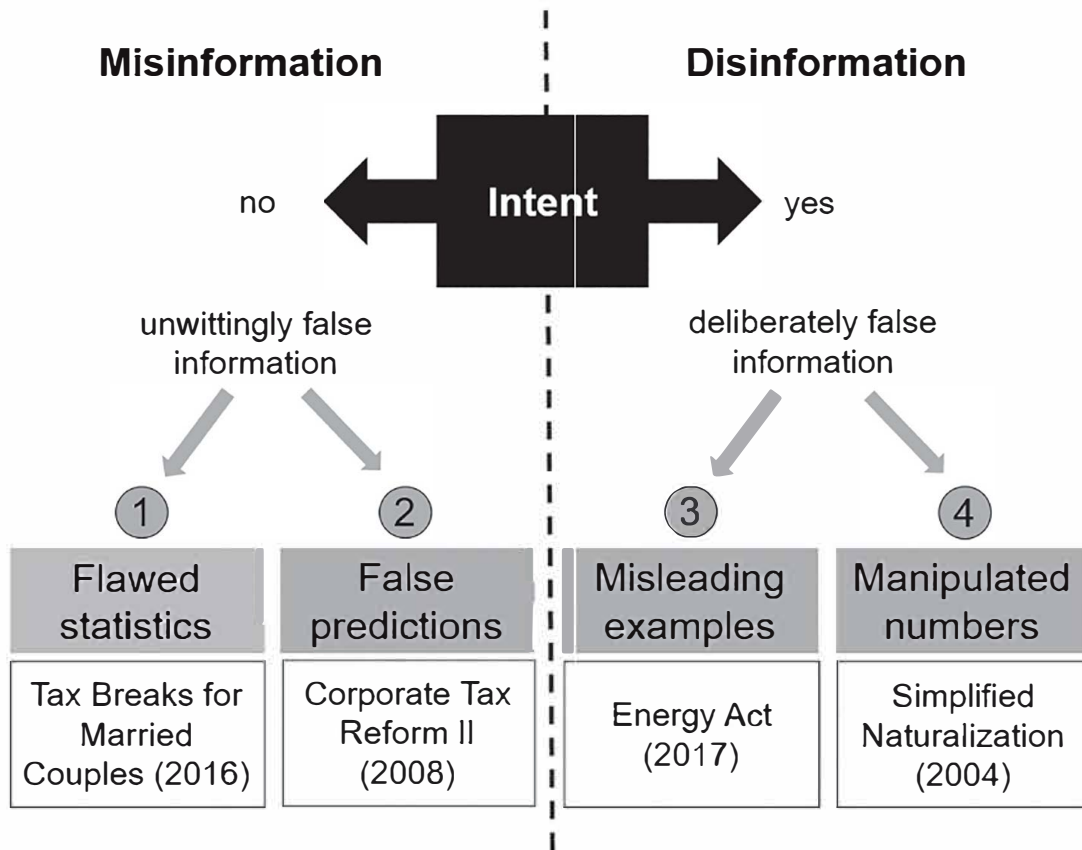
Misinformation | **Disinformation**

Intent

no — unwittingly false information

yes — deliberately false information

1. **Flawed statistics** — Tax Breaks for Married Couples (2016)
2. **False predictions** — Corporate Tax Reform II (2008)
3. **Misleading examples** — Energy Act (2017)
4. **Manipulated numbers** — Simplified Naturalization (2004)

Figure 3.1 Typology of (mis)use of statistics in direct-democratic campaigns.

deciding about a reform aiming at job creation; they need to be informed about the number of families seeking public daycare for their young children before voting on the creation of additional daycare structures; or they want to know about the tax burden for different social groups or about the budget deficit before deciding about tax reductions. In other words, they need correct information, usually in the form of statistics, to evaluate the existing problem – even before thinking about its possible solution. Flawed statistics about the current problem can have serious effects, as citizens may take these statistics at face value and arrive at erroneous conclusions. Despite the potentially negative consequences of flawed statistics, we believe that political actors are generally not aware of the flaws. Statistics about the current situation mostly stem from public statistics, which are elaborated in a fully professional and politically independent way.[6]

The second case of misinformation we refer to are *false predictions* about the likely effects of a planned policy reform. Citizens are not only expected to understand the relevant facts about the current situation, but are also supposed to evaluate the likely consequences of the proposed policy solution. As the evaluation of

6 For Switzerland, see the Federal Statistics Act, Art. 3, al. 1.

future policy effects always bears a great deal of uncertainty and rests on several assumptions, it is common to produce several projections, and to present the most realistic scenario to the citizens. Sometimes such predictions turn out to be wrong – for instance, the real financial costs of a policy reform might be much higher than expected – but it is fair to assume that they were not deliberately mistaken. As is the case with flawed statistics, false predictions are presumably honest mistakes that often turn out to be wrong in retrospect. Therefore, we place false predictions on the misinformation side of our typology and differentiate it from two cases of deceptive statistics that, while also being concerned with policy effects, can be qualified as disinformation.

Misleading examples constitute the first case of disinformation. Similar to false predictions, misleading examples deal with the expected effects of a new policy. But unlike the former, they do not try to provide a realistic estimation of what might happen when a policy is adopted, but they instead show unlikely worst-case (or best-case) scenarios that are chosen to present the planned policy in a particularly (un)favourable light and to persuade citizens of a yes or a no vote. Misleading examples may not necessarily contain wrong statistics. However, these statistics can be qualified as deceptive in the sense that they are either unrepre-sentative of the wider population because they focus on rare events and statistical outliers, or they are irrelevant for the policy proposal at stake. In our view, it is fair to assume that actors using such "cherry-picking" techniques do so consciously and intentionally to mislead their audience, in contrast to actors making false predictions.

The assumption of intentional misuse of statistics is even more plausible in the second case of disinformation: *manipulated numbers*. Manipulated numbers are statistics that are either completely invented or generated by methods that lack any scientifically sound basis. The latter are, for instance, linear extrapolations of observed trends at a given time. If a trend is traced out far enough, it is possible to find evidence for nearly any claim, such as sprinters breaking the speed of sound one day. To be sure, it is conceivable that the actors who spread manipulated numbers do not know about their error and just lack the necessary statistical knowledge to make correct projections, but this does not seem likely, given how obvious the errors often are.

As both mis- and disinformation can have serious implications for democratic decision-making, we refrained from taking "harm" as a criterion to differentiate between the two information disorders. However, comparing the two scenarios within the category of misinformation and disinformation respectively, one might argue that flawed statistics bring about more serious implications for direct-dem-ocratic choices than false predictions, while the same may be true of manipulated numbers as compared to misleading examples. Statistics about past trends and current situations are probably mostly taken for granted – after all, public statistics must comply with UN Fundamental Principles of Official Statistics[7] that ensure

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7 https://unstats.un.org/unsd/dnss/gp/fp-english.pdf [accessed 4 April 2019].

their scientific quality and political independence. In contrast, citizens may be aware of the difficulties in predicting the likely future effects of policy reforms or they know at least that there is always some degree of uncertainty involved. They may thus take such predictions, as well as misleading examples, with a grain of salt when making up their mind for or against a policy proposal. The same might be true for manipulated numbers. However, if they inform citizens' opinions, this is arguably less desirable than is the case for misleading examples, as the latter are not necessarily wrong, just unrepresentative of the effects on the general population. Manipulated numbers, on the other hand, are wrong because they are either completely invented or generated by methods that lack any scientifically sound basis whatsoever. The possibility that they will ever represent real policy outcomes is thus much lower (or even zero) when compared to misleading examples that involve at least some degree of possibility.

Empirical approach

In this chapter, we focus on the (mis)use of statistics. Nevertheless, we need to bear in mind that there are other types of mis- and disinformation that may be more common in the public sphere, such as political satire, false context, or counterfeit images (e.g., Wardle 2017). The reason for our focus on examples that contain statistics and numbers is that they represent a form of scientific evidence that, at least at first glance, seems to be neutral, factual, and objective. In this sense, the (mis)use of statistics is arguably more "dangerous" for direct-democratic decision-making than other types of mis- and disinformation, because voters might question the former type of information to a lesser degree and take it more easily at face value. Indeed, as Charles Seife, a US professor of journalism, argues in his book on the deceptive use of statistics, numbers have a particular power to mislead citizens because "in its purest form, a number is truth" (Seife 2010, 9). Indeed, from early schooldays, children learn that two plus two always equals four; hence, people are trained to trust numbers as objective truth.

Although political and scholarly attention to the problem of misinformation and disinformation mainly arose in the context of *online* political communication (e.g., Wardle and Derakhshan 2017), we focus on the use of statistics in traditional, offline information sources, more specifically the official information booklet provided by the Federal Council, newspaper advertisements[8] and posters in the streets. Two reasons motivate this choice. First, these three information sources are among the most widely used by Swiss voters in their opinion-formation process. In recent years, on average, almost nine out of ten voters consulted the information booklet, two-thirds used newspaper advertisements, and 61 per cent took street posters into account when informing themselves about the vote

8 Swiss legislation prohibits political advertising on radio and TV (Federal Act on Radio and Television, Art. 10, al. 1d). Newspaper ads are therefore much more important than in other countries.

proposals at stake. By contrast, social media such as Facebook and Twitter still play a very limited role for political campaigning in Switzerland, since only 27 per cent of voters used them as information tools.[9] Second, statistical examples that appear in the official information booklet provided by the Federal Council, in political ads in newspapers, or on street posters are most often discussed on social media anyways, especially in cases of highly controversial proposals that are extensively covered by the traditional mass media.

Our examples are drawn from campaigns on direct-democratic votes at the federal level in Switzerland. The four examples – the popular votes on the tax breaks for married couples in 2016, the Corporate Tax Reform II in 2008, the Energy Act in 2017, and the simplified naturalization of second- and third-generation immigrants in 2004 – stem from diverse policy domains and different years. In addition, whereas one of them was a popular initiative (tax breaks for married couples), the others were either mandatory (simplified naturaliza-tion) or optional referenda (Corporate Tax Reform II, Energy Act). However, they all share some common characteristics: although all four votes took place several years ago, the examined cases had far-reaching implications for public discussions and policymaking in the years following the vote and, in some cases, still today. The votes either had political consequences because they triggered a subsequent altered or new reform in the same policy domain (Corporate Tax Reform II, Energy Act, simplified naturalization) and/or legal consequences because the Federal Court was called upon to rule on the case in question (Corporate Tax Reform II, tax breaks for married couples). Furthermore, all four examples were strongly mediatized. In the case of the two examples on the misinformation side of our typology (tax breaks for married couples and Corporate Tax Reform II) the public debate gained importance only in the aftermath of the vote, when the false information provided during the campaign was uncovered and the political and/or legal consequences became apparent. As far as the two examples on the disinformation side are concerned (Energy Act and simplified naturalization), the deliberately false information provided by political actors was already highly contested and debated in the campaign leading up to the vote.[10]

9 These numbers stem from the post-vote surveys VOTO that are conducted after each federal vote in Switzerland (www.voto.swiss) and represent the average across eleven popular votes from September 2016 to May 2019. VOTO examines the voters' opinion-formation process (e.g., use of information sources, timing of voting decision) as well as the determinants of turnout and voting decisions.

10 The Research Institute for the Public Sphere and Society at the University of Zurich (Fög) found the vote proposal on the Energy Act to have generated a very high and above-average media interest compared to other vote proposals in the time span from 2013 to 2017 (Fög 2017). The vote campaign on the two federal decrees concerning the simplified naturaliza-tion of second- and third-generation immigrants was led in a "very emotional and fierce" way (Rielle 2010, 648).

Empirical illustration

(1) Flawed statistics: the popular initiative for tax breaks for married couples in 2016

A prominent case of flawed statistics relates to the popular initiative on tax breaks for married couples (see Baume in this volume for a more comprehensive illustration of this case). This initiative was launched by the Christian Democratic Party (CVP) and aimed at reducing the tax burden for married couples. On 28 February 2016, 18 out of 26 cantons accepted the proposal. However, a slim majority of 50.8 per cent of all voters were against the initiative. It therefore failed to attain the double majority of the people and the cantons and was rejected.

The problem with this case was that the Federal Government had miscalculated the number of married couples that were negatively affected by a so-called tax penalty, and had published these flawed statistics in the official information booklet on the vote proposal. 80,000 couples were said to be financially disadvantaged, with some of them paying thousands of francs more in taxes per year compared to their unmarried counterparts who are taxed individually. Two years after the vote, the Federal Government corrected the number of couples negatively affected by a tax penalty to 454,000, a number that is more than five times higher than originally calculated. The Federal Council stated that this large difference between 2016 and 2018 was mainly due to a change in the method of calculation and, to a smaller degree, due to an update of the statistics. Shortly after the rectification of these numbers, the CVP appealed to the Federal Court. The party that was at the origin of the popular initiative was convinced that the vote result would have been different if citizens had known about the significantly higher number of financially disadvantaged married couples. According to the practice of the Federal Court, serious deficiencies are required that "have massive and decision-relevant influences on the vote and make the voting procedure appear questionable" (BGE 138 I 61, 75) in order for an appeal on a popular vote to be successful. Indeed, during its public session on 10 April 2019, the Federal Court annulled the 2016 vote on the tax breaks for married couples (see Martenet and Baume in this volume for a more detailed explanation of the Federal Court's ruling). Several reasons led to this ruling (Swiss Federal Court 2019). According to the Federal Court, citizens were not aware of the fact that the number of 80,000 financially disadvantaged couples was only an estimate. During the parliamentary debate and the political campaign leading to the vote, neither public officials, political actors, nor the media ever contested this number. Moreover, citizens did not know that, at the time of vote, the Federal Government did not possess any reliable statistics on the tax penalty in question but used a database stemming from 2001. Because of these reasons, the Federal Court concluded that the citizen's right to objective and transparent information was violated. The fact that the vote result was very close reinforced the Federal Court in its decision to annul the vote. In the history of Swiss direct democracy, this is the first time that a vote on the national level was invalidated. As Martenet (in this volume) outlines, the invalidation of the vote means that in principle, there needs to be a second popular vote on the CVP initiative. After the Federal Court's ruling, the Swiss

government resubmitted the initiative to the Parliament in order to restart the parliamentary process on the issue. In February 2020, the CVP however decided to withdraw its popular initiative and launch a new initiative that will tackle the tax discrimination of married couples. This decision was motivated by the fact that the initial initiative contained a rather conservative and very controversial definition of marriage as a union between a man and a women. In addition to the wrong statistics published in the information booklet, this narrow definition of marriage was also a reason for Swiss voters to reject the initiative at the ballot box (Sciarini et al. 2016, 11). The CVP stated that the new initiative project will abolish the tax penalty for married couples without introducing a definition of marriage. With the withdrawal of the initial initiative, there is no need to repeat the 2016 vote. Nevertheless, Swiss voters will have to pronounce themselves on the issue again if the new initiative gains enough signatures.

(2) False predictions: the campaign around the Corporate Tax Reform II in 2008

After a successfully launched referendum against the Corporate Tax Reform II, Swiss voters were called to the ballot box to decide on the proposal on 24 February 2008. In principle, the Corporate Tax Reform II aimed at offering more attractive economic conditions especially for small and medium-sized enterprises. The core elements of the reform included a set of rather technical measures such as alle-viating the burden of double taxation for shareholders, reducing taxes that were considered detrimental to a company's asset base, introducing the "capital contri-bution principle"[11] and providing relief for partnerships. With a turnout rate of a mere 39 per cent, a slim majority of 50.5 per cent of voters accepted the proposal.

In the campaign leading up to the vote, the Federal Council estimated the shortfall in taxes to amount to a yearly maximum of 83 million francs on the national level and 850 million francs on the cantonal level in the short run. This information was stated in the official information booklet about the vote propos-als at stake that each voter had received together with the ballot papers from the Federal Chancellery. In response to the referendum committee's concerns that the reform would cause up to 2 billion francs in tax losses for the Confederation and the cantons a year, the Federal Council stated that the financial impact of the reform would be minor compared to the Confederation's overall budget and that the expected tax losses would be bearable.

Three years after the vote, it turned out that numerous companies would make use of the possibilities the Corporate Tax Reform Act II offered them to alleviate their tax burden and that this would result in considerable shortfalls in tax rev-enues. In March 2011, then Federal Councillor and Finance Minister Widmer-Schlumpf confirmed these fears during question time in the National Council and in a press conference. According to new estimations, the Federal Government

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11 The introduction of this principle made repayments of capital contributions in general tax-free. These repayments therefore no longer represent a taxable income for individuals who hold shares as private assets.

would suffer annual tax shortfalls of 200–300 million francs in withholding taxes and a further 200–300 million francs in direct federal taxes. Overall, the losses for the Confederation, cantons, and municipalities were estimated to amount to 4–6 billion francs for a period of ten years. Based on these new predictions, the expected tax losses now appeared to be massively higher than before the vote. In 2011, the first year in which the full set of measures introduced by the Corporate Tax Reform II was in force, the actual shortfall in federal tax revenues amounted to 1.2 billion francs.

The false predictions made by the Federal Council before the vote had two important consequences, one legal and one political. In 2011, the Federal Court strongly reprimanded the Federal Council. In its judgment, the Federal Court stated that citizens lacked crucial elements to form a reliable and factual opinion on the Corporate Tax Reform II (BGE 138 I 61, 94). The official information booklet namely lacked forecasts on the effects of the "capital contribution principle". In addition, citizens did not have any indications on the fact that the fiscal effects of the reform could not be accurately assessed but actually constituted a significant factor of uncertainty. In its ruling, the Federal Court found the information booklet to be not only incomplete but also unobjective. The Federal Court considered the violation committed by the Federal Council to be of great importance. Due to its severity and in view of the narrow result, the impact of the false information on the outcome of the vote could not be ruled out. Nevertheless, the federal judges refrained from annulling the vote.

The second important consequence of the false predictions made in 2008 was a political one that emerged only nine years later. On 12 February 2017, Swiss voters pronounced themselves on the next corporate tax proposal, the Corporate Tax Reform III. This third series of corporate tax reforms aimed at abolishing reduced taxation for holding, domiciliary, and mixed companies because this practice was no longer in line with international standards. In order to prevent Switzerland from a loss of international competitiveness, the Corporate Tax Reform Act III was to introduce internationally accepted tax relief measures focussing mainly on innovations. The opponents of this reform expected significant losses of tax receipts and, during the campaign leading up to the vote, they stressed the losses generated by the previous reform which had turned out to be much higher than predicted (see Figure 3.2).

In the end, a majority of 59.1 per cent rejected the Corporate Tax Reform Act III. A study based on post-vote survey data (Milic et al. 2017, 36), found that 62 per cent of voters approved of one of the key arguments of the opponents of the reform that read the following: "Since the last corporate tax reform we know that the actual tax shortfalls are always underestimated by supporters of the proposal". Moreover, even a majority of Yes voters (55%) agreed to this argument (Milic et al. 2017, 36). When asked about their reasons to reject the Corporate Tax Reform Act III, six per cent of the respondents spontaneously mentioned that the Federal Council had provided false predictions on the fiscal effects of the previous tax reform (Milic et al. 2017, 41). This share is very high considering that the vote on the previous tax reform took place nine years before and the members of the Federal Council had changed in the meantime.

Figure 3.2 Political ad against the Corporate Tax Reform III: "NO to the scam of billions on the middle class – No billions in losses again as was the case with the Corporate Tax Reform II".

Source: APS (2017a)

(3) Misleading examples: the referendum campaign on the Energy Act in 2017

For the two examples illustrating flawed statistics and false predictions, we assumed that there was no intentionality for the errors made. They represented cases of unwittingly false information, hence *mis*information. Let us now turn to the other side of our typology. *Dis*information describes the deliberate spread of inaccurate information.

The campaign leading to the referendum vote on the Energy Act on 21 May 2017 exemplifies this type of disinformation quite well. In our typology, it stands for a case of misleading statistical examples wittingly used by political actors to show unlikely worst-case or best-case scenarios about the financial impacts of the policy proposal and persuade citizens of their own stance. The Energy Act was a comprehensive reform that introduced new taxes and subsidies to promote renewable energies and enable building renovations. Furthermore, it contained

stricter standards for cars and electric devices as well as a ban on new nuclear power stations. The Federal Council that supported the Energy Act and the referendum committee that opposed it largely diverged in their calculations of the additional costs the reform would bring about for each household per year. The Federal Government repeatedly stated during the campaign that, for a four-person household, the yearly surcharge caused by the reform would only be 40 francs. The referendum committee consisting mainly of members of the Swiss People's Party (SVP) contested these estimations and argued that the additional costs per household would be massively higher, amounting to 3200 francs a year. The opponents of the Energy Act illustrated their campaign with threatening scenarios arguing that massive restrictions in the energy supply would arise in the case of the reform getting through. They claimed, for example, that citizens would only be able to wash their laundry at certain times (when the sun was out) or that they would not be able to take hot showers anymore (cf. Figure 3.3).

In its estimation of additional costs per year, the Federal Council only considered the direct increase in electricity prices generated by the Energy Act. However, the Energy Act also contained new subsidies for building renovations and it was only the first step of the larger Federal Energy Strategy 2050, which, in a second step, involved further measures such as rising fuel prices to achieve future energy-reduction goals. The referendum committee on the other hand based their calculations on the total costs of additional future investments for power generation.

Figure 3.3 Political ads against the Energy Act: "No to the Energy Act".

Source: APS (2017b)

However, at least half of them would have been necessary for maintenance reasons anyway even without the new Energy Act. In short: both supporters and opponents of the referendum on the Energy Act operated with extreme and misleading numbers when campaigning for a Yes and a No vote respectively. In the end, 58.2 per cent of the voters decided in favour of the Energy Act.

(4) Manipulated numbers: the federal decrees concerning simplified naturalization of second- and third-generation immigrants in 2004

A prominent example of manipulated numbers appeared during the campaign leading to the popular vote on two federal decrees that concerned the simpli-fied naturalization of second- and third-generation immigrants. The right-wing populist SVP, which was against the simplified naturalization, published an ad in several newspapers showing an increase in the share of Muslims in the Swiss population (Figure 3.4). According to the official statistics, this share increased
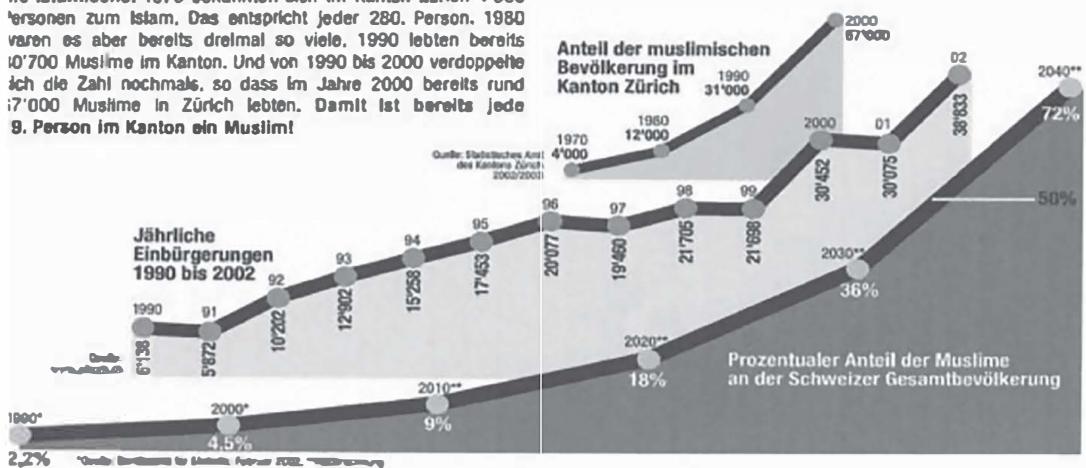

Figure 3.4 Political ad against simplified naturalizations: "Thanks to automatic naturalization: Muslims in the majority soon?"

Source: Komitee gegen Masseneinbürgerungen (2004)

from 2.2 to 4.5 per cent between 1990 and 2000. The doubling of the share over this ten-year period was a mere statistical coincidence. Based on these real statistics, the newspaper ad made an extrapolation suggesting that the share of Muslims doubles every ten years (2010: 9% of Muslims in the Swiss population; 2020: 18%; 2030: 36%, etc.). Following the SVP logic, Muslims would make up a majority of 72 per cent by 2040. The extrapolation stopped there because postulating a share of 144 per cent by 2050 would have been a too-obvious indicator of the statistical manipulations underlying this newspaper ad.

This particular newspaper ad was highly problematic for direct-democratic opinion-formation because of three reasons. First, it based its assumptions on real statistics of the Muslim population in Switzerland. By using them and mentioning the Federal Statistical Office (FSO) as their source, many journal readers got the impression that the extrapolations, too, were verified and credible public information. Six days before the popular vote, the FSO publicly distanced itself from the tendentious extrapolations made by the SVP: "These projections have no demographic basis whatsoever and the method used – doubling the proportion of Muslims in Switzerland every ten years – lacks any scientific basis".[12] Second, the share of Muslims and the question of whether second- and third-generation immigrants should benefit from a simplified naturalization procedure are two completely unrelated topics. The share of Muslims in the Swiss population is in no way affected by the question, whether Muslims are naturalized or not, because this share would remain unchanged in any case. Third and most importantly, it cannot be ruled out that these manipulated numbers actually had an impact on the vote result in the end. On 26 September 2004, voters rejected both federal decrees on the simplified naturalization of second- and third-generation immigrants with 56.8 and 51.6 per cent No votes respectively.

During question time in the National Council after the vote, Franziska Teuscher, who was a Member of Parliament for the Green Party, named the SVP newspaper ads "the peak of misinformation". She asked the Federal Council if it did not have an obligation to factually clarify false information that is disseminated during referendum campaigns. In his response, Federal Councillor Joseph Deiss stated that the Federal Government could not systematically correct all erroneous or absurd information that is being released during a vote campaign. In this respect, he also pointed to the eminently important role of the media in detecting and clarifying false information. The popular rejection of the 2004 civil rights reform resulted in the Federal Council and the Parliament working out a new, altered reform on simplified naturalization in the subsequent years. This reform included only the simplified naturalization of third-generation foreigners, that is, young people who were born and raised in Switzerland and whose grandparents had already immigrated into the country. In contrast to the proposal in

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12 Press release from 20 September 2004: https://www.bfs.admin.ch/bfs/de/home/statisti ken/kataloge-datenbanken/medienmitteilungen.assetdetail.17311.html [accessed 25 February 2019].

2004, the new modified reform no longer included a simplified naturalization for second-generation foreigners and did not call for an automatic naturalization for third-generation foreigners. The new reform was approved by 60.4 per cent of voters on 12 February 2017.

Conclusion

In this chapter, we introduced a novel typology of different types of the (mis) use of statistics in campaigns on direct-democratic vote proposals. Our typology is based on the distinction between *mis*information and *dis*information, where the former represents unintentionally false information and the latter refers to the deliberate distribution of inaccurate information. On either side of the typol-ogy, we identified two subtypes resulting in four major types of (mis)use: (1) flawed statistics about the current situation before the adoption of a policy, (2) false predictions about expected policy effects, (3) misleading examples, showing only the most extreme or unrepresentative cases to shed a positive or negative light on a policy proposal, (4) manipulated numbers. Each type is illustrated by an example drawn from recent direct-democratic votes in Switzerland. The examples show that mis- and disinformation in direct-democratic campaigns can have far-reaching consequences. Political consequences include, for instance, the adjustment of a reform that failed to gain a majority the first time it was put to the vote (simplified naturalization). Citizens also remember wrong information spread by political actors quite well and even take it into consideration when having to vote on a new proposal in the same policy domain as the earlier pro-posal that was affected by the spread of mis- or disinformation (corporate tax reform). Especially in situations in which the vote result was narrow, it cannot be ruled out that citizens would have voted otherwise had they disposed of the correct or complete statistical information (tax breaks for married couples, cor-porate tax reform, simplified naturalization). Legal consequences arose when the Federal Court was called upon to settle cases in which state actors provided citizens with wrong information about a vote proposal (tax breaks for married couples, corporate tax reform). Our analyses also show that, although the politi-cal and scholarly attention to the problem of misinformation and disinformation mainly arose in the context of *online* political communication, especially with the growing importance of social media, these phenomena are not new. They also appear in traditional *offline* means of political communication, which – at least in Switzerland – are still widely used by citizens to form their opinions on vote proposals at stake.

The four examples chosen to illustrate the four types of (mis)use of statistics are well suited to represent their respective cases. We need to stress, however, that this case study approach comes with a major limitation: it does not evalu-ate the extent to which statistics are misused in direct-democratic campaigns in Switzerland and hence may present a danger for (direct) democracy. Therefore, our illustrated typology should be seen as a starting point that invites for more systematic empirical research along several dimensions. First, and most basically,

it would be interesting to shed light on the question which of the four types of (mis)use of statistics is empirically the most frequent. Furthermore, a comparison of the different forms of (mis)use of statistics with other types of mis- and disinformation (e.g., counterfeit images, lying without referring to statistics) would be enlightening to assess the relative importance of deceptive statistics in the public information context. Second, while our empirical examples are drawn from different policy domains, such as energy policy, immigration policy, and taxation, and show that the (mis)use of statistics is not limited to any specific policy issue, future research should however assess whether some policy areas are more "at risk" than others of suffering from information disorders. Are deceptive, incomplete, or wrong statistics, for instance, more often used in technical policy areas, such as finances, the economy and taxation, or in more "emotional" issue areas, such as migration and asylum policy? Third, while both supporters and opponents of a specific policy proposal can (mis)use statistics to substantiate their arguments and win the vote, the Yes and No camps might differ in how, and how often, they (mis)use statistics. For instance, do state actors differ from political parties in their (mis)use of statistics? Can we expect the latter to more often engage in disinformation and the former in misinformation? Given their legal mandate[13] to inform about the propositions put to a direct-democratic vote by respecting the principles of completeness, objectivity, transparency, and proportionality, but also accuracy (see Martenet in this volume), public authorities and officials in Switzerland might be expected to refrain from intentional disinformation. However, misinformation by state actors in general, and the Federal Council in particular, may prove more harmful for democratic decision-making than misinformation by private actors. Swiss voters heavily rely on information by state actors, especially the official information booklet provided by the Federal Council, to form their opinion on proposals put to a popular vote. Given the government's legal obligation to provide complete and accurate information and high levels of public trust in the Federal Council (Ehrler et al. 2018), voters might not question this official information and take it more easily at face value than information from private actors whom are known to pursue special interests and might be suspected to present selected statistics that serve their own cause.

Lastly and relatedly, our chapter does not directly investigate the effects of misinformation and disinformation on citizens. In the case of the Corporate Tax Reform III, it was shown that citizens do however remember situations in which they faced wrong information on a similar policy proposal before and they indeed considered this misinformation when evaluating a new, similar proposal at stake. We lack however evidence on which types of citizens are most vulnerable to mis- and disinformation. In addition, we do not know how such information disorders affect citizens' level of political information, or their political interest and motivation to turn out to vote. Despite these limitations, we believe that our typology is a useful starting point for more systematic investigation along these lines. As for

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13 Federal Act on Political Rights, 17 December 1976, Art. 10a al. 2.

now, we have been able to show that mis- and disinformation are not restricted to new information technologies and that both can have far-reaching implications for democracy.

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