

Institution: University of Oxford		
Unit of Assessment: 17 – Business and Management		
Title of case study: Using Nudges to Improve Tax Compliance		
Period when the underpinning research was undertaken: 2015-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Jan-Emmanuel De Neve	Associate Professor of Economics and Strategy	01/09/2015 – present
Period when the claimed impact occurred: September 2015 - July 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact (indicative maximum 100 words)		
<p>The total annual costs of income tax avoidance by individuals globally is massive. For example, in the United States, it is estimated to total approximately USD319,000,000,000. The behavioural science research by De Neve and colleagues, conducted amongst taxpayers in Belgium, has made significant financial savings for the Belgian Federal Public Service (FPS) Finance and progressed discussion on how governments around the world can minimise their “tax gap” – the difference between forecast tax revenues and the amount paid. It is estimated that the research has led to a positive structural difference in tax revenue of approximately EUR10,000,000 since 2015, including cost savings of EUR4,000,000. The most effective interventions have become permanent features of tax collection in Belgium, contributing recurring financial and efficiency benefits to the country’s FPS Finance.</p>		
2. Underpinning research (indicative maximum 500 words)		
<p>The study of determinants of individual behaviour that go beyond those stressed by standard theories of rational choice has become a prominent area in behavioural science in recent years. One dimension that has received a lot of attention from policymakers is ‘nudging’. Nudges are used to influence individuals to take a desired action and can offer low-cost solutions to societal challenges. They often involve subtle changes to language or use of imagery to prompt action.</p> <p>Research conducted by De Neve (University of Oxford), with Dr Johannes Spinnewijn (London School of Economics), Dr Clement Imbert and Teodora Tsankova (University of Warwick), and Mr Maarten Luts (Belgian Federal Public Service (FPS) Finance), explored how the use of nudges in communication with taxpayers affects their compliance and improves the effectiveness of the tax collection process. The large-scale field trial developed out of De Neve’s previous lab-based research on factors affecting tax compliance, in which he found that allowing taxpayers to express non-binding preferences about the way their taxes are used increased compliance [R1]. De Neve conceived the original idea for the trial and designed the experiments, providing the connection with FPS Finance and leading regular research meetings. Spinnewijn joined the project early in 2016 and helped improve the experimental design. Imbert and Tsankova joined later in 2016 and supported the project’s data analyses. Luts was the research team’s main operational contact within FPS Finance.</p> <p>4 randomised-controlled trial (RCT) experiments were run with all income taxpayers in Belgium; income taxes are collected solely at the federal level in the country. The experiments varied written communication between the tax authority and income taxpayers in all 4 stages of the tax process: tax filing, tax filing reminder, tax payment, and tax payment reminder; this unique design strengthened the external validity of findings. The RCTs randomised different treatments to determine the impact on compliance of simplifying information (simplification), making penalties and potential enforcement actions explicit (deterrence), and invoking social norms and social value (tax morale). 3 out of 4 experimental treatments involved simplifying the letter communicating what the tax administration expected from taxpayers. Experiments also tested the effect of deterrence and tax morale on compliance through the addition of short messages in</p>		

the simplified letter. The experimental design allowed comparison of simplification with deterrence and tax morale treatments in the same setting, thereby simultaneously testing the 3 main factors of tax compliance studied in the literature.

The tax filing experiment was conducted in 2017 (fiscal year 2016) with 1,500,000 online tax filers. The tax filing reminder experiment was conducted in 2016 (fiscal year 2015) with 148,925 late filers. The tax payment experiment was conducted between November 2017 and May 2018 (fiscal year 2016) with 1,216,317 taxpayers. The tax payment reminders experiment was conducted in 2015/16 (fiscal year 2014) with 229,751 late taxpayers, repeated in 2016/17 (fiscal year 2015) with 202,730 late taxpayers.

The results showed that simplification of communication increased compliance with stated timeframes. The positive effects of simplification were universal across the population and were maintained when repeated over subsequent years. Deterrence messages were found to have an additional positive effect, but invoking tax morale was not effective, even backfiring in some instances. Even tax morale messages that improved knowledge and appreciation of public services did not raise compliance.

The empirical setting of [R2] allowed the research team to push the frontier on evaluation of letter treatments by comparing their compliance effects to standard enforcement actions. While nudges are low-cost interventions, knowing how they compare to the standard policy levers that they complement has been a key challenge. The team exploited a regression discontinuity in enforcement intensity for late taxpayers. Combining this with the experimental design of the tax payment reminder experiment gave a unique opportunity to compare the compliance effect of letter interventions and standard policy levers for the same population in the same setting.

The research found simplification to be highly cost effective. The positive effects of simplification persisted in the next fiscal year and were sustained when simplification was repeated. [R2] emphasised the need for tax administrations around the world to make it as easy as possible to comply. All 5 co-authors worked on the manuscript during successive revisions of the paper and are jointly responsible for the output.

3. References to the research (indicative maximum of six references)

R1. Lambertson, C., De Neve, J.- E., Norton, M.I. 2018. The Power of Voice in Stimulating Morality: Eliciting Taxpayer Preferences Increases Tax Compliance. *Journal of Consumer Psychology* 28(2): 310-328. <https://doi.org/10.1002/jcpy.1022> [output type: D].

R2. De Neve, J.- E., Imbert, C., Spinnewijn, J., Tsankova, T., Luts, M. 2019. How to Improve Tax Compliance? Evidence from Population-wide Experiments in Belgium (May 05, 2019). *Saïd Business School Working Paper 2019-07*. <http://dx.doi.org/10.2139/ssrn.3389405> [output type: U]. Accepted at *Journal of Political Economy*, 17 December 2020. <https://doi.org/10.1086/713096> [output type: D].

4. Details of the impact (indicative maximum 750 words)

Improving tax compliance in Belgium

The research has led cumulatively to an estimated EUR100,000,000 in tax being paid earlier in Belgium since the experiments began in 2015. This has generated a structural difference in tax revenue of approximately EUR10,000,000 for the Belgian Federal Public Service (FPS) Finance, including cost savings of approximately EUR4,000,000 due to fewer administrative costs and reduced need for enforcement action to induce late taxpayers to pay. The research has both advanced payments (leading to cost savings) and raised more tax revenue overall.

Addressing the Federal Parliament in January 2019, the Belgian Minister of Finance confirmed that for the 2015 tax year EUR30,000,000 revenue was collected more quickly compared with previous years (when simplified letters were not used), EUR4,000,000 additional revenue was

received, and EUR1,000,000 saved in enforcement costs [E1]. He provided a similar update for the 2016 tax year: *'Our analyses, carried out in collaboration with our academic partners Jan-Emmanuel De Neve (University of Oxford) and Johannes Spinnewijn, show that similar positive results were also achieved for the 2016 tax year. In total, the new interventions...accelerated the payment of EUR25,000,000 in personal income tax, with EUR3,000,000 (01-2019) in additional income and EUR1,400,000 in recovery costs saved.'* [E1] [Translation from Dutch]

A 2019 OECD report on successful tax debt management strategies in member countries confirms that *'the experiments conducted so far [with Belgian FPS Finance] resulted in an estimated net benefit of around EUR4,000,000 per fiscal year. On average, the interventions resulted in an 18.2% rise in paid amounts, 17.4% rise in the number of tax liabilities with a payment and a 16.8% rise in the number of tax liabilities with a full payment. As a result, the Belgian Tax Administration has set up a Behavioural Unit to integrate behavioural studies and experiments into its collection and recovery processes.'* [E2]

The Behavioural Unit was referred to by the Belgian Minister of Finance as an outcome of the trial's success: *'The undeniable positive results of the various experiments that the Federal Public Service (FPS) Finance has carried out in recent years clearly demonstrate the added value of the use of behavioural theories. Small, low-cost interventions can have a big impact on the behaviour of those liable for payment and reporting...The current and future Governance Agreement with the FPS Finance refers to the importance of applying nudging and behavioural insights to incentivise taxpayers to fulfil their tax obligations. In this context, a new unit is currently being set up within the General Administration of Collection and Recovery that will specifically deal with Tax Compliance and the role behavioural insights can play in this.'* [E1] [Translation from Dutch]

The research in [R2] was designed and conducted in close collaboration with the Belgian FPS Finance's General Administration of Collection and Debt Recovery. The initial working paper of [R1] received significant attention and led to an invitation for De Neve to speak at FPS Finance in 2015. Based on De Neve's research and expertise in behavioural science, the Ministry agreed in 2015 to his proposal to develop large-scale field trials to apply behavioural insights to tax filing and tax payment processes in the country.

De Neve was the lead academic in a team from Warwick and LSE working with FPS Finance. The field experiments ran over 2 tax years between 2016 and 2018 and involved regular meetings between the academics and senior government officials, including the President of FPS Finance, the Administrator-General for Collection and Debt Recovery, and the Administrator-General for Taxation for Individuals. According to the Project Manager in the General Administration for Collection and Debt Recovery at the time (now Advisor leading the Tax Compliance and Behavioural Insights Unit established following the trial's success): *'This partnership helped to ensure that the project had a scientific basis and consequently met the conditions for evidence-based policy making based on test/control/intervention. This collaboration with academics quickly grew into a win-win situation, in which the government could rely on scientific expertise that it did not have in-house, and in which academics, thanks to access to (anonymised) administrative data, were able to test their theoretical insights in practice.'* [E3]

The early success of the trial was reported widely in state media [E4, 5] and the Tax Compliance and Behavioural Insight Unit established in November 2018. It initiates and oversees the use of behavioural nudges to enhance the effectiveness and cost-efficiency of all policies targeting tax compliance. According to the unit's Advisor: *'all letters sent to individuals or organizations that owe tax of any kind are now reviewed to see if they can be improved by employing the techniques trialled in the research. This includes VAT payment reminders, communication about split payment plans and reminder letters to pay penal fines, amongst others. The research findings are also used in a digital context to enhance uptake and good decision making in the E-services of the tax administration.'* [E6]

Influencing wider applications of nudging in policymaking

As the first behavioural insights unit to be established within the federal administration, the Tax Compliance and Behavioural Insights unit acts as a centre of expertise on the use of behavioural nudges in policy. The unit's Advisor comments *'We share learning from the research and provide advice to other administrations within FPS Finance and more widely across other federal ministries and agencies, and regional governments in Belgium. This has included meetings with representatives from the ministry for social security, ministry for labour, ministry for policy and support and the Federal Agency for Administrative Simplification, as well as the regional governments of Wallonia, Brussels, Flanders and the City of Antwerp.'* [E6]

The research fed into an approved proposal to establish a Flemish Behavioural Insights Team (BIT). The resolution referred to the trial's success when reviewing evidence for behavioural insights being used successfully in political decision-making: *'The Federal Public Service (FPS) Finance is especially active in applying or testing behavioural science insights. For example, a 'nudge' pilot project is being conducted, led by Jan Emmanuel De Neve, behavioural economist at the University of Oxford, to use adapted reminders to encourage taxpayers to pay their taxes quickly and correctly. There is still a lot of margin, given that many people still file their returns on paper and there are around 800,000 late payers. The letters of formal notice sent to people until last year were very confusing. Through a number of variants of nudges, there is hope that the additional income for the state will soon be significant.'* [E7] [Translation from Dutch]

The proposal cited a November 2015 interview with De Neve in political monthly magazine *Samenleving & Politiek* – in which he reported on the research in [R2] and called for establishment of a Flemish BIT [E4] – in its acknowledgements that *'a systematic and more structural application of the insights from the behavioural sciences is also an important stimulus for the development of evidence-based policy.'* [E7] [Translation from Dutch]. The same interview was picked up in a May 2016 briefing paper by the European Commission's Joint Research Centre (JRC) on Belgium's institutional structure and capacity for applying behavioural insights to policy [E8]. The proposed resolution was adopted later that year on 26 October 2016 and commits the Flemish regional government to developing a framework for the application of behavioural sciences in political decision-making, trialling behavioural science initiatives in selected policies annually, and establishing a Flemish Behavioural Sciences expert team, which has since been established. [E7].

Another resolution to set up and evaluate nudge projects in selected policy areas within Belgian healthcare was adopted by the Chamber of Representatives on 5 July 2018. This too acknowledged the success of the FPS Finance trial, noting that *'FPS Finance asked Professor Jan-Emmanuel De Neve to set up an experiment to use modified reminder letters with "nudges" to encourage people to pay faster after a reminder letter. More than 200,000 people who did not pay their personal income tax on time received this letter... Compared to last year, the number of people who did pay increased by 17%. In the days after the letters arrived, it turned 18,000,000 more overdue taxes paid than compared to the form letter sent in previous years. It is estimated that the government will have to spend EUR1,000,000 less to induce payment defaulters.'* [E9] [Translation from Dutch] The proposal mandates that the federal government test and evaluate nudges within selected policy areas in the health sector, implement them if they prove to be successful, and establish a Belgian centre of expertise in behavioural science [E9].

The research is now also having a positive influence on countries outside of Belgium. De Neve and Spinnewijn presented the research to 27 different countries at the OECD and Inter-European Organisation of Tax Administrations (IOTA) conference in Brussels in April 2017 [E3]. IOTA is a non-profit intergovernmental organisation which provides a forum to assist members in European countries to improve their fiscal functionality. After the conference, Belgium recommended that the OECD form a Community of Interest on Behavioural Insights. This was launched in late 2017 and shares best practice in applying behavioural insights to improve public policy worldwide. Belgium also leads the Tax Debt Management Network within the OECD and has promoted Behavioural Insights on the network's agenda [E6].

The JRC of the European Commission organised a knowledge exchange event at Saïd Business School in 2018, at which De Neve presented the research. Representatives from the Romanian and Polish Ministries of Finance attended with Belgian colleagues to learn and hear best practice. The JRC is currently coordinating a cross-national experiment with several European tax administrations to test the use of nudge messages in tax collection, including the deterrence message nudge tested in the trial. FPS Finance are closely involved in this project, with Belgium providing a leading example of the effective use of nudges [E6]. Outside Europe, De Neve has presented the research to senior representatives of the Internal Revenue Service at their annual conference in the United States, where the research is getting further attention.

The Advisor on Tax Compliance and Behavioural Insights, Federal Public Service (FPS) Finances (Belgium) concludes: *'I have presented the research to tax authorities in Bulgaria, Ethiopia, Netherlands, Poland, Germany, Macedonia, Serbia and Mali. The tax administration of the Czech Republic is now starting trials on the use of behavioural nudges in communication to taxpayers. The design of its trials and the interventions being tested are directly based on the successful Belgian trials.'* [E6]

5. Sources to corroborate the impact (indicative maximum of 10 references)

E1. Transcript of Parliamentary question from Senator Peter van Rompuy and response from Finance Minister Johan Van Overtveldt. Transcripts in French and Dutch.

E2. OECD (2019), *Successful Tax Debt Management: Measuring Maturity and Supporting Change*, OECD, Paris, pp.88-89.

E3. Intra-European Organisation of Tax Administrators briefing paper: *Nudging in the context of taxation: How the Belgian FPS Finance use behavioural insights to encourage taxpayers to pay faster* (February 2019), p.4.

E4. Vermeersch W., Benyaich B., (2015), Interview with Jan Emmanuel De Neve: "Create a Federal and Flemish Nudge Unit", *Sampol*. Volume 22, 2015, No.9 (November), pp.18-27. Transcript in Dutch.

E5. Dries De Smet (2016). "Smart tax letter makes forgetful taxpayers pay quickly", *De Standaard*, 31 October 2016. Transcript in Dutch.

E6. Written supporting statement from Advisor Tax Compliance and Behavioural Insights, Tax Collection and Debt Recovery, Federal Public Service Finance in Belgium (FPS Finance).

E7. Proposal to apply behavioural science insights in the Flemish Government (reference to study on p.5 and p.8). Combined with record showing the progress and approval of the proposal in the Flemish Government (transcript in Dutch) and webpage on Flemish Behavioural Insights team.

E8. European Commission Joint Research Centre briefing paper: *Behavioural Insights Applied to Policy: Belgium Country Overview* (20 May 2016).

E9. Proposal for resolution applying the insights of behavioural sciences to the healthcare sector in Belgium (reference to study on p.9). Combined with record showing the progress and approval of the proposal in the Chamber of Representatives ("aangenomen" = approved). Transcripts in French and Dutch.