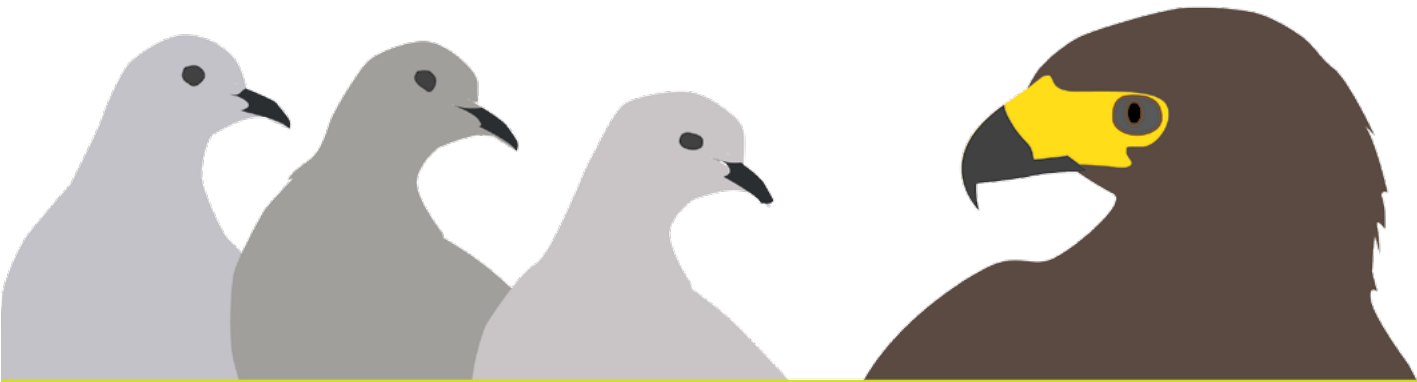


Spring 2014

WARWICK ECONOMICS

# Bulletin



First Impressions Matter

Spring 2014

THE UNIVERSITY OF  
**WARWICK**

# WARWICK ECONOMICS Bulletin

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*The Bulletin* is a publication of the University of Warwick Department of Economics and the Warwick Economics Research Institute. The institute was begun in 2007. It promotes quality research and enhanced public understanding of economic issues. It advocates the funding and organisation of research projects that have the potential to offer new insights into difficult economic issues and to lead to better-informed public policies. It supports scholarly activities such as conferences and research networks that extend beyond the routine scholarly life of the University of Warwick Department of Economics.

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# FIRST IMPRESSIONS MATTER

New members of independent monetary policy-making bodies signal their toughness on inflation by acting like hawks when they begin the job, but their dovish side comes out with more experience.

By Michael McMahon

Janet Yellen has taken the helm of the United States Federal Reserve at an interesting time. The US economy is improving, and there is a belief that over the coming year the Fed will reduce the extent of the monetary stimulus that it is providing. Given the importance of managing expectations for central banks, the appointment of a new Chairperson or Governor is often a particularly significant period for anchoring inflation expectations. Since the preferences of the incoming banker are not known, much speculation surfaces regarding his or her perceived policy stance and its impact on expectations. For example, the day after the announcement that Mark Carney would become the next Bank of England Governor, *The Wall Street Journal* noted that the world's financial analysts had turned into "ornithologists," trying to determine whether in the balancing act between stabilising inflation and maximising employment, the new governor would prove to be a "hawk", (more concerned about inflation) or a "dove", (more concerned about employment). The same "hawk" and "dove" speculation is now beginning over Nemat Shafik and Andy Haldane, the two new members recently named to the Bank of England's Monetary Policy Committee.

My recent research with Stephen Hansen sheds light on how monetary policymakers use signalling as a means of establishing their reputations and the effect this practice has on decision making. In our research, we devised new theoretical models for understanding reputational pressures on policy decisions, and then we compared the models' predictions with empirical data from the Bank of England's Monetary Policy Committee. Thus, our work represents the first empirical validation of monetary policy signalling models, and it provides a barometer of the accuracy of prevailing views about the ways in which bankers might try to strategically affect inflation expectations at the beginning of their tenures.

The prevailing view is that new bankers initially take a tougher stance against inflation than their preferences alone would dictate in order to convince the public they are serious inflation fighters. After this period of initial toughness, they ease back into a policy in line with their underlying preferences. The conventional wisdom and assumptions underlying much of the academic literature have been that only dovish monetary policy makers are the ones subject to incentives to signal toughness on inflation. In some cases, this is seen as leading to a detrimental outcome. The successor to Federal Reserve Chairman Ben Bernanke "will need to reassure the markets that he or she is tough enough to raise interest rates when necessary," *The Financial Times* columnist Edward Luce wrote last year in discussing a potential

downside of (the then unannounced) appointment of Janet Yellen. "Much as a dovish president might feel under pressure to order air strikes, Ms Yellen's reputation could push her to tighten too soon. Such are the perverse incentives of expectations."

Our research shows that reputation is indeed a powerful force affecting members' decisions. All bankers are tougher on inflation policy initially, but they tend to become less so with experience. While this evolution is more pronounced for doves than for hawks, all policymakers will be affected by such reputational concerns in some way. The policy effects of this pattern are measurable. Signalling increases the probability that new members are up to 35 percentage points more likely to choose high rates than experienced members, depending on how much uncertainty surrounds inflationary conditions at the time.

Given the expansion of central bank balance sheets through unconventional monetary policy, having a reputation for being tough on inflation is arguably even more important nowadays; to expand money supply and liquidity without de-anchoring inflation expectations requires a great deal of credibility. This issue was underscored in 2011 when Mario Draghi's anticipated appointment as president of the European Central Bank gave rise to speculation that because he is Italian, he might have to go out of his way to rebut national stereotypes by being especially tough on inflation, with less expansionary unconventional policies immediately following his appointment. As Stephanie Flanders, then BBC economics editor, observed, "If you're sitting in Spain and Portugal, you might well wonder whether you would have been better off with a German in charge,

Signalling increases the probability that new members will vote for high interest rates by up to 35 percentage points.



## Understanding the role reputation plays opens the door to new ways of thinking about optimal ways to design these important monetary policy committees.

trying to show off his inner Italian – than an Italian desperate to prove he's German underneath."

Since the emergence of a consensus in the 1990s that independent central banks should set policy to establish credibility, there has been in our view a tendency to downplay the relevance of reputation. Our work shows that one should take seriously the idea that independent monetary policymakers care about their reputation for hawkishness. Reputation is important for understanding their behaviour, and understanding this behaviour of independent experts opens the door to new thinking about the optimal ways to design these important committees. For example, a preliminary conclusion is that there is a trade-off between rotating members relatively frequently (which maintains uncertainty on preferences and, so, too, the strength of the signalling incentive) and benefits of experience (which our estimates for hawkish members show might be important in some cases.)

In terms of the contemporary policy debate, our results are useful for clarifying how one should expect policy makers to behave. Consider again the suggestion that a hawkish German central banker would have come to the ECB job wishing to show off his inner dove, and that this behaviour may have been more desirable than a dovish Italian (Draghi) coming in trying to show off his toughness on inflation. Our analysis suggests that while it is true that Draghi would likely wish to signal his toughness on inflation, it is unlikely he would be more hawkish than an inherent hawk as the hawk would also wish to indicate her toughness on inflation. That is, so long as both members are concerned about keeping inflation expectations contained, both types will enter the job

and adopt a more hawkish bias than their later selves. While the dove might initially be further from the voting rule he would use without signalling, it is worth remembering that the inherent differences between the types mean that the hawk will be tougher on inflation than the dove. This is where the conventional wisdom of assuming only doves are subject to reputational concerns appears to have been wrong.

Returning to the predictions on the behaviour of new policy makers, if we interpret Janet Yellen as an inherent dove, it is indeed true that she will be particularly keen to signal hawkishness to the market. But three caveats are in order.

First, all policy makers will engage in this behaviour to some extent, not just doves. And the result that doves signal more does not overturn the innate preference differences which mean that doves will always be less tough on inflation than hawks in both time periods.

Second, our analysis assumes that new policymakers have little existing reputation for setting monetary policy. In the case of Janet Yellen, this is not the case. She served as a Fed Governor and Vice-Chair of the Fed System from 2010 until her appointment as Chair; she was President of the San Francisco Fed from 2004-2010; and before that, from 1994 to 1997, she had an earlier stint as a Fed Governor. If a new appointee already has a clearly established reputation, then there is less incentive for them to signal; their early actions affect public expectations much less when the public already has a strong belief about whether they are a hawk or a dove.

Third, it is not clear that Janet Yellen is a dove! While her more recent behaviour seems to be viewed as very dovish, in her earlier stints on the Federal Open Market Committee she was actually much more hawkish. In our model, all policymakers are trying to get the decision right and this will mean that they sometimes favour interest rates which are seen as hawkish and other times will take a more dovish position. So perceptions of Janet as a dove are probably wide of the mark; in our framework she would simply appear to be an expert who changes their stance appropriately as economic conditions necessitate.

Overall, Janet Yellen takes over the Fed at a time when the balance of risks is much less to the downside compared to even a year ago. She will need to carefully maintain a fine balance between being too hawkish too soon and too dovish for too long. The fact that her every move and speech will be carefully examined and assessed to ascertain if she is a hawk or a dove simply adds to high stakes nature of early months as the most important economist in the world.

### The Researchers

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### Publication details

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# THE DESIRE TO BE AVERAGE

A subtle form of self-deception leads us to believe that others are like us in many respects even when they are not.

By Eugenio Proto and Daniel Sgroi

**H**ow do you compare to others? Are you taller or heavier than average? Are your political views in the mainstream? Are you as happy as your peers? Are your decisions the same ones others make in similar situations?

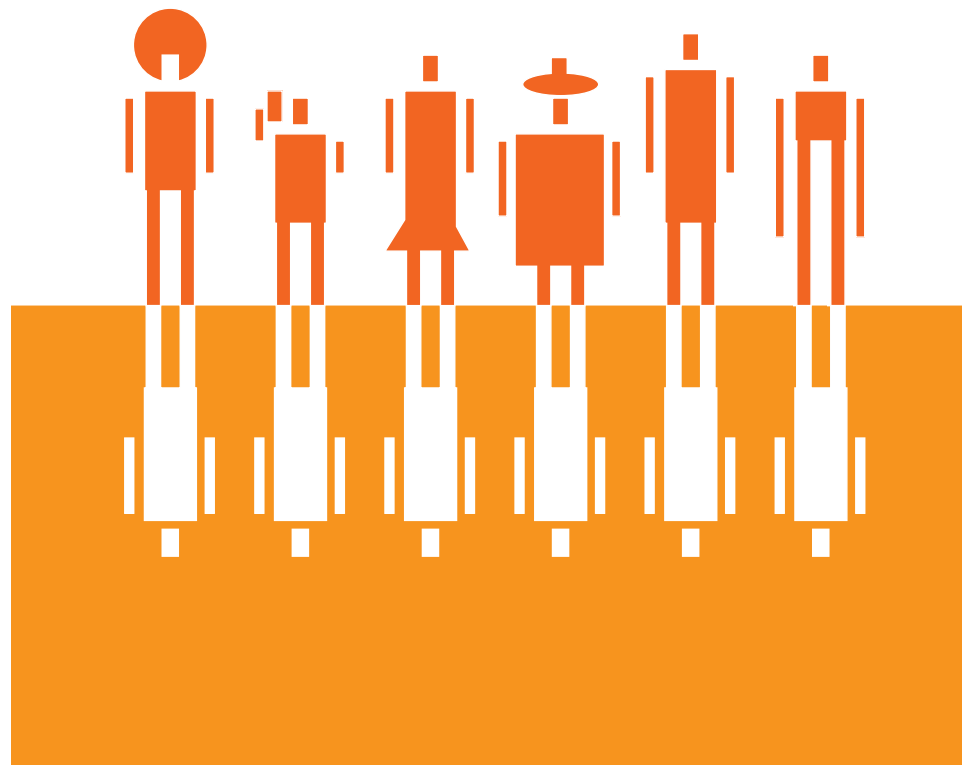
The beliefs people hold about their positions in relation to others are important in everyday life. People assume that their beliefs are correct but recent experiments we conducted suggest otherwise. Our research has uncovered a subtle form of self-deception: who we are determines what we regard as the truth. This insight underscores how subjectivity affects objectivity.

We asked University of Warwick students a series of questions about themselves and then a series of questions about themselves in relation to other students. First, we asked students about observable characteristics (their height and weight), attitudes (rating their political views and their level of happiness) and behaviour (their choice of mobile phone brand, and a hypothetical question about which of two recommended restaurants they would choose). Then, we asked students to give estimates about averages among all university students: the average heights and weights; average political beliefs and happiness rankings; the preferred brand of mobile phone; the most common restaurant choice in the hypothetical question. The participants in the experiment were incentivised to be as accurate as possible; by giving correct answers, they potentially could earn higher payments in the experiment.

In every case, we found biases that were remarkable, systematic and pronounced. "Self-centred" perceptions are ubiquitous, in the sense that an individual's beliefs about the rest of the population depend on his or her own position in that distribution. Those at the extremes tend to perceive themselves as closer to the middle of the distribution than is the case. Accordingly, taller and heavier individuals think that there are more tall and heavy people in the population. Individuals in the political fringes perceive themselves as more representative, as do those who are very happy or sad. Students believed that their mobile phone brands were the most popular and the tie-breaking choice they made between two virtually indistinguishable restaurants also was the most popular choice.

Put simply, individuals tend to see themselves as more "average" than is the case.

The question is why? Several ideas offer plausible explanations. Perhaps it comes as no surprise that one's own values tend to carry great weight. It is easier to get information from ourselves rather than from others. However, the extent of the bias we uncovered in our experiment is unlikely to stem from this alone. Our results may also stem from self-serving biases. People tend to emphasise their own



good qualities and to reject potentially negative ones. Thus, we may want to see our qualities, characteristics and choices as the prevailing ones and the norm among most people. In addition, people may be making inferences about the rest of society based on non-representative samples of their own particular social groups. People tend to associate with people who are similar to themselves. So, the tall have taller friends than average, as do the short, the overweight and underweight, the happier and sadder. The more left- or right-wing people might be prone to talking with people who more readily share their political opinions. You associate with certain people as a matter of choice, at least in part, and so combining this with ideas of self-serving bias, we start to see how people may through choosing their friends, condition their beliefs in ways that make them feel happier – and in ways that make them think the world is populated with people like themselves.

The implications for policy are clear and worrying. Think how much harder it is to convince people to take measures to avoid medical complications due to weight when they do not see themselves as overweight, or to make people question extreme political views when they do not see them as extreme? Even seemingly sensible policies like providing better information may fall flat when individuals can happily ignore what is staring them in the face.

## The Researchers

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## Publication details

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Put simply, individuals tend to see themselves as more "average" than is the case.

# AMATEUR APPEAL

Economic research illuminates why the inexperienced outsider often holds voter appeal

By Peter Buisseret

**T**oronto mayor Rob Ford does not fit comfortably within the conventional criteria for a successful political candidate: he did not complete a college degree, even before he first held office he was beset by allegations of substance abuse, and he recently admitted to having smoked cocaine while in office.

A penchant for arousing controversy is not Ford's only attribute, however. The mayor of Toronto hands out his personal telephone number to his constituents, refuses a personal driver, and he earned a reputation for his zeal in attending to the problems of his constituents and paying his work expenses out of his own pocket. A suburban conservative, he enjoys a turbulent and confrontational relationship with the Left-dominated Toronto City Council, which recently extended to a physical altercation with one of its members. In spite of his colourful and occasionally illegal behaviour, however, opinion polls show that he is a viable candidate for re-election in 2014, and he remains hugely popular amongst his electoral base.

Rob Ford is a classic example of a successful amateur elected to political office on a campaign that emphasises his role as an outsider. My recent research with Carlo Prato seeks to explain the outsider appeal to voters of amateur politicians, such as Sarah Palin, Scott Brown, and European anti-establishment parties such as Italy's Movimento 5 Stelle (the Five Stars Movement) and Iceland's Besti flokkurinn (Best Party).

Our research is part of a broad contemporary academic and political debate about the role of human capital in the election process. The term human capital captures expertise and the innate or acquired skills that enhance an individual's productive capabilities. It is often measured by years of education and previous work experience. In many professions, the value placed by employers on these qualities is reflected in higher wages and job tenure.

In politics, too, experience and skills are crucial. National politicians frequently begin their careers at the regional or local level, where they acquire expertise about specific policy areas, as well as experience in navigating complex legislative procedures and government processes. While other politicians begin their careers in the private sector, they often develop policy-relevant skills. However, the appeal of outsider candidates – many of them self-declared political amateurs – and the attempts of many political insiders to re-define themselves as outsiders in their campaigns suggest that these skills and experience may be viewed differently in the political theatre. On the election stage, at times, inexperience seems to appeal. Outsider candidates often bring their own distinct set of political skills, such as previous fame and charisma. These skills

often make them very strong campaigners due to their high visibility, but do not necessarily qualify them for wrestling with a particular set of policy problems. This gives rise to the question: Just what is the appeal of the amateur?

The importance of human capital in politics is at the centre of recent public policy debates both in the U.K. and elsewhere. These debates are often focused on how to ensure that high-quality individuals run for political office – for example, by increasing politicians' salaries in order to compete with the private sector. This is especially important in newly established democracies, where the quality of governance is a key determinant of long-term prosperity. However, with public purses everywhere under pressure, and questions arising about the role of special interest money's ability to sway policy, the issue has proved potent in longstanding democracies as well – as evidenced by the controversy over the Independent Parliamentary Standards Authority's recommendation to increase MP's salaries.

Virtually all sides involved in these discussions – including the academic ones – are based on the presumption that when the human capital of politicians rises, voters will necessarily benefit from these improved skills and experience.

Our research examines this presumption through the lens of game theory, and shows that such an assumption is not always reasonable. Our starting point is that politicians face multiple and competing demands on their attention. On the one hand, their constituents expect them to act as tireless advocates, for example by influencing national programs to serve their local interest. On the other hand, politicians are invariably organised into factions and parties – teams of politicians with their own missions and demands. Sometimes, the goals of the party – be they ideological or material – run into conflict with those of constituency voters. For example, the Republican Party leadership at the end of 2012 removed four of its House members from prominent committee assignments for their refusal to support the party line on tax and spending policy, despite the popularity of these members' stands amongst their constituency voters.

In our theory, each politician allocates her time between two forms of activity: those that benefit her constituency voters, and those directly advancing her party/factional cause. Our results are based on two presumptions. First, the value to a politician from pursuing her faction's goals is higher when other politicians in her team also work with her. For example, forcing an amendment onto a bill or toppling a party leadership requires a degree of coordination and teamwork amongst like-minded politicians – it cannot simply be done solo. Second, we focus on that component of a politician's human



Outsider politicians may be perceived as more likely to serve their constituents instead of party goals.



capital which increases her productive capacity in both forms of activities. That is, we focus on human capital which constitutes a broad set of skills and experience and which is valuable across a range of tasks – including generating benefits to voters and advancing the goals of a legislative group.

Voters, then, face a dilemma: how can they force politicians to focus on the activities that benefit them, rather than the party? The answer is by providing electoral incentives: performance-oriented voters can reflect on what was delivered over the politician's term and either re-elect her or give her job to someone else. In turn, this threat of removal should force politicians to be attentive to the needs of their voters. How effective are these incentives in the presence of a competing source of loyalty for politicians?

To illustrate our reasoning, suppose that one district ends up with a better-quality politician, while all other politicians remain the same. On the one hand, this higher-quality politician is potentially more productive in serving her constituency voters; but, she is also a more valuable teammate to her fellow politicians. This increases the temptation of all politicians within the faction to devote their effort to advancing their factional cause, rather than working for their constituents. Voters are then forced to content themselves with a politician who is less visible in their constituency and less prepared to devote time to fighting for their interests. Moreover, when the party leadership is strong enough, this effect is so powerful that, as a result, every voter is worse off than before. This includes even the voters served by the politician whose quality improved: their benefit from her increased quality is more than offset by her incentive to prioritise her work for the party. Such a fear was clearly expressed by Massachusetts voters in the Senate special election of 2010, when they chose Republican Scott Brown over Martha Coakley. Though Massachusetts is staunchly Democrat, Coakley was perceived as an instrument of the Democratic party machine whose presence in the Senate would be instrumental for securing the passage of Obamacare.

Our theory suggests that political parties may stand in direct competition with voters for the skills and experience of their political representatives. On the one hand, politicians with higher human capital are better able to serve the interests of their voters. Unfortunately, these are precisely the individuals who are most appealing to their fellow politicians in the pursuit of goals that are often unrelated or even harmful to voters.

Much of our ongoing research tries to unearth the limits of elections as tools to discipline the behaviour of the politicians in the legislature. District elections are infrequent and highly decentralised events; when politicians enter national office, however, they simultaneously enter highly centralised power structures (parties and factions). Understanding what kinds of political institutions can ensure that voters are not left behind is fundamental for the proper functioning of democratic government. The mechanism we highlight in this research allows us to make sense of why voters occasionally favour amateur politicians with very little experience – so-called 'outsiders'. Though such politicians may have less demonstrable skills and expertise, they can be better relied upon to serve their voters, rather than abandoning them in pursuit of their parties' goals.

Evidence of what we show to be a fully rational anti-establishment sentiment is readily observed in politics across the world. In Kenya, Wesley Korir – a former marathon runner with no previous political experience – was recently elected as the only member of the Kenyan Parliament without a partisan affiliation. European populist parties consisting of self-declared political amateurs have also enjoyed significant success. For example, Italy's Movimento 5 Stelle (the Five Stars Movement), led by former comedian Beppe Grillo, has emphasised direct democracy. Though the 2013 elections yielded Movimento 5 Stelle the largest share of the popular vote, Grillo stresses the outsider-qualities of the group. The organization, he stresses, is not a party but a movement.

Fully rational anti-establishment sentiments are readily observed in politics across the globe.

#### The Researchers

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# OPERATING UNDER THE RADAR

New research gives insights into the often hidden world of tax evasion

By Miguel Almunia

The central role that businesses play in modern tax systems is under exceptional political and economic scrutiny at the moment. With austerity the rule in the UK, Europe, the US and elsewhere, questions about firms' tax payments have raised public ire, as underscored by the recent "tax shaming" of multinational companies in the UK over apparently legal but nonetheless controversial methods of minimizing tax bills.

Ensuring firms' compliance with tax policies is critical. Businesses' incentives are to pay as little as possible, while governments rely on businesses for most of the tax collected – through VAT, income tax, national insurance taxes, and as conduits for individuals' withholding taxes.

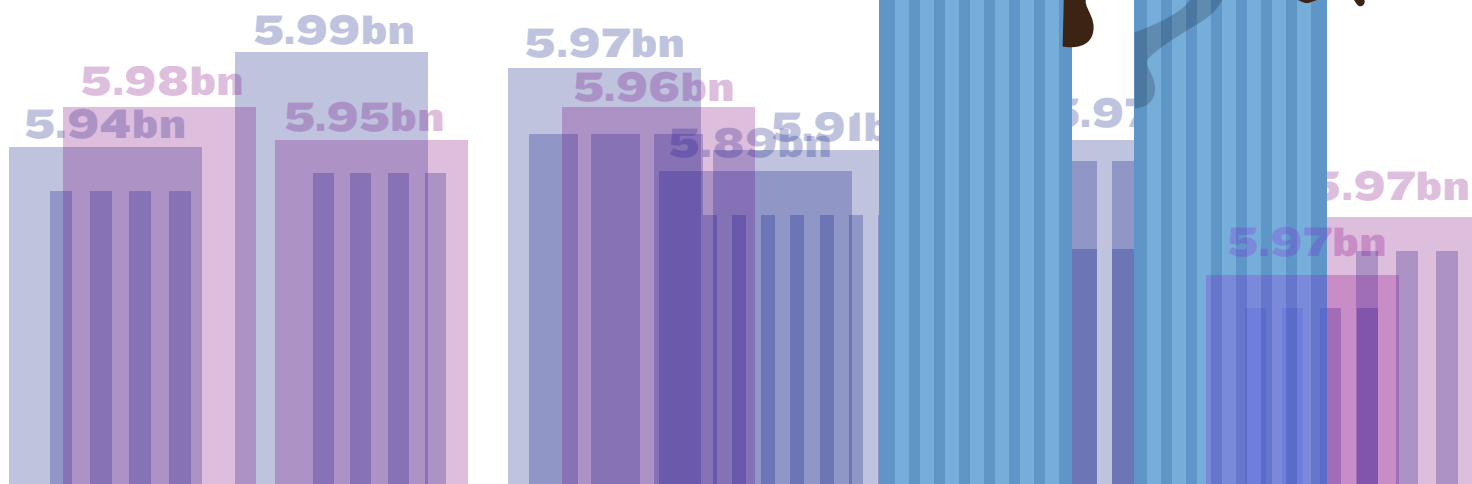
Tax evasion – by definition a crime – is extremely difficult to observe because evaders put their best efforts into hiding it. So, we have to find creative ways to try to study and measure it. My recent research with David Lopez-Rodriguez has found one way to gain insight. Our examination of a feature of tax enforcement policy in Spain offers a window into the way policies can affect the firms' tax evasion behavior, and suggests ways that governments might re-think certain policies to remedy the situation.

In Spain, the Large Taxpayers' Unit (LTU) monitors and enforces taxation of firms with operating revenues above €6 million. This arbitrary threshold was established in 1995 and has not been modified since. In practice, firms above this threshold are more likely to be audited by the tax agency. In

addition, firms above this revenue threshold must submit their tax returns in electronic form, a provision that did not apply to smaller firms until 2008. It is important to note that the tax rate on profits is the same above and below the threshold. The only differences are related to intensity of tax enforcement efforts. The LTU has more resources per taxpayer than the other units within the tax agency, and its tax inspectors are on average more skilled in the art of uncovering evasion.

Using publicly available financial statements for the period 1999–2007, we observe an accumulation, or "bunching", of firms reporting revenues just below the €6 million threshold. This bunching is a clear sign that firms are trying to remain "under the radar" of the LTU, meaning that they want their activities to go unnoticed. Firms that bunch just below this €6 million revenue line would have reported up to €6.45 million in operating revenue, we estimate. In other words, some firms are reporting revenues about 7 percent lower than they would have

A policy improvement would replace the arbitrary threshold of the Large Taxpayers' Unit (LTU) with a more nuanced policy in which enforcement increases with firm size and complexity.





reported in a world without this policy. We arrive at this number by assuming that, in the absence of this policy, the firm size distribution would have been a smoothly decreasing curve without any bunching at the €6 million threshold.

This bunching response might be due to lower production – a "real" response – or to revenue underreporting – an "evasion" response. There is a distinction between tax avoidance, which consists of looking for legal ways of lowering tax payment, and the illegal activity of tax evasion. Sometimes the distinction is not clear because the laws may have flexible interpretations. In the context of this study, underreporting revenue is unquestionably considered to be tax evasion, while a reduction in production could be considered avoidance. An intermediate response would consist of shifting activity from the current year to the next, in order to remain under the threshold for one more year.

Without further information, it is impossible to disentangle which type of response predominates. To shed light on the issue, we look at the patterns of input expenditures around the threshold. We find that firms just below the threshold report relatively higher expenses on material inputs and lower labor expenses than firms just above. These patterns are inconsistent with a "real" response, because firms that are producing less than they can would simply use less of all inputs. Instead, the evidence is broadly consistent with an evasion response whereby firms not only underreport their revenues, but also over report their material inputs, which lowers the amounts of corporate tax

and VAT remitted to the government, and labor expenses, which lowers the amount of national insurance contributions remitted.

So, what should the government do? Many people consider tax evasion a problem largely because it is unfair – giving lawbreakers advantage over their law-abiding competitors. But some argue that, from an economic point of view, the money is just changing hands: it stays with the evaders instead of going to the government. Since the evaders will save or spend that money, the economy doesn't lose.

However, the act of evading taxes is often costly – and not only for the government, which loses out on potential income, but for the evader individually and for society more broadly. A business has to hire tax consultants who can figure out the best way to evade (or avoid) taxation and are willing to skirt the law. The firm may lose business opportunities because the clients may refuse to operate in cash, which is much easier to hide than an electronic payment. More efficient firms that operate within the legal tax structure may find themselves at a disadvantage to competitors that don't. Therefore, tax evasion is costly for society from a perspective of economic efficiency, not just fairness.

An obvious policy improvement would be to eliminate the arbitrary LTU threshold and replace it with a more nuanced policy in which tax enforcement intensity increases not only with firm size, but also with other characteristics (complexity of the operations, tax evasion risks). Within this new policy, the government may consider whether to extend the high level of enforcement to more firms, because currently only 35,000 firms out of a total of 1.3 million are under the responsibility of the LTU. To determine what the right number of firms should be, the government must weigh the benefits of lower tax evasion against the additional costs of tax enforcement. Besides the costs for the tax agency, the government needs to consider the costs for businesses, because tax audits take up a lot of time from accountants and other employees.

A more innovative approach would be to increase the use of new technologies in the fiscal process, e.g. requiring all firms to submit detailed electronic tax returns. If done right, this will greatly reduce compliance costs because essentially all firms already keep their records electronically. Moreover, it makes monitoring cheaper and reduces the need for in-person audits because the tax agency has the ability to cross-check business transactions. The future of tax enforcement policies thus resides in making use of technology to identify potential evasion, while reducing compliance costs for all.

#### The Researchers

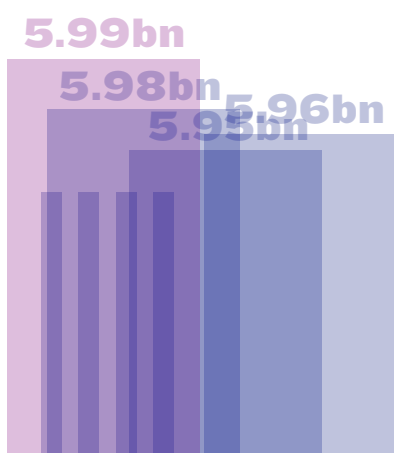
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The future of tax enforcement policies lies in making use of technologies to identify potential evasion.



# A SOURCE OF SECULARISATION

Increased education led to the reduced role of churches in society, new research from German history shows.

By Sascha O. Becker

**T**he loss of the importance of the church in people's everyday lives and in society in general was one of the most fundamental societal changes in Western Europe in the past centuries. Why did it happen? Eminent scholars such as Sigmund Freud, David Hume, and Karl Marx proposed education as a leading cause of this development. "...in the long run nothing can withstand reason and experience, and the contradiction which religion offers to both is all too palpable," Freud argued. Urbanisation, technological progress, higher incomes and increased education have all been contemplated. Yet, despite hot academic and societal debates, empirical evidence on the forces that lead to this seismic social change is scarce.

My new research with colleagues Markus Nagler and Ludger Woessmann provides new evidence that education indeed played an important role in the decline of religiosity in a crucial period of rapid secularisation in Western Europe, during the late 19th and early 20th centuries.

Our work stems from historical records in German counties from 1890 to 1930, a period of time in which church attendance declined by nearly a third. Our work analyses city-specific increases in school attendance and decreases in church attendance by using unique data: enrollment records from upper secondary schools, and Protestant church records regarding participation in Holy Communion. The church records, established by the clergy mainly to analyse the "decay" in religiosity in Germany, are exceptionally detailed, including counts of the number of wafers used in celebrating this sacrament.

Our research examines changes in religiosity over time, taking into account education but also other factors that might be influential, among them, age, gender, income, migration and population growth. Our findings show that enrollment increases in advanced schools were related to decreases in church attendance. Moreover, increases in school enrollment predict subsequent decreases in church attendance, while the reverse is not true. That is, decreases in church attendance do not predict subsequent increases in school enrolment. The direction of causality is therefore from education to church attendance and not vice versa. Furthermore, changes in income and urbanisation do not appear to be significantly related to secularisation.

Our work with historical data allowed us to address a problem that has surfaced in a number of cross-sectional studies that have found a *positive* correlation between education and religiosity. That is, many studies have found that religious beliefs and religious activities increase with education levels. Indeed, in any given year, our study also finds a positive association between education and

religiosity. But the cross-sectional approach may give spurious evidence of causation. For example, it is easy to imagine that more orderly people are more inclined to go both to church and to school, and that more conservative people put particular emphasis on religious rituals and on educational achievement. A positive effect between education and religiosity could also be explained by advantages well-educated people have in the kind of abstract thinking characteristic of religion or because educated people see the benefits of social networking in church. As these examples would give rise to a positive correlation between education and church attendance that does not necessarily stem from a causal effect of education. Our work overcomes these potential biases by examining the relationship between education and religion over time – and a time of tremendous change. When we concentrate only on changes in education and in religiosity over time, the results turn around and suggest powerfully that enrollment increases in advanced schools were related to decreases in church attendance.

The results do not imply that advanced scientific knowledge is incompatible with belief in God or that education is generally hostile to religious participation. They simply show that, in this historical setting, increased advanced schooling was related to declining church attendance, an indication of secularisation, understood as the loss of influence of the organised church. Education may well have led people who believe in God to break with the institution of the church, without weakening their belief in God. It is also possible that, for example, people who did not have a strong belief in God in the first place were led by education to abandon their custom of attending church. Still, the results show that increases in education were closely related to people's reduced active involvement with the institutionalised church and its rituals, one of the most seismic changes in social history since the 19th century.

## The Researchers

**Sascha O. Becker** is a professor and deputy head for research in the Department of Economics at the University of Warwick, and deputy director of its Centre for Competitive Advantage in the Global Economy.

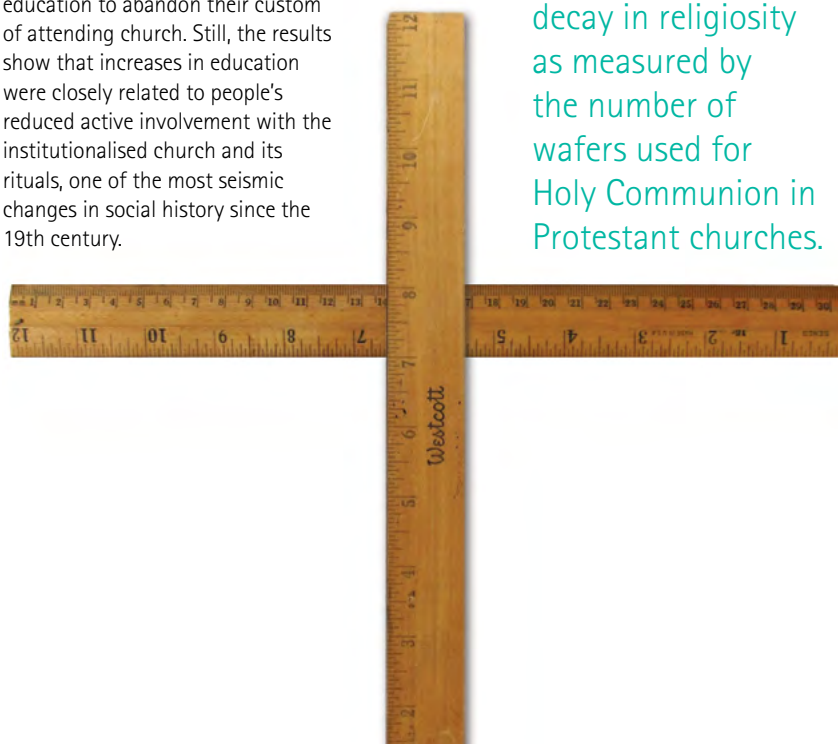
**Markus Nagler** is a PhD student in the Department of Economics at the University of Munich.

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## Publication details

This article is based on "Education Promoted Secularisation," a working paper, available at [http://www2.warwick.ac.uk/fac/soc/economics/research/centres/cage/research/wpfeed/186-2014\\_becker.pdf](http://www2.warwick.ac.uk/fac/soc/economics/research/centres/cage/research/wpfeed/186-2014_becker.pdf)

Detailed historical records from Germany record the decay in religiosity as measured by the number of wafers used for Holy Communion in Protestant churches.



# WARWICK ECONOMICS SUMMER SCHOOL

## The Final Word

By Abhinay Muthoo



I am delighted that this year the Department of Economics at the University of Warwick is launching a summer school designed to offer more people – and not just those already focused on economics – the opportunity to engage with world-calibre economic researchers and educators.

Our summer school students will have the opportunity to debate and discuss economic issues with professors who are at the frontier of economic research. Participating professors will include Nobel Prize Laureate George Akerlof, behavioural economics pioneer Andrew Oswald; game theorists Ariel Rubinstein and Ken Binmore, and economic historian Nicholas Crafts.

Reflecting Warwick's enterprising approach, our summer school will also include a unique evening programme of interactive sessions with public figures. Amongst these will be Lord Gus O'Donnell the former Cabinet Secretary and Head of the UK Civil Service and Lord Robert Skidelsky, the author of the award-winning, three-volume biography of economist John Maynard Keynes.

Our summer school offers an exciting range of courses, with something to suit everyone:

- Economics for undergraduates at the intermediate level. These courses are designed to deepen understanding in the core areas of microeconomics, macroeconomics and econometrics.
- Specialist courses, also for economics undergraduates. These courses will explore in depth interesting areas such as: behavioural economics, competition and regulation, conflict and negotiation, economic history, international development, money and banking, and the political economy.
- Principles of economics for non-economists. This brand new course has no entry requirements and is suitable for anyone – students or people working in other sectors – who want to broaden their understanding of economic issues. It will be taught in a non-technical, interactive and enjoyable way.

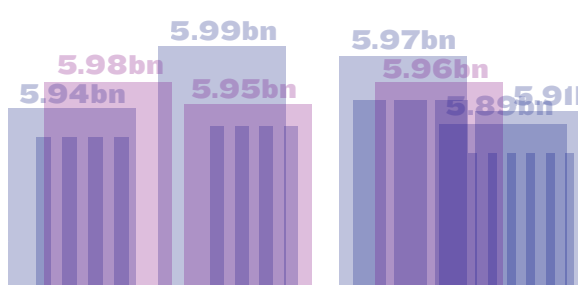
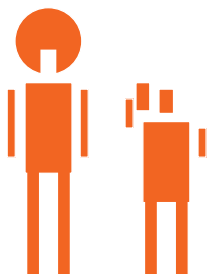
Summer school courses begin 21st July, continuing through 8th August. A range of accommodation options are available. Students will also enjoy the many facilities on offer on Warwick's campus as well as a lively social programme.

More information

Applications are available at:  
[www2.warwick.ac.uk/fac/soc/economics/events/wess/courses/](http://www2.warwick.ac.uk/fac/soc/economics/events/wess/courses/)

### The Author

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WARWICK ECONOMICS

# Bulletin

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WARWICK ECONOMICS

Bulletin

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