How to Silence Researchers? Evidence from Illiberal Policies in Hungary *

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Abstract

Since the late 1990s, an increasing number of countries have turned to "illiberal democracy," a regime that maintains "free but unfair" elections while systematically undermining the rule of law. In this paper, we argue that modern illiberal democracies cause detrimental effects on research. Using both national and international bibliometric data, we compare researchers exposed to illiberal policies in Hungary with their peers in other Central European countries prior to and after the first re-election of Viktor Orbán in 2010. We find that Hungarian researchers increasingly shift their publication efforts toward national-language journals with lower quality and are more likely to leave the country altogether. We show that political pressure is a key driver of these effects: researchers experience radically different patterns in terms of research outcomes, depending on their political alignment. Researchers perceived as political opponents are more negatively impacted in both their publication output and in collaboration networks, decreasing them both by about a quarter of the pre-shock value per year. Yet, they are more likely to publicly criticize the regime. Finally, researchers working on topics related to gender issues are also more affected and experience a decrease of 10% of their total publications and of 30% of their publications in top journals.

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1 Introduction

Since the fall of the Soviet Union, the dominant view in political science was that the liberal democratic model would start expanding and prevailing. One of the contradictions to this "end of History" (Fukuyama, 1989) in the West consists in the rising electoral base of far-right parties that question key elements of liberal democracy, from the rule of law to impartiality of the State regarding elections and protections for minorities. In order to describe the type of policies that such parties conduct when they come into power, Zakaria (1997) popularised the term "illiberal democracies", emphasizing the distinction between political and civil liberties – showing that free elections can lead to limitations to freedom of press and freedom of expression.

The last two decades have witnessed the rise of several regimes that have been characterized as "illiberal democracies" or as undergoing democratic backsliding. The term "illiberal," however, partly ceased to function as a pejorative label used by critics in 2014, when it was openly embraced by Viktor Orbán, the current Prime Minister of Hungary. In a widely cited speech, Orbán contrasted national identity and community with liberal values and individualism, framing this opposition as a justification for the broad institutional changes implemented by his party, Fidesz, following its unexpected landslide victory in 2010. These changes included the adoption of a controversial new constitution and the complete restructuring of several independent authorities, such as the judiciary and the media regulatory bodies.

A defining feature of such regimes is the pressure they exert on both minorities and institutional elites, such as intellectuals, journalists, and members of the judiciary. Academic freedom often becomes a primary target in this context. Academic freedom can be defined along two dimensions : the first is the "freedom to question and test and develop new ideas without undue harassment or interference" (Russell, 2002), i.e., research freedom at the individual level. While speeches from Viktor Orbán and articles by the State-aligned press appear to show such kind of pressures, both for economic reasons and for explicitly political justifications, the law does not directly address this dimension. However, the successive Orbán government have passed a number of laws that undermine the second aspect of academic freedom, which we define as the right to institutional autonomy for universities. Therefore, we expect those reforms to be turning points for productivity and quality of academic research in Hungary. While our research focuses on Hungary, we believe that we are describing a phenomenon with global implications. Several right- and far-right political leaders over the world have claimed to look up to Orbán as an example of good governance. In particular, current US President Donald Trump, who explicitly cultivates ties with Orbán and draws inspiration from his actions, has launched an assault on science from February 2024 on, cutting funding to universities and research projects on the basis of misalignment of research topics to the political positions of the Republican party. Given the rise of references to Orbán's governance by populist parties in most democracies, from France to Germany, Israel or India, with a discourse directly praising the new Hungarian State, it is crucial to understand its material consequences on science.

We believe that one of the benefits of civic liberties is that it allows free scientific research and innovation, thereby fostering the creation and the sharing of ideas. While the regime instituted by Viktor Orbán is not considered as a dictatorship, academic freedom has been under threat in Hungary, as well

as other civic liberties. If our hypothesis is true, patterns in research should also follow a path in the middle of those it follows in liberal democracies and dictatorships.

This paper aims to examine the consequences of illiberal policies on innovation, with a particular focus on the mechanisms through which academia and researchers are affected. More precisely, our analysis is organized around two main research questions. First, what is the overall impact of illiberal policies on innovation? We argue that the Hungarian experience since 2010—particularly policies that threaten academic freedom—constitutes a quasi-natural experiment that allows us to precisely quantify the effects of such political shocks in terms of innovation performances. Second, are academics differentially affected by political pressure? This part of the analysis focuses on the behaviour of researchers when directly confronted with political threats. We draw explicitly on the "Exit, Voice, and Loyalty" framework from Hirschman (1972), adapted to the political context, in which scholars facing political repression may choose to emigrate, express dissent, or comply with the new demands of the illiberal regime.

To answer these questions, we use rich bibliometric data that allow us to measure scientific outcomes for researchers based in Central European countries. Our primary dataset is constructed from national bibliometric repositories of several Central European countries, which we translate and harmonize to create a comprehensive dataset representing the whole research activity across the Central European countries we include in our analysis. In addition, we rely on OpenAlex—an international, centralized database with detailed information on co-authorship networks and institutional affiliations—which enables us to analyse international collaboration and researcher mobility. From these sources, we construct a broad panel dataset of researchers dating back to 1990, allowing us to track academic outcomes over time.

To address our first research question, we compare trends in Hungarian scientific publishing to those in other similarly sized Central European countries—specifically, Slovenia, Slovakia, and Croatia. Using matching procedures and a difference-in-differences strategy, we compare author-level outcomes across countries. We show that the main conjoined effect of the university reforms and political regression is an increase in the number of publications, but exclusively in Hungarian. In the period from 2010 to 2020, researchers based in Hungary publish 0.2 additional publications per year compared to researchers based in other Central Europe countries. We demonstrate that Hungarian researchers face an isolation phenomenon, characterized by a decoupling of collaboration between "national" collaborations and "international" collaborations. Additionally, the perceived quality of Hungarian research also appears to suffer as publications in top journals decrease of about 50% at the end of the period. The number of co-authors within Hungary compared to co-authors within Slovenia for the control also increases for the treated. Using this track record, we find that authors identified as being in Hungary before 2010 are 1.3 percentage point more likely not to publish in Hungary for three continuous years after 2010. Their publications with international co-authors also fall by over 25%. We believe that these results show that rather than a loss of aggregate productivity, the impact of illiberalism in Hungary is a relative retreat of research into the country itself, that can only be escaped through leaving.

Second, we extend our analysis to examine whether researchers within Hungary are differentially affected by political pressure. We categorize researchers based on how their political alignment may be perceived—as supportive of, neutral toward, or opposed to the illiberal governments—and estimate the impact of political threats on their academic performance. We find that researchers that are perceived as political opponents experience a significative drop in the total number of publications they publish, as well as in the number of publications they publish in top journals. These researchers are also more isolated and collaborate less with their Hungarian colleagues. At the opposite, researchers that are perceived as supportive of the regime experience small positive effects on their average number of publications or on the number of collaboration they get per year. All these effects intensify through the years and successive mandates of Viktor Orbán, suggesting that the stronger and longer the pressure on researchers, the higher the negative consequence on their performance. To extend these results, we apply the "Exit, Voice, and Loyalty" framework and demonstrate that politically targeted researchers are more likely to leave Hungary and to obtain affiliations abroad. We also analyse the content of publications in our database to demonstrate that these researchers are more likely to "voice"—that is, to publicly express dissent—compared to researchers who are not perceived as political opponents. Finally, we examine research direction by comparing the trajectories of scholars researching gender — a multidisciplinary field that has been heavily criticized by the government and pro-Orbán media—with those of researchers in other disciplines. We find that gender studies researchers are also disproportionately affected, experiencing a 10% decline in their total number of publications and a 30% decline in their publications in top journals.

The strand of the literature in economics of innovation closest to this paper consists of recent works that focus on the impact of political shifts on innovation. A first part of this literature especially focuses on the political pressures that are exerted on academics. Acemoglu et al. (2022) show that, through shifts at the head of the university, Communist Party leaders in China exert pressure on universities, significantly changing research direction. Jia et al. (2022) and Aghion et al. (2024) show to what extent respectively US and Chinese academia have been impacted by US sanctions and the cost to total science from the loss of collaborations between China and the US. From a historical perspective, political conflicts are demonstrated to also have a consequent impact on the academic performance of researchers, for instance before and after the Second World War and the Nazi regime (Waldinger, 2012; Moser et al., 2014; Waldinger, 2016; Becker et al., 2024), or during Mao's Cultural Revolution when researchers were showing their disapproval of the leader's ideological line (Kung and Wang, 2021). Our paper differs from this literature in the following ways. First, the setting is different: rather than an authoritarian dictatorship, we focus on a more recently appeared type of repression in the shape of illiberal democracy. Second, we attempt to extend the analysis of innovation costs of political repression from a small treated group to the entire population of researchers within a country. To the best of our knowledge, this is the first attempt at generalising this approach.

We also draw from the wider literature related to location choice and migration of innovators (Akcigit et

al., 2013; Bahar et al., 2022; Lerner et al., 2023) in order to assess the effect of the regime on migration behaviour. We also contribute to the debate on the opposition between the Hungarian government and the Central European University by presenting the first empirical estimate of the impact of the decision on departures from Hungary.

We also use measurement methods and concepts of productivity from a broad literature in economics of innovation, focusing on external determinants of researcher productivity (Azoulay et al., 2011; Aghion et al., 2023; Carayol et al., 2023). In particular, Azoulay et al. (2010) analyse the impact of losing a star co-author on publication quantity and quality; we look at another type of adverse shock, using similar methods. This literature extends beyond economics, and we rely on methods and measurements devised to evaluate academic outcomes in the scientometrics literature (Kronegger et al., 2011).

Our paper also builds on the political and administrative science literature characterising illiberal democracy. The term first appeared in the literature to describe developments in South-East Asia (Bell et al., 1995) before it started being used more widely after the publication of Zakaria (1997). In the Hungarian context, we expand on the precise qualitative description of regime change (Bankuti et al., 2012a; Boda et al., 2015; Halmai, 2018; Buzogány, 2020) and academic freedom constraints (Kováts, 2015; Kováts and Rónay, 2021; Kováts et al., 2024).

Finally, our paper contributes to the emerging field of meta-analyses in bibliometrics along two dimensions. We aim at helping the field understand to which degree and under which conditions researchers are comparable across countries, following Kwiek (2016), which showed that European top researchers are likely to be comparable. Our paper shows that while the premise of this research is right, political choices in a researcher's country of work may have lasting impacts on their careers that make them systematically different from countries in which such choices have not been made. Moreover, we contribute to the emerging union of the literatures pertaining to the analysis and evaluation of respectively international databases (Boyack et al., 2014) and national research information systems, in particular for Central Europe (Hladík and Renisio, n.d.). While our paper is not the first to compare trends in global and national systems (van Leeuwen et al., 2016; Háló and Demeter, 2023), it is the first to perform the analysis across all disciplines as well as the first to compare, at the level both of researchers and publications, the overlap between national and international databases across different countries, allowing us to better understand the advantages and shortcomings of both types of data. We believe that we make a strong contribution to this literature in using both types of data at once. Instead of using a singular database, we combine an international and centralised database with several national, decentralised databases. This second type of data is more precise regarding national publications and author profiles. In particular, this allows us to consider social sciences and humanities in our analysis. Usually, due to poor coverage in worldwide databases, these disciplines are often excluded as a whole from scientometric papers. Our inclusion of social sciences and humanities has direct applications to the problem at hand, given that they are typically the primary targets of anti-intellectualist speech and therefore likely to be especially hurt by the regime, but similar methods ensuring the presence of social scientists in the data could also be used in other applications of science of science. This use of different databases also helps us

ensure that we consider not only the full universe of researchers for the countries of analysis, but also the entire universe of articles, in particular those that are not written in English. Moreover, our process to identify entities through different databases is replicable and can be applied to other Current Research Information Systems and international databases.

The remaining of the paper is organised as follows. Section 2 describes the political and academic context of Hungary after Viktor Orbán's election of 2010. In Section 3, we detail the data collection work we performed, define the variable we use and detail the empirical strategy we implement. Section 5 presents our results regarding the global impact of illiberalism on impacted researchers. Section 6 presents our second set of results, showing how illiberal policies and political pressures impact heterogeneously researchers depending on their political alignment. Section 7 provides more details on all the robustness tests we perform and discusses our results, while Section 8 finally concludes.

2 Political Context and Threats to Academic Freedom

During the general election of April 2010, Viktor Orbán's party, the Fiatal Demokraták Szövetsége (*Alliance of Young Democrats*, Fidesz), unexpectedly obtained a supermajority, receiving 53% of the vote but 68% of the seats in Parliament, defeating the former socialist majority. These electoral results represent the largest political watershed in Hungary's modern political history. At the time of the election, Fidesz proposed a right-wing and conservative program aimed at creating a "new social contract for the country." The party's large electoral victory was interpreted by its leaders as a general rejection of liberal values by the Hungarian people, opening the way for structural changes in the state's organization to reflect new conservative values (Pap, 2017). As leader of the party, Viktor Orbán became Prime Minister of the country in May 2010 and his government quickly initiated reforms consistent with what he described as "non-liberal" principles[1].

According to several international organizations and NGOs[2], there are multiple dimensions through which post-2010 governments have facilitated Hungary's transition from a "liberal" to an "illiberal" democracy. A new Fundamental Law was promulgated on April 25, 2011, which weakened several components of the system of checks and balances that previously limited governmental power. In several independent authorities (judiciary, media authority, etc.), Parliament dismissed existing leadership and replaced them with party affiliates, expanded their powers, and made their removal procedures significantly more restrictive (Bankuti et al., 2012b). More generally, since the 2014 general elections, Hungary's

[1]In the Hungarian context, the adjective "illiberal" used to describe Viktor Orbán's policies is not a pejorative label only employed by political opponents—as it can be the case in other European countries—but rather as a self-description. This became especially evident after July 2014, when Viktor Orbán explicitly described his governance model as an "illiberal democracy" in a famous public speech. See Viktor Orbán's Speech at the 25th Bálványos Summer Free University and Student Camp.

[2]For instance, Human Rights Watch or Amnesty International consistently report on threats to the rule of law in Hungary and the threats to democratic institutions.

electoral process has been characterized as "free but unfair" (Bíró-Nagy, 2017), particularly due to restrictions on political advertising that have created unequal conditions for electoral competitors[3]. Kelemen (2017), for instance, highlights the chilling effect of Article 81 of Act CLXXXV on Media (2010), which grants regulators discretionary authority to sanction journalists whose content is deemed not "balanced, accurate, thorough, objective, and responsible." This law has also been criticized by the European Commission for Democracy through Law (the Venice Commission) as overly broad and discretionary[4].

Throughout all of the steps towards illiberalism, academic freedom in particular was targeted through different means. While the state of academic freedom had been constant since the fall of the East Block, Hungary experienced a sharp decline in academic freedom after 2010[5]. In this paper, we consider that academic freedom has two dimensions. First, we use researcher-centric definition given by Russell (2002), "freedom to question and test and develop new ideas without undue harassment or interference". In addition, we also consider a university-centric definition, from a historical perspective, in which we define "academic freedom" as the institutional right to autonomy for academic institutions. While we can consider the first dimension to be continuously threatened since 2010, this section focuses on 3 salient reforms during which the second was breached, all linked to electoral cycles.

First, while the new Act on Higher Education in 2011[6] was already a major turning point, it was overturned in 2014 to turn to another method of control of universities through a new position, appointed by the Prime Minister as well. Chancellors have the responsibility of managing the university's financial resources, which undermines the power of rectors and allows the State to maintain a certain level of control over the university's choices. Moreover, up to a third of the appointed chancellors often have a connection to the ruling party (Kováts, 2015). Although this position was somewhat mitigated by the introduction of a supervisory board to which both the rector and the chancellor belonged in 2015, its introduction led to an outcry in public universities, as it amply mitigated the power of rectors and muddies the line between university management and the government (Rónay, 2018). This process was further by the introduction of constitories in 2015, financial boards in which four out of five members were named by the government.

Secondly, as part of the campaign leading up to the 2018 legislative elections, the Central European University (CEU), founded and funded by billionaire George Soros, was targeted as early as late 2017. This led to a legal battle that forced the university to definitively relocate to Vienna in 2019. Directors and more generally all professors affiliated to the University were accused of being both the agent of external forces and of "social degeneracy", specially due to the existence of gender studies classes (Enyedi, 2018).

[3]See the OSCE / ODIHR Limited Election Observation Mission report.

[4]Opinion No. 798/2015 of the Venice Commission

[5]This is particularly striking when considering the Academic Freedom Index (AFI) developed by V-Dem for Hungary. While it is constant between 1991 and 2010 and of 0.95, it drops to 0.63 already in 2011 and keeps declining down to 0.3 in 2022, the lowest level among all the countries member of the European Union.

[6]Act CCIV of 2011, in which "autonomy" and "freedom" were no longer guaranteed but replaced by the necessity of "the spiritual and intellectual renewal of the nation". Furthermore, university rectors – who are responsible for professor recruitment, formerly elected by their peers, had to be appointed by the Prime minister.

The final and largest changes imparted on public higher education by the government has been the "regime change" started in 2018, when the Budapest University of Economic Sciences, now called Corvinus University Budapest, became owned by a public interest foundation. This model was then applied to 20 other public universities comprising the majority of university students in the country until 2022. While this seems to relax the State constraints in universities, the boards of these public interest universities comprise many Fidesz-aligned trustees (Szent-Iványi and Tétényi, 2022), including up to a third of Fidesz politicians, not including others who are supportive of the party (Kováts et al., 2024).

Although organisational reforms represent have been the main lever used to undermine academic freedom, the threats to the other aspect of academic freedom mentioned earlier, at the individual level, should not be minimized. Reforms have indeed been accompanied by an increased pressure on researchers through State-aligned media, which designates enemies of the government by exposing them as wasteful or politically driven rather than driven by science (Kováts and Rónay, 2021). The Fidesz and pro-Orbán media have put pressure on all researchers by organizing a campaign pointing the finger at researchers for their collaboration with in NGOs or their affiliation with institutions also perceived as opponents. Such campaigns have been particularly violent against academics and have been led reusing traditional populist rhetoric against elites and minorities. For instance, the campaign against CEU has been widely regarded as particularly aggressive toward scholars, where antisemitic rhetoric was frequently employed (Jenne et al., 2022)[7].
We provide more details on the political context and the threats to researchers and academics freedom in Appendix A.

3 Data Collection and Productivity Measures

3.1 Data

We conduct our analysis using bibliometric data coming primarily from two types of sources. The first type consists of several national-level databases, that are specific to each country included in our analysis. The second is OpenAlex, an open-access, world-wide publications database constructed from Microsoft Academic. We combine these sources to build our final dataset.

[7] Jenne et al. (2022) give the following reasons for this "Sorosozás", which they translate as "Soros-bashing": capitalizing on existing antisemitic tropes to compete against the explicit far-right party Jobbik during the general elections campaign of 2018. Including antisemitic rhetoric already directed at Soros from the 1990s emanating from Csurka's MDF against which Orbán pushed back at the time. Authors explain that this campaign was instrumental in helping Fidesz secure a third veto-proof majority in 2018. We further link this battle with the interdiction for all Hungarian universities (but applying only in practice to Eötvös Loránd University) to offer a master in gender studies, considered to be progressive propaganda pushed by Georges Soros.

National-level Repositories

Our first type of data source is an agglomeration of several national Current Research Information System (CRIS) databases. These datasets are national-level repositories of all research activities within one country, and were typically built in the 2000s as part of a global effort to enhance transparency of research. They typically include either data about researchers and their publications or project-level data, although they sometimes appear as publication-level databases. In addition to Hungary, we consider different countries from Central-Eastern Europe, namely Croatia, Slovenia and Slovakia[8]. It is a combination of originally bibliometric data (Hungary), project-based data compiled as open-access data on science productivity (Slovakia), and national library data combined with a researchers repository based on project-level data (Slovenia, Croatia). All of these databases are part of the EuroCRIS initiative and are therefore complying to similar standards[9]. They are also supposed to converge to the Common European Research Information Format, which allows us to exploit these databases together in spite of their idiosyncrasies. For each sources, we download data in the available format and apply in a translation and harmonization process in order to be able to append all different datasets into one. We then use the data we collect in order to build panel data, at the author-year level, that accounts for the academic performances of each researcher. The result of this process is a large sample of academics from the four countries considered. In its raw form, the dataset includes information on more than 60,000 researchers in Hungary since 1950, 40,000 in Slovenia and Slovakia, and 50,000 in Croatia.

In addition to the publication level data, CRIS databases gather numerous information at the author-level, such as their full name, field of research, PhD completion year[10]. Authors in general are associated with a unique identifier. For authors for whom we have the information, we harmonise the field of research accross CRIS data bases. We provide more details on the collection of the data, its harmonization and the construction of our final data set in Appendix B.

To the best of our knowledge, we are the first to use CRIS data sources in the innovation economics literature. This type of data provides broader and more accurate coverage of research activities in smaller countries, without introducing bias related to researchers' fields or productivity. Moreover, these national repositories are primarily used by researchers who are citizens of the countries in which they work. We argue that this selection based on nationality is not an issue for our analysis, as "national" researchers still constitute the vast majority of academics in all the countries considered. Additionally, political pressure might be likely to have a stronger impact on national researchers, while potentially encouraging emigration among foreign academics.

[8] We do not consider Poland, due to the fact that the country was led by the right-wing populist Law and Justice party from 2015 to 2020, again with direct reference to Orbán's governance. We also do not consider Austria due to the reallocation of the Central European University in Vienna that could create a bias in our estimation.

[9] See https://eurocris.org/ for more information.

[10] Given that authors have some level of control over their profiles in these databases, the information from this profile is likely to be the most accurate.

International Bibliometric Data

The second main data source that we use is OpenAlex. It is an open access bibliometric database created using Microsoft Academic in 2021, containing 247m works, 90m authors and 60,000 concepts (Priem et al., 2022). We use the data that are available on OpenAlex for the publications between 1990 and 2020[11]. At this period, although Scopus or Web of Science were considered more detailed about co-author networks, Microsoft Academic was considered as one of the most exhaustive databases in terms of publications, especially those that are not written in English (Visser et al., 2021). OpenAlex is based on information compiled at the level of the source of the publication (journal, book, online repository, etc.).
Using publication-level and author-level data from OpenAlex, after correcting for some measurement error[12], we build a panel of authors active in Hungary according to OpenAlex prior to the period of the political shock which we consider. This database allows us to build a panel of observations at the author-year level including a variety of measure of quantity and quality of research for each author, as well as the activity of her co-authors network and her academic affiliations. National repositories already provide extensive data on individual researchers' activities, so OpenAlex is used primarily to capture "international" outcomes. Specifically, OpenAlex data is necessary to track researchers' international mobility and their collaborations with foreign researchers who – by definition – are those not appearing in the national CRIS data.

Merging National and International Data Sets

In order to conjointly use these data sources, we proceed as follows. First, we normalize the title[13] and collect external identifiers common to all databases (Digital Object Identifier (DOI) and Scopus identifiers) for publications in each database, including OpenAlex. We then merge the databases two by two, matching publications on identifiers or titles and year of publication, keeping only single matches. We then use these matched publications to link author profiles across databases, using their names. In addition, we also perform another round of matching for authors based on names, affiliations and research area. We consider the national databases as a source of truth in this process, given that they are curated directly by researchers and/or universities, whereas OpenAlex relies on a clustering algorithm to devise author profiles due to its breadth. We detail our data analysis and in particular our decisions regarding multi-profile OpenAlex authors in Appendix B.2.

Using this method, we match 52,172 authors profiles from the Hungarian CRIS to 57,536 OpenAlex profiles, 15,954 profiles from the Slovenian CRIS to 19,432 OpenAlex profiles, and 16,654 from Slovakia. We are also able to match 360,155 publications from the Hungarian CRIS, 112,328 from the Slovenian one.

[11] OpenAlex has stopped being uniformly updated since 2021, which is why we restrict our analysis up to the year 2020.
[12] See Appendix B.2.
[13] Namely, we pass the title in lowercase ASCII characters, remove stopwords and non-letter or digit characters.

3.2 Academic Performance and Mobility

In this subsection, we describe the metrics that we use to assess researcher characteristics and outcomes. To measure the academic performances, one challenge is to measure the quantity of research produced, i.e. the number of published articles. As baseline outcome of interest, we thus use the raw number of publications by given author in a given year. We then subdivide this number depending on the language of the publication. More precisely, we distinguish the number of publications in English from the number of publications in the "national language" of the country[14].

We also want to account for the quality of research outputs. A common method is to use the rank of the journal in which an article is published. We adopt this method, since citation counts per publication are not consistently available across all CRIS sources. We compute the average journal rank using the methodology of the Scopus CiteScore metric James et al. (2018), which uses citations in OpenAlex[15]. Journals are divided in the following categories: bottom 50%, top 5% and top 1% cited journals, and count the number of publications per authors per year in each journal category.

We further measure the impact of the political shock on researchers' collaboration networks. For this, we count the number of collaborations one research has during one year. We define a collaboration as co-authorship link between two researchers; multiple joint publications within the same year between the same authors are counted as a single collaboration during a given year. We also count the number of new collaboration, defined as first-time co-authorships. Both of these variables are computed using the CRIS data and OpenAlex. For national repositories, it thus counts by definition the number of collaborations *within the country*. For OpenAlex, we use the same method but only take into account co-authors that we identify as being from a different country, thus constructing a measure for international collaborations.

Finally, we measure researchers' mobility. We only consider migration out of "home country", i.e. defined as the country in which the researcher is listed in the CRIS data or where it is identified using its affiliation in OpenAalex. OpenAlex provides affiliation data for each year in which an author publishes, which enables to track the mobility of this author from one affiliation to another. We then build the following indicator variables: whether the author has published in their home country this year; whether the author has published outside of the country this year[16]; whether the author has not published in their home country for a duration of 2, 3 or 4 years; whether the author has stopped publishing in their home country, i.e. the author is never seen again in the home country after this year.

4 Measuring the Impact of Illiberalism on Researcher Performance

In order to fully take into account the scope of our data, and to identify political patterns, we consider several samples of the researchers population at hand. We describe here these different samples and the

[14] For instance one publication in Hungarian for a Hungarian researcher is counted equivalently to one publication in Slovenian for a Slovenian researcher.

[15] We compute the rank of the journal using the citation counts in OpenAlex. This ranking is then merged to each publication in the CRIS data using the ISSN of publication source. The rank is taken at the field level

[16] For both of these variables, the indicator takes the value 0 when the author has not published this year.

empirical strategy that we use to analyse them.

4.1 Selection of Samples

In this paper, we aim to address two distinct aspects related to the impact of illiberal policies on researchers. The first concerns the overall impact of illiberal policies on the state of academia in Hungary. The second focuses on identifying the direct effects of political repression on individual academics. We thus develop two distinct sets of samples. The first on allows comparisons between Hungarian researchers, exposed to the illiberal policies, and their counterparts in other Central Easter countries. The second one enables to compare researchers career dynamic only *within* Hungary, comparing researchers perceived as political opponents from the rest of academia. We summarise in Table 1 all the different samples we build, their selection and in which section they are used.

Hungarian and Central-Eastern European Researchers

In the first set of regressions, we follow Kwiek (2016) in considering that researcher paths are comparable at the individual level across similar European countries. Our analysis compares Hungarian researchers with researchers from Croatia, Slovenia and Slovakia, other Eastern block countries of Central Europe in which there was no illiberal regime over the period 2000-2020. We restrict our raw sample to authors active before the shock, in order to avoid the effect of the change on selection into research, as we cannot observe the Ph.D. students who do not decide to become scientists in comparison. In order to avoid threats to our identification arising from reversal to the mean, we further condition presence in the sample to activity between 2000 and 2005, rather than up to the event year, 2010. This allows us to use the period 2006 to 2010 as a pre-shock period and prevents the reversal to the mean from contaminating our estimates over the period during which Orbán has been Prime Minister. In order to do so, we only keep researcher profiles who have published at least one paper over the period 1995 and 2005 and who started publishing after 1989. This selection yields in total 31,149 authors using the CRIS data. From this selection we derive 2 samples, to account for global researchers' performances and international collaborations.

Cross-country sample in national databases – To ensure comparability between the treated and control groups, we perform exact matching over the selection period, allowing for replacement, using the 31,000 authors we previously obtain. More precisely, we match on 3 variables: the *entry year* of the researcher –i.e. her first year of publication–, the main field of publications, quantile of total publications between 2000-2005, of publications in English between 2000-2005 and the average number of co-authors per year between 2000-2005. The finished sample comprises 5,347 authors in Hungary and 2,694 authors in Slovenia.

Cross-country sample in OpenAlex – To better account for international collaborations and mobility, we create an additional matched sample using OpenAlex data. We build this sample using two criteria, to make use of resources from both data sources. The first method is similar to the one described above

but within OpenAlex, while the second leverages our ability to match researchers across databases. In the first step, we keep researcher profiles who have published at least two papers over the selection period (2000-2005), and who have more than a single year of activity in the database. We then assign them to a country over the period by computing the share of years during which they published in each country over the period. We then consider the maximum of these shares to be the primary country of affiliation of an author in this period. In other words, if an author has published in two separate years in Hungary and during another year in France, we consider this author to be primarily affiliated to Hungary. In this step, counting authors who may be equally affiliated to several countries over the period, we keep 55,221 authors in OpenAlex. In the second step, we keep all authors from the *cross-country sample in national databases* that have a plausible match in OpenAlex. This yields an additional sample of 20,120 authors. We then perform an exact matching based on the same method, on entry year and main field of activity. This yields a final sample of 9,274 Hungarian researchers, and 5,290 control researchers in OpenAlex.

Hungarian Scholars and Political Targets

We then focus on differences between researchers within Hungary based on their perceived political alignment. From the raw sample of researchers in the Hungarian CRIS database, we again only keep those with at least one publication between 1995 and 2005, and whose entry year falls between 1990 and 2005. We subsequently construct 3 additional samples:

Political Opponents Sample in National Databases – This sample aims at comparing the trajectory of researchers that we could identify as "political opponents" of the regime. We compare the research performance of these researchers to those of comparable Hungarian researchers, using the same matching methodology as in the *cross-country sample in national databases*. The way we identify these researchers is based on two different definitions. First we consider all researchers that are affiliated with the Central European University prior to 2010, as members of the CEU have always been identified by conservatives politicians and members of the Fidesz as clear opponents to Viktor Orban. Second, we establish a list of politically involved researchers that collaborate closely with Non-Governmental Organization that are particularly hostile to Viktor Orban's policies. All researchers belonging to this political opponents groups have been matched to their identifiers in CRIS and OpenAlex data by hand. We provide more details about how these researchers are chosen and how they are matched in all data bases in Appendix B.3. The final matched sample consists of 228 treated authors and 7,934 control authors.

Political Loyalists Sample – This sample focuses on researchers who can be considered as politically supportive of the regime. We identify these individuals using the membership list of the Batthyány Society of Professors, a conservative academic circle closely aligned with Fidesz. We treat membership in this organization as indicative of loyalty to the government. Using the same matching procedure, we construct a sample of 72 treated researchers and 228 matched control authors.

Political Opponents in OpenAlex – Following a similar approach, we use the criteria from the *cross-country sample in OpenAlex* to build a sample of political opponents in OpenAlex. Based on the matched list of political opponents and using the same matching procedure applied in other OpenAlex samples, we obtain a sample of 154 treated authors and 3,226 control authors[17].

In summary, our repeated matching procedure allows us to distinguish 3 non-overlapping groups within the full raw sample of Hungarian researchers: declared political opponents, conservative researchers aligned with the regime, and researchers identified as "neutral". We compare the research performance and career trajectories of political opponents and conservative researchers to their neutral counterparts, matched based on similar observable characteristics. Additionally, we ensure that control researchers are not co-authors of either political opponents or conservative researchers.

4.2 Empirical Strategy

For each sample we define, we estimate a difference-in-differences (DiD) regression to compare the group of researchers of interest with the control group matched to them (Hungarian researchers with researchers from neighbouring countries, political opponents with "neutral" researchers, or political allies with "neutral" researchers). We formally investigate the effect of illiberal policies on researchers' career trajectories by estimating the following equation:

$$Y_{it} = \sum_{t=2005}^{2020} \beta_t D_i \times Post_t + \alpha_i + \delta_t + \sum_{s=2005}^{2020} X_i \times \mathbb{1}_{\{t=s\}} + \epsilon_{it} \tag{1}$$

where Y_{it} is the outcome variable measuring academic performance for researcher i in year t. The treatment indicator D_i takes the value 1 if the researcher belongs to the group of interest and 0 if assigned to the matched control group, as defined in Section 3. The variable $Post_t$ is a binary indicator equal to 1 for years after 2010, the onset of illiberal policy implementation. The model includes individual fixed effects (α_i) and year fixed effects (δ_t). The term X_i represents a vector of time-invariant researcher characteristics, interacted with year fixed effects to control for their influence over time. In our baseline specification, X_i comprises only the field and the entry year of the author. We also consider extended specifications that include additional controls such as the author main main domain and the number of publications in the first two or five years of a researcher's career.

In all estimation tables, we further decompose the post-2010 effect of illiberal policies into distinct dummy variables corresponding to each mandate of Viktor Orbán (2010–2014, 2014–2018, 2018–2022, post-2022). This allows us to capture not only the overall impact of illiberal policies but also their potential intensification over time, which is likely to be gradual as the political pressures intensifies over the years and mandates.

[17] We do not construct an equivalent *Political Loyalists Sample* in OpenAlex due to the small size of this group, and because the vast majority of these researchers have remained in Hungary since 2010.

5 The Effects of Illiberalism on Academic Research

In this section, we describe the overall trends in Hungarian academia since Viktor Orbán's election in 2010. We estimate equation 1 to compare the career trajectories of researchers exposed to illiberal policies with those of researchers not exposed—-specifically, Hungarian researchers versus their counterparts in neighbouring countries.

5.1 Research Productivity, Research Quality.

We first focus on the *cross-country sample in national databases* to measure the impact of the shock on individual research productivity and quality. We show that while research productivity increases by national measures, its presence in international data as well as its quality decline. Figure 1 shows that compared to researchers in foreign countries, the number of publications per year by Hungarian researchers increases over the period. We measure an effect of around 0.25 publication per year on average as soon as 2013. There is no further increase after this period, while most of the organisational changes in universities occur afterwards; we cannot disprove the null hypothesis that these changes themselves had a significant positive or negative effect. However, it is clear that researchers appear to have been incentivized to produce a higher number of publications. However, Figure 2 shows that this increase can almost fully be accounted for by the number of publications which language of publication is the "national language" (in our case Hungarian). We do not find evidence of any trend breaks for the number of publications in English. We summarise results on the quantity of research in Table 2. The total effect on publications per year is about over 10% of the pre-period sample average, similar to the effect on publications in national languages.

While the quantity of publications does not decrease, we show that the quality of the publications of Hungarian researchers appears to decline. Table 2 shows our results on outcomes linked to quality of research. It shows that the number of papers published in the top 1% most cited sources decreases. This result can be extended to the number of publications in the top 5% of most cited journals. The magnitude of the effect that we measure is quite important: while the effect on top 1% journal publications is not significant over the entire period, it is significant over the period 2018-2023. For this period, the coefficient is of about -0.01, which represents a third of the average value before 2010 in the sample (column (2) of Table 2). The magnitude of the effect is of a similar magnitude for the number of publications in top 5% sources (column (4)). While most of the journals at the top of the citations distribution tend to be in the English-language, the effect we measure on the quality of Hungarian researchers cannot be imputed to a decrease in English-language publications in the national repositories we use, as these do not decline. The change of trend in the composition of rank of sources in publications starts only from 2014 onwards, which suggests that it has to do with the introduction of the chancellor system, and increases after 2018 and the start of "regime change" of academia, as it can be seen in column (2) and (4) of Table 2. Consistently, we find that the share of publications in the 50% least cited sources increases and

follows a dynamic similar to the number of top publications with an intensification of the effect through the mandates.

We conclude from these results that while total productivity seems to have been affected positively for Hungarian researchers, this happened mostly in their own language and to the detriment of their international stature. They are less likely after 2010 than comparable foreign researchers to have publications in the top 5% and 1% of journals.

5.2 National Network, International Collaborations

We further focus on the effect of illiberal policies on researcher network. Figure 3 shows that researchers affected by illiberal policies on average publish more frequently with other researchers in their own country compared to control researchers after 2010. This is both true when looking at the total number of co-authors and at the number of new collaborations. On average, after 2010, a Hungarian researcher has 3 more co-authors each 5 years compared to a Slovenian author. This effect of 0.6 per year represents about half of the average number of co-authors in the period 2005-2009. Treated authors also comparatively develop less collaborations with authors they never publish with before as it can be seen in Table 3. Since the number of collaborations we capture here are by definition only collaborations with other "national" authors, we believe that this result constitutes further evidence of increased isolation of Hungarian science.

Moreover, we further consolidate this hypothesis by using the variables related to the number of international publications and collaborations of our *cross-country sample in OpenAlex*. Our finding about network contraction at the international level is thus reinforced by the result showed in Figure 4. The number of international publications – publications with authors outside of their own country– diminishes for Hungarian authors compared to control authors. The effect estimated follows a similar pattern to those measure for both research quantity and quality, that is to say a intensification of the effect through Viktor Orban's mandates. We believe that this effect is consistent with the effect we measure using national repositories and reflects a decoupling of collaboration between "national" collaborations and "international" collaborations.

5.3 Exit Through International Mobility

Following Hirschman (1972)'s framework, we consider now the "exit" strategies of researchers as one of the potential responses. We thus use the information available in the *cross-country sample in OpenAlex* to analyse the patterns of migration of researchers and find that researchers appear to emigrate more compared to foreign counterparts. First, we find no effect on the instantaneous probability of publishing with another affiliation outside of the home country. However, Figure 5 shows that the probability of not publishing for four consecutive years in Hungary increased for Hungarian authors compared to the same probability in Slovenia for Slovenian authors. While this probability is raised only by 1%, which is not very high in absolute value, it still represents 25% of the average of the variable before the shock (2006-2010). This is also the case for the probability of not publishing for three and two years in the

home country, as shown in Table 4. Additionally, we show that the effect is heterogenous between cohorts. Table D.2.1 shows that the effect is not significant on the researchers who first published after 1995 and before 2000 (column (2)) and that the magnitude of the effect is higher for younger researchers (column (3)). Overall, although the in absolute value the effect on immigration is moderate, it is still non-negligible relative to the baseline variable.

6 A Political Treatment? Targeting Politically Non-Aligned Researchers

We show in this section that trends in academic performance and migration of scientists differentially treated by the regime are consistent with both the literature on authoritarian regimes that designate internal minorities as enemies, and with the framework of "Exit, Voice, and Loyalty" behaviours. We first focus on subsets of scientists based on their perceived political affiliation—either as opponents identified by the government and state-aligned media or conservative researchers aligned with the regime. Second, we shift focus to the direction of academic research and consider as treated those researchers working on gender-related topics, as it is a field that has been widely criticized and targeted by the government since 2010.

6.1 Perceived Political Opponents

We begin by investigating the effect of illiberal policies on researchers who are directly targeted. To do so, we estimate equation 1 using the *political opponents sample in national databases*, where the treatment group corresponds to the list of political opponents as defined in Section 4.1.

Table 5 summarises the difference in outcomes between researchers perceived as political opponents of Viktor Orbán and those that we do not classify politically. There is a pronounced effect on research quantity, both on the number of publications in Hungarian and on the number of publications in English, which contrasts with the general results from the previous section where the effect was concentrated on publication in Hungarian. Again, the magnitude of the effect that we measure is of higher intensity for the latests mandates (column (2), (4) and (6)), suggesting that the more intense the pressure, the stronger the impact on targeted researchers.

Additionally, we analyse the effect on these researchers' network. Table 6 shows a similar pattern to the one regarding the quantity of research. Targeted researchers have on average one fewer co-author every 2 years compared to their Hungarian "neutral" counterpart. We find similar effects when looking at the number of new collaborations, which also intensify through the cycle of re-elections of Viktor Orbán. This results also contrasts with the ones of the previous sections: while we find that on average Hungarian researchers develop more collaborations with their colleagues of the same nationality and less with foreign researchers, politically targetted researchers shows different trends.

We further extent our analysis following the "Exit, Voice and Loyalty" framework and measure to what extent one strategy might have been preferred to the other and at which costs for scientists.

While we find that researchers who are politically targeted experience a decline in academic performance, our results also indicate that political pressure is relatively ineffective at fully silencing them. Rather than remaining silent and complying with government demands,[18] targeted researchers increasingly publish on topics that explicitly signal criticism of Viktor Orbán. In particular, we focus publications which use the lexicon of "rule of law"[19], which has been among the main arguments of Central European University members and the European commission against the "Lex CEU". Researchers who are identified as political opponents publish more of them as early as 2011, as shown in Figure 6. Notably, this trend does not diminish after 2018, suggesting that these researchers have largely chosen to "voice" their dissent rather than adopt a strategy of "loyalty". Additionally, we show in Table 8 that this behaviour is not only driven by neither CEU members nor by researchers affiliated with NGOs, but that both show an increase in the number of publications relative to the current democratic backsliding.

We further this analysis by estimating equation 1 on the *political opponents sample in OpenAlex*. While the academic performance of politically targeted researchers declines in national databases, Table 9 shows that in international database, there is evidence of an increase in publications, seemingly only driven by publications with an affiliation outside of Hungary. Not only are these publications more numerous, they also appear to be of high quality. Furthermore, we replicate our finding that the authors publish more papers that are critical of the regime. This increase in publications outside of Hungary point towards the "Exit" strategy. We also show more evidence in Figure 7 that some of the targetted researchers are less likely to have an affiliation in Hungary, even before the departure of the CEU, although the effect of this shock can still be seen in the data. We summarise these results in Table 10: while repression does not lead researchers to stop voicing, it does cause a non-negligible part of them to exit – they are about 10 pp more likely to have left Hungary for four years over the period, including above 9% prior to the relocation of the CEU.

To address the "Loyalty" part of Hirschman framework, we use the *political loyalists sample*. We estimate the same equation and look at overall academic performance of these researchers. We summarize the results in Table 11. These researchers do not face any decrease in their publications, but rather a positive impact, especially in their number of publications and in the development of their network. This does not prove that there is collusion with the government to promote their research themes, as it is likely that their preferences are similar to those of the ministry in terms of research and that it is therefore easier for them to get access to funding. There is no significant effect on quality outcomes for these researchers. Additionally, these researchers, in general in line with policies that have been implemented after 2010, do not appear to "voice" like researchers we identified are political opponents (column (7)).

[18] For instance, the strategy adopted by the Central European University administration—prior to relocating its main campus from Budapest—was to comply with all legal requirements until doing so became unfeasible.

[19] We detail in Appendix C.2 how we define such variables using the vocabulary use in the publication title.

We believe that these results are consistent with the strategies described as "Exit, Voice, Loyalty". We plot in Figure 8 the overall effects of illiberal policies on the 2 samples we define earlier. It shows that political opponents of the government suffer adverse effects in all the dimensions of their research that we can measure, while researchers aligned with the government see positive effects for the same measures.

6.2 Self-Censorship and Targeted Topics

People who are in the two former samples have been directly targeted through legislative and mediatic action, but this is not the case for the vast majority of researchers. One mechanisms that might occur is self censor-ship among researchers that feels they are indirectly a target of the regime, particularly through the topics they focus on (Kováts and Rónay, 2021). We propose here an attempt to capture how there could be a chilling effect through fields, focusing on researchers working on topics that are negatively perceived by the successive governments. We focus in this section on researchers publishing on gender issues, a subject that has been demonized in the press, and forcibly excluded from the programs of universities. Gender is also a subject which spans over more than one domain of science: gender and sexual differences have implications not only in social sciences, but also in health sciences and life sciences.

Starting again from the first initial conditions of the *cross-country sample in national databases*, we create a *targeted topics sample*. To do so, we use a list of keywords to understand whether the title of an English-language publication refers to gender and sexual issues[20]. We then use the number of such "gender publications" in the first 5 years of publications to characterize a researcher's exposure to repression based on their work in this topic. We consider that researchers publishing more than once in this topic in their first five years of activity are likely to be specialised and less able to divert their research towards other issues. We find 1,253 such researchers. We use the same matching procedures as in the *cross-country sample in national databases* to build a control group of 6,396 Hungarian researchers.

We first conduct a descriptive analysis in order to motivate our hypothesis. Figure 9 plots the number of new researchers each year who publish more than once in gender in their first five years of activity. This count starts declining from 2015 on, which suggests indeed that the topics related to "gender studies" that we identify as such become less attractive to young researchers over the period.

We then estimate equation 1 using as treatment whether the author works in gender related topics. Table 12 summarises the results of this regression regarding research quantity and Table 13 the results regarding author network and research quality. While we find no effect on authors' network, we find that authors who worked on gender topics prior to the shock publish fewer publications, in particular in English, and in the top 5% of journals. Within Hungary, researchers' political alignment and engagement

[20] We only use the publications in English in order to assess wheter or not one author works on gender related topics. See Appendix C.1.

with politically sensitive topics increasingly correlate with differences in academic productivity. Our quantitative findings, while limited to researchers studying subjects related to gender, are consistent with the qualitative evidence presented by Kováts and Rónay (2021), which documents how concerns over potential government targeting have tangible implications for researchers' output. We believe that this means that these researchers were indeed specialised and unable to pivot in terms of research direction, allowing them to be silenced. Although researchers working on gender-related topics are not formally excluded from academic activity, the necessity of adjusting research agendas appears to impose significant constraints on their productivity.

We perform a series of robustness checks regarding the results about gender studies which we display in Appendix E.2. First, we chose more restrictive conditions to select authors working in gender topics and find similar results. Second, we replicate these results in OpenAlex, in which we find that the overall number of publications and average quality decline as well, while there are no effects on migration.

7 Robustness and Discussion

We carry out several robustness checks. We first show that all regression results are robust to an extensive set of controls. We display all the controls we test in Table D.1.1. The main specification we chose is the one that corresponds to column (3), with author fixed effects, and year fixed effects interacted with the author field fixed effect and with the entry year cohort of the authors.

For all the regressions presented in this paper, we vary the variables on which we match the control to the treated group. Our preferred matching equation rely on variables that captures essential characteristics of researchers when it comes to comparing their trajectories both across-country and within Hungary. However, we also create alternative samples, using the same exact matching procedure but relaxing it by dropping some of the variables used to perform it. Doing so, we logically increase the size of both the control and treatment groups. We find that our results are robust to this exercise, and that increased size sample show similar effects of illiberal policies on academia.

As mentioned in Section 3, we define an extensive set of outcomes variables, that enable to measure the impact on the quantity and quality of research outcomes, but also on the migration behaviour and the number of collaborations of exposed researchers. Results are also robust to different winsorization threshold on the outcomes variables ($0.1\%, 1\%$ and 5%), showing that our results are not driven by extreme values in the distribution of outcomes which is a usual concern when using publication data. Finally, we also selected authors at random for placebo treatment regressions that we display in Appendix E for the main specifications and main outcomes of our analysis. We believe that the main robustness check lies in the consistency of our results when performing our analysis separately on the 2 data sources we use, specially for the comparison between Hungary and other country. As explained above, collecting and harmonizing national repositories data enables us to increase the number of national researchers that we identify, and also enables us to focus on "national" researchers (i.e. researchers with the citizenship of the country they are affiliated to). However, OpenAlex does not use CRIS data in order to build and

actualize its data (and reciprocally for CRIS data sources with OpenAlex). Although it is possible to individually match researchers, there is a large set of authors whose publications may be all but missing in one data source and all recorded in the other. Regressions on publication quality and patterns of co-authorship yield consistent results and of the same magnitude when ran in OpenAlex rather than using CRIS data. The only difference we capture is relative to the impact on the total number of publications. Since the very large majority of publications in OpenAlex are in English, using OpenAlex data to capture the effect on the total number of publications should be equivalent to capturing the effect on publications in English using the CRIS data sources. If anything, we observe a negative effect on total publications in English for Hungarian researchers when comparing them with researchers from other countries, while the regression results in Section 5 show no significant effect on the publications in English. We believe that this difference in results mainly comes from the fact that we capture more precisely the total number of publications in the CRIS data for Central-Eastern Europe countries in their national repositories rather than using international databases, which often have a poorer coverage of these authors. This significant negative effect should thus be interpreted as being consistent with the decrease in international collaborations that we also observe; the less international collaboration Hungarian researchers are capable to establish, the less publications in English appear in international bases, although they still appear in the national repositories. Due to the fact that the sources OpenAlex uses are international open repositories of science, this also confirms that the research produced by Hungarian researchers becomes less visible internationally after 2010; otherwise, they would be recorded as often.

8 Conclusion

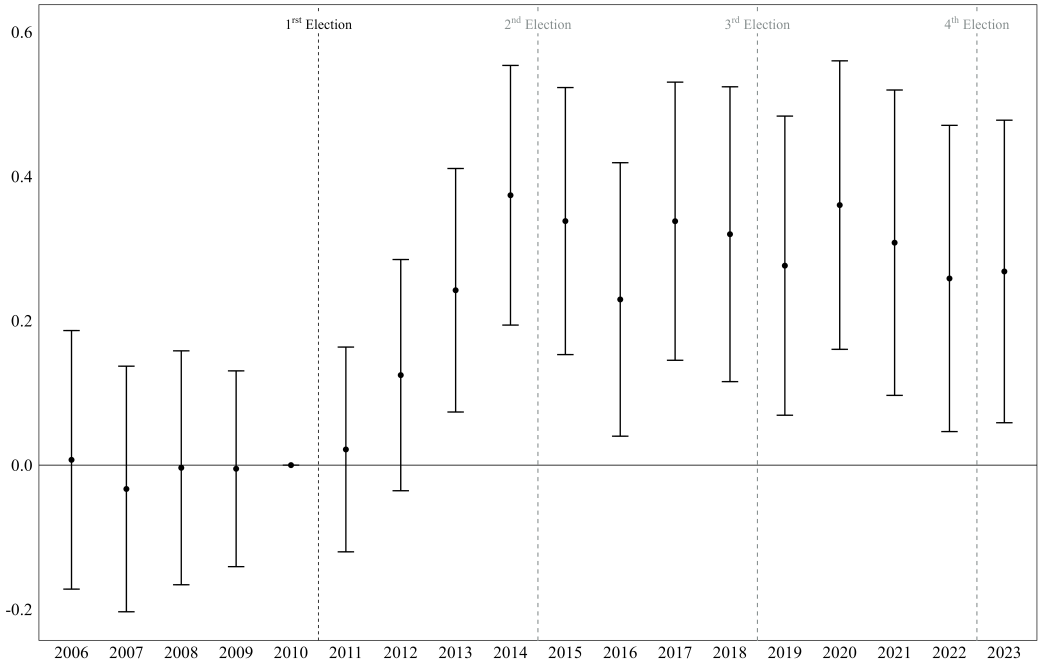
Our study show how illiberal policies and political pressure can have a direct impact on researchers. We take the example of Hungary as a particularly relevant context and a quasi-natural experiment, in order to measure how such pressures on researchers can impact the quantity and quality of research. We do so by first comparing the trajectory of Hungarian researchers to the trajectory of researchers from other countries. Such a comparison, the first of this type to our knowledge, has been made possible by collecting extensive publicly available data from national repositories data from several countries in Central-Eastern Europe and combining it to an international database. Doing so, we demonstrate that, while the impact on research quantity is ambiguous, particularly depending on the publication language, the quality of research of Hungarian researchers is significantly negatively impacted. We then extend our data collection work to a merge with already existing international data on publication, which enables us to track international mobility of researchers. We find that Hungarian researchers are more likely to emigrate out of Hungary, compared to researchers in other countries. More generally, illiberal policies in Hungary lead to a *contraction* of the national network on itself: illiberalism lead Hungarian research to collaborate more with their national fellows rather than to develop international collaborations.
Secondly, after showing that illiberal policies have had a strong negative impact overall on the international position of Hungarian academics, we use the Hungarian political context to show that these

negative impact we find goes beyond a general chilling effect. Across Hungarian researchers, the impact of illiberalism is very heterogeneous based on political involvement of researchers. Using the "Exit, Voice, Loyalty" framework, we show that researchers perceived as political opponents are negatively impacted in their research outcomes, both in quality and quantity, and are also more likely to stop publishing in Hungary. Academics that we identified as opponents also observe a *contraction* of their network within Hungary, suggesting that political pressure indeed makes collaboration more difficult for targetted individuals. While illiberal regimes often consider silencing political elites as a main aim to achieve, in the Hungarian context, targetted researchers have been the more likely to publicly show their opposition to the regime and *voice* against it. Finally, we show that researchers that has been working on targetted topics, namely gender studies, also experience a negative shock similar to researchers perceived as political opponents.

We believe that our work is particularly relevant in a context in which rising political forces increasingly view the policies implemented in Hungary as a model to look up to. It contributes to an understanding of how political contexts and the state of national institutions can foster (or deter) innovation and the production of new ideas. While we recognize that our findings may not be fully generalizable to all contemporary political environments, the targeting of academics is often among the earliest signs of a shift toward illiberalism. Our results suggest that academia, as an organized system for producing innovation through individual researchers, remains sensitive to political pressure—even in regimes that occupy the middle ground between full autocracies and liberal democracies.

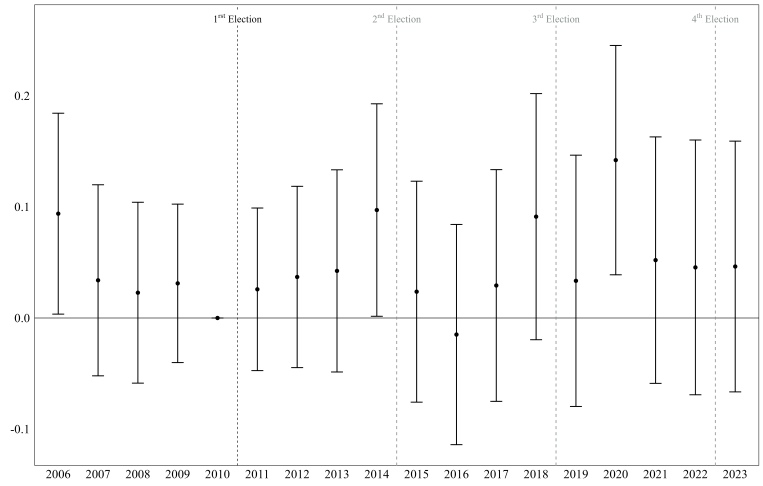
Figures

Figure 1. Effect on the Number of Publications per Year

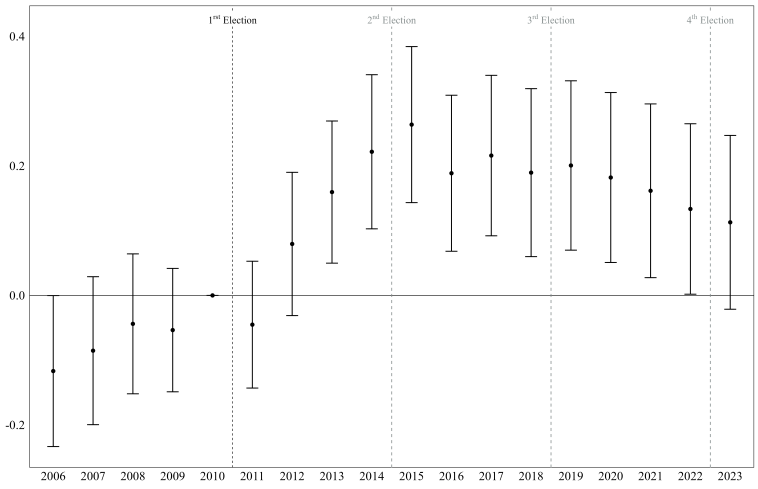


Notes: The graph above reports Fixed-Effect OLS regression estimates for the difference in the total number of publications by year for Hungarian researchers compared to Slovenian researchers for the period 2006-2023. Authors are matched using their number of publications, number of publications in English and in Hungarian for the treated and Slovenian for the control and number of co-authors, over the period 2000-2005. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

Figure 2. Effect on the Number of Publications per Year, by Language of Publication.



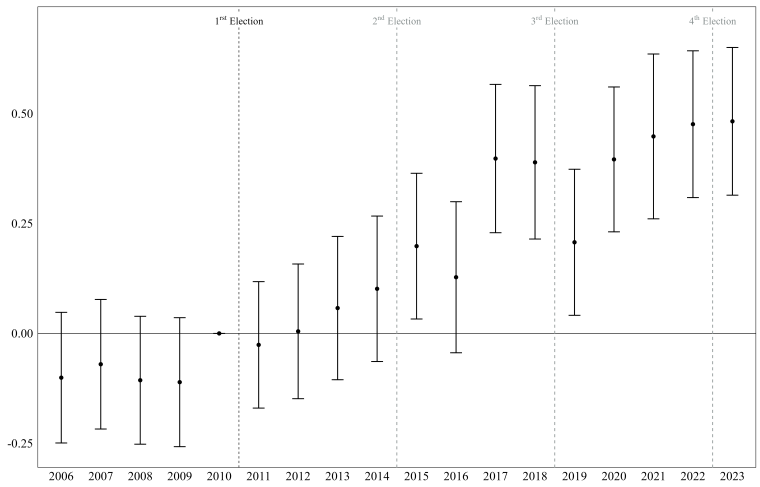
(a) Publications in English.



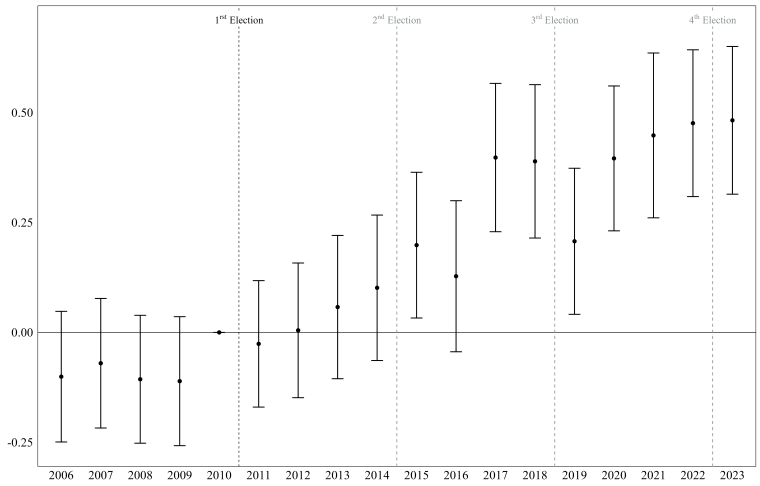
(b) Publications in the national language.

Notes: The graph above reports Fixed-Effect OLS regression estimates for the difference in the total number of publications in English (left pane) and Hungarian for the treated and Slovenian for the control (right pane) by year for Hungarian researchers compared to Slovenian researchers for the period 2006-2023. Authors are matched using their number of publications, number of publications in English and in Hungarian for the treated and Slovenian for the control and number of co-authors, over the period 2000-2005. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

Figure 3. Effect on the number of collaborations.



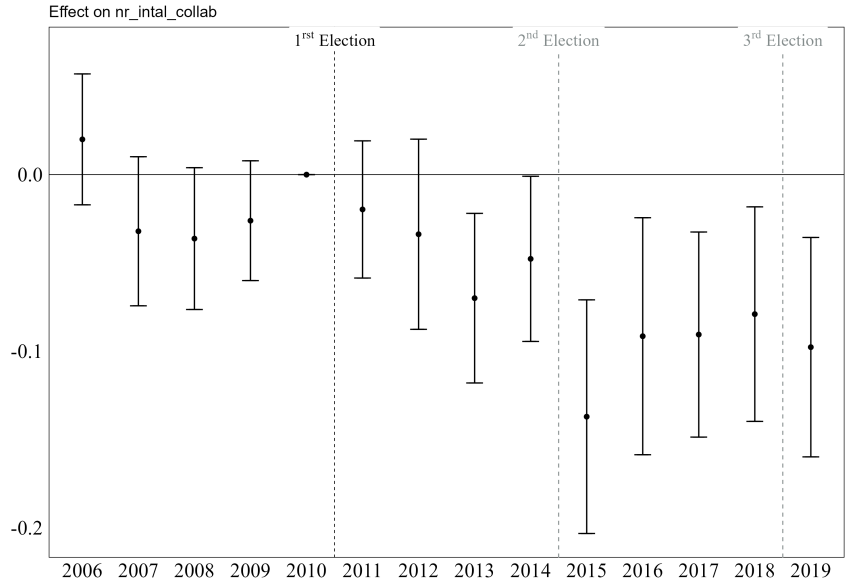
(a) Total number of publications.



(b) Only new collaborations.

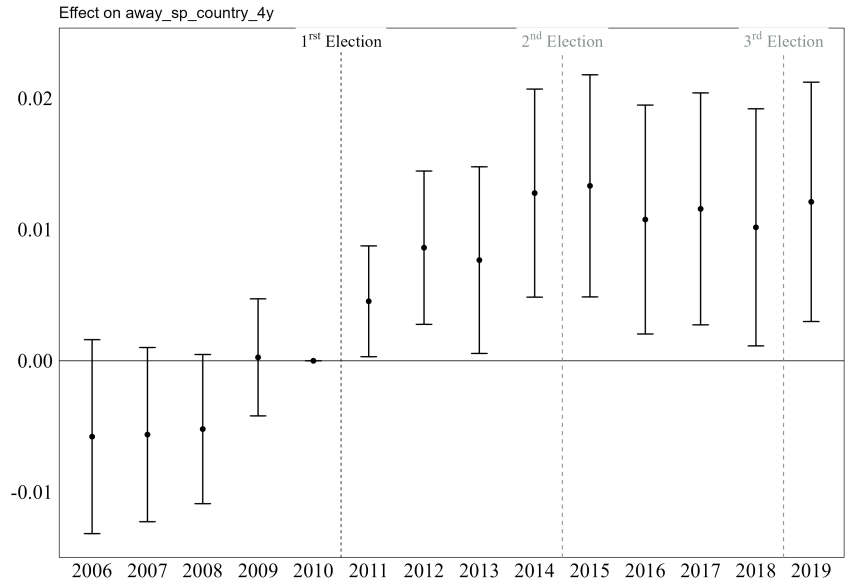
Notes: The graph above reports Fixed-Effect OLS regression estimates for the difference in the total number of collaborations per year for Hungarian researchers compared to foreign researchers researchers for the period 2006-2023. Authors are matched using their number of publications, number of publications in English and in Hungarian for the treated and Slovenian for the control and number of co-authors, over the period 2000-2005. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

Figure 4. Effect on the number of publications with international co-authors



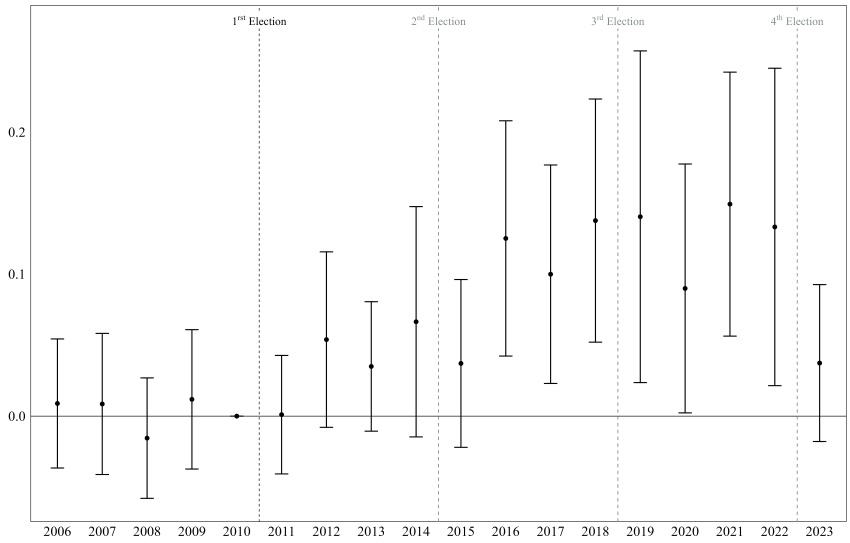
Notes: The graph above reports Fixed-Effect OLS regression estimates for the difference in the number of publications with co-authors outside of their country for the period 2006-2019. Authors are matched using their first year of publication and field of research. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

Figure 5. Effect on the probability not to have published in the home country



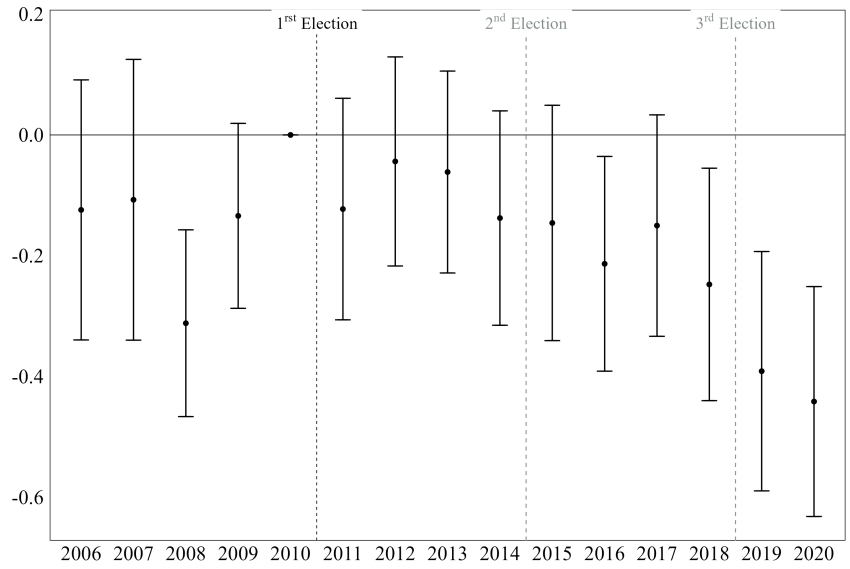
Notes: The graph above reports Fixed-Effect OLS regression estimates for the difference in the probability of not publishing in their country of affiliation for the period 2006-2019. This graph uses the variable definition using a period of 4 continuous years. Authors are matched using their first year of publication and field of research. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

Figure 6. Effect on the number of *rule of law* publications.



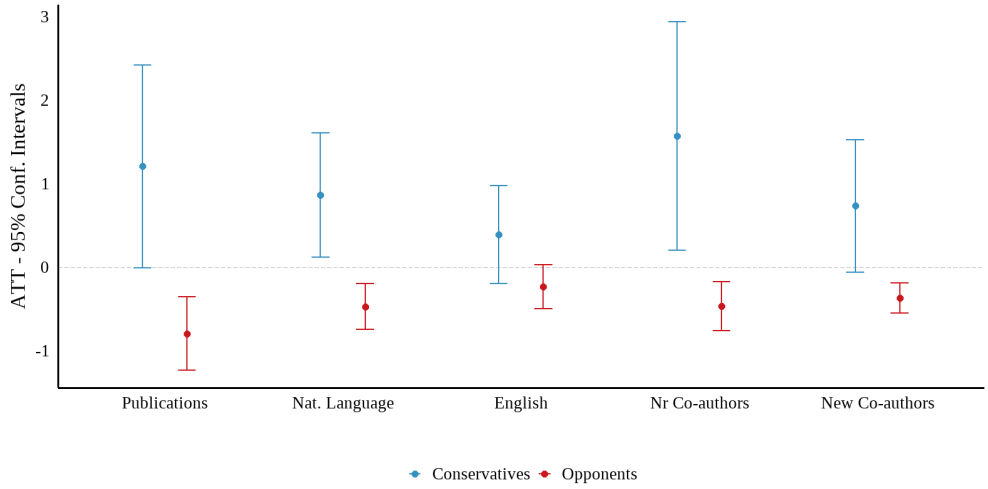
Notes:The graph above reports Fixed-Effect OLS regression estimates for the difference in the total number of publications by year for researchers of the CEU and the "Soros-list" researchers compared to other Hungarian researchers for the period 2006-2023. Authors are matched using their number of publications, number of publications in English and in Hungarian for the treated and Slovenian for the control and number of co-authors, over the period 2000-2005. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

Figure 7. Effect on the probability of publishing in Hungary – political opponents.



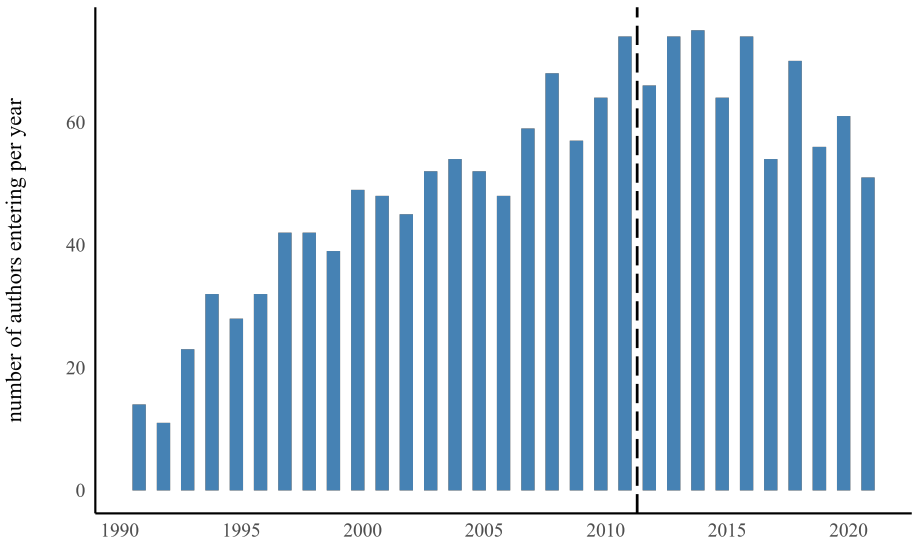
Notes: The graph above reports Fixed-Effect OLS regression estimates for the difference in the probability of publishing with an affiliation in Hungary by year for researchers of the CEU and the "Soros-list" researchers compared to other Hungarian researchers for the period 2006-2023. Authors are matched using their number of publications, number of publications in English and in Hungarian for the treated and Slovenian for the control and number of co-authors, over the period 2000-2005. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

Figure 8. Effect of illiberal policies on Hungarian researchers, by political alignment.



Notes: The graph above reports the ATT coefficients for each political groups compared to Hungarian researchers that are not identified of being close to any organization targeted by the government. Authors are matched using their number of publications, number of publications in English and in Hungarian for the treated and Slovenian for the control and number of co-authors, over the period 2000-2005. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

Figure 9. Number of entering authors working on gender topics.



Notes: The graph above shows the number of new authors working on gender-related topics between 1990 and 2020. The entering year is defined as the year of an author's first publication in our database. We use a five-year forward window to identify only the first publications of each author's career. We define new authors working on gender topics as those with more than one publication on gender-related topics within this five-year period. Gender publications are defined using the method detailed in Appendix C.1.

Tables

Table 1. Summary of Samples and their Selection Conditions

Name	Section	Database	Global criteria	Treatment group	Control group	Matching variables
Cross-country sample in national databases	section 5	MTMT, COBISS	• Published between 1995 and 2005 • Entered after 1989	Hungarian researchers (4,858)	Slovenian researchers (2,387)	• Entry year, field • Quantile of publications (total, in English, in Hu/Sl)
Cross-country sample in OpenAlex	section 5	OpenAlex	• Published twice between 2000 and 2005 • Entered after 1989 • Most publications in HU/SI (2000–2005)	Hungarian researchers (3,221)	Slovenian researchers (2,101)	• Entry year, field • Quantile of publications (total, in English, in top 5% journals), citations
Political opponents sample in national databases	subsection 6.1	MTMT	• Published between 1995 and 2005 • Entered after 1989	Political opponents entering before 2010, hand-matched (228)	Comparable Hungarian researchers (7,934)	• Entry year, field • Quantile of publications (total, in English, in Hu/Sl)
Political loyalists sample	subsection 6.1	MTMT	• Published between 1995 and 2005 • Entered after 1989	Politically loyal researchers entering before 2010, hand-matched (72)	Comparable Hungarian researchers (228)	• Entry year, field • Quantile of publications (total, in English, in Hu/Sl)
Political opponents in OpenAlex	subsection 6.1	OpenAlex	• Published twice between 2000 and 2005 • Entered after 1989 • Most publications in HU/SI (2000–2005)	Political opponents entering before 2010, hand-matched (154)	Comparable Hungarian researchers (3,226)	• Entry year, field • Quantile of publications (total, in English, in top 5% journals), citations
Targeted topics sample	subsection 6.2	MTMT	• Published between 1995 and 2005 • Entered after 1989	Researchers publishing in gender before 2010 in first 5 years of activity (1,253)	Comparable Hungarian researchers (6,396)	• Entry year, field • Quantile of publications (total, in English, in Hu/Sl)

Table 2. Effect on Research Quality

	nr pub. top 1%		nr pub. top 5%		share pub. bottom 50%	
	(1)	(2)	(3)	(4)	(5)	(6)
treat × post	-0.0039		-0.0035		0.0120***	
	(0.0024)		(0.0051)		(0.0025)	
treat × post (1rst mandate)		0.0026		0.0084		0.0037
		(0.0028)		(0.0056)		(0.0029)
treat × post (2nd mandate)		-0.0018		0.0023		0.0134***
		(0.0029)		(0.0061)		(0.0032)
treat × post (3rd mandate)		-0.0093***		-0.0144**		0.0201***
		(0.0030)		(0.0063)		(0.0033)
treat × post (4th mandate)		-0.0168***		-0.0310***		0.0225***
		(0.0034)		(0.0075)		(0.0047)
Observations	144,738	144,738	144,738	144,738	74,543	74,543
R^2	0.437	0.437	0.515	0.515	0.317	0.317
Within R^2	0.000	0.000	0.000	0.000	0.000	0.001
Mean.Dep.Var.Pre	0.027	0.027	0.072	0.072	0.044	0.044
author fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from MTMT and COBISS. The unit of observation is author by year and the sample period is from 2005-2023. Treated authors are authors from Hungary. Control authors are Slovenian researchers matched to the treated. The dependent variable is the number of publications in the top 1% and 5% most cited journals and the 50% least cited journals (resp. columns (1), (2), (3)), and the share of the latter over the total number of publications (column (4)). Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 3. Effect on Research Network

	nr co-authors		nr new co-authors	
	(1)	(2)	(3)	(4)
treat × post	0.5904***		0.3285***	
	(0.0937)		(0.0459)	
treat × post (1rst mandate)		0.2362***		0.1121**
		(0.0728)		(0.0479)
treat × post (2nd mandate)		0.5916***		0.3560***
		(0.1050)		(0.0571)
treat × post (3rd mandate)		0.8555***		0.4594***
		(0.1291)		(0.0578)
treat × post (4th mandate)		0.9425***		0.5601***
		(0.1500)		(0.0712)
Observations	144,738	144,738	144,738	144,738
R^2	0.572	0.572	0.365	0.366
Within R^2	0.001	0.002	0.001	0.002
Mean.Dep.Var.Pre	1.275	1.275	0.815	0.815
author fixed effects	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓

Note: Results are from Fixed-Effect OLS regression, for each outcome. The unit of observation is author by year and the sample period is from 2005–2020. Treated authors are authors from Hungary. Control authors are Slovenian researchers matched to the treated. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 4. Effect on International Migration

	has an affiliation in other country		id. for four years		nr of international collaborations	
	(1)	(2)	(3)	(4)	(5)	(6)
treat × post = 1	-0.0006		0.0134***		-0.0592***	
	(0.0035)		(0.0036)		(0.0221)	
treat × post (1rst mandate)		0.0040		0.0108***		-0.0156
		(0.0036)		(0.0033)		(0.0178)
treat × post (2nd mandate)		-0.0014		0.0156***		-0.0810***
		(0.0044)		(0.0045)		(0.0275)
treat × post (3rd mandate)		-0.0047		0.0162***		-0.0791**
		(0.0060)		(0.0050)		(0.0317)
Observations	203,938	203,938	203,938	203,938	203,938	203,938
R^2	0.467	0.467	0.698	0.698	0.533	0.533
Within R^2	0.000	0.000	0.000	0.000	0.000	0.000
Mean.Dep.Var.Pre	0.087	0.087	0.052	0.052	0.190	0.190
final_id fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from OpenAlex. The unit of observation is author by year and the sample period is from 2006-2019. Treated authors are authors from Hungary. Control authors are Slovenian researchers matched to the treated. The dependent variable is an indicator variable taking the value 1 if the author publishes with an affiliation outside of Hungary for the treated and Slovenia for the control after that date for a given year (column (1)) and for four consecutive years (resp. columns (2), (3), (4)), and another indicator variable taking the value 1 if the author is never seen publishing with an affiliation in Hungary for the treated and Slovenia for the control after that date (column (5)). Control variables account for trends for the matching cell over time.. Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 5. Effect on Research Quantity – Political Opponents Treatment

	publications		pub. nat. language		pub. in english	
	(1)	(2)	(3)	(4)	(5)	(6)
political opponent × post	-0.9640***		-0.5983***		-0.2649**	
	(0.2139)		(0.1414)		(0.1107)	
political opponent × post (1rst mandate)		-0.3673*		-0.2525**		-0.0549
		(0.1887)		(0.1256)		(0.1009)
political opponent × post (2nd mandate)		-0.9105***		-0.6275***		-0.2015
		(0.2292)		(0.1557)		(0.1244)
political opponent × post (3rd mandate)		-1.171***		-0.6671***		-0.3934***
		(0.2883)		(0.2006)		(0.1360)
political opponent × post (4th mandate)		-2.015***		-0.9859***		-0.7947***
		(0.3106)		(0.2218)		(0.1535)
Observations	123,048	123,048	123,048	123,048	123,048	123,048
R^2	0.594	0.595	0.577	0.577	0.548	0.549
Within R^2	0.001	0.001	0.000	0.001	0.000	0.001
Mean.Dep.Var.Pre	3.094	3.094	2.206	2.206	0.539	0.539
author fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from MTMT and COBISS. The unit of observation is author by year and the sample period is from 2005-2023. Treated authors are authors from Hungary. Control authors are Slovenian researchers matched to the treated. The dependent variable is the number of publications in the top 1% and 5% most cited journals and the 50% least cited journals (resp. columns (1), (2), (3)), and the share of the latter over the total number of publications (column (4)). Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 6. Effect on Research Network – Political Opponents Treatment

	nr co-authors		nr new co-authors	
	(1)	(2)	(3)	(4)
political opponent × post	-0.5593***		-0.4298***	
	(0.1320)		(0.0842)	
political opponent × post (1rst mandate)		-0.3165**		-0.2590***
		(0.1279)		(0.0863)
political opponent × post (2nd mandate)		-0.4885***		-0.3757***
		(0.1536)		(0.1033)
political opponent × post (3rd mandate)		-0.6879***		-0.5647***
		(0.1677)		(0.0982)
political opponent × post (4th mandate)		-0.8249***		-0.6440***
		(0.2148)		(0.1311)
Observations	123,048	123,048	123,048	123,048
R^2	0.508	0.508	0.329	0.329
Within R^2	0.000	0.000	0.000	0.001
Mean.Dep.Var.Pre	1.345	1.345	0.888	0.888
author fixed effects	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from MTMT and COBISS. The unit of observation is author by year and the sample period is from 2005-2023. Treated authors are authors from Hungary. Control authors are Slovenian researchers matched to the treated. The dependent variable is the number of publications in the top 1% and 5% most cited journals and the 50% least cited journals (resp. columns (1), (2), (3)), and the share of the latter over the total number of publications (column (4)). Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 7. Effect on Research Quality – Political Opponents Treatment

	nr pub. top 1%		nr pub. top 5%		nr pub. bottom 50%	
	(1)	(2)	(3)	(4)	(5)	(6)
political opponent × post	-0.0100		-0.0699*		-0.0402	
	(0.0143)		(0.0384)		(0.0323)	
political opponent × post (1rst mandate)		-0.0053		-0.0717**		-0.0430
		(0.0144)		(0.0325)		(0.0328)
political opponent × post (2nd mandate)		-0.0086		-0.0710*		0.0017
		(0.0165)		(0.0424)		(0.0382)
political opponent × post (3rd mandate)		-0.0351**		-0.1188***		-0.0892**
		(0.0155)		(0.0460)		(0.0367)
political opponent × post (4th mandate)		-0.0598***		-0.1093**		-0.0712
		(0.0161)		(0.0482)		(0.0492)
Observations	123,048	123,048	123,048	123,048	123,048	123,048
R^2	0.343	0.343	0.567	0.567	0.422	0.422
Within R^2	0.000	0.001	0.000	0.001	0.000	0.000
Mean.Dep.Var.Pre	0.014	0.014	0.054	0.054	0.149	0.149
author fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from MTMT and COBISS. The unit of observation is author by year and the sample period is from 2005-2023. Treated authors are authors from Hungary. Control authors are Slovenian researchers matched to the treated. The dependent variable is the number of publications in the top 1% and 5% most cited journals and the 50% least cited journals (resp. columns (1), (2), (3)), and the share of the latter over the total number of publications (column (4)). Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 8. Effect on *Voicing* behaviours – Political Opponents Treatment

	pub. *rule of law*			share pub. *rule of law*		
	(1)	(2)	(3)	(4)	(5)	(6)
political opponent × post	0.0775***			0.0153***		
	(0.0247)			(0.0041)		
CEU × post		0.0586**			0.0103**	
		(0.0253)			(0.0046)	
NGO × post			0.1632**			0.0271***
			(0.0724)			(0.0094)
Observations	123,048	121,932	120,852	78,546	77,675	76,936
R^2	0.311	0.289	0.300	0.243	0.238	0.229
Within R^2	0.002	0.001	0.002	0.001	0.000	0.001
Mean.Dep.Var.Pre	0.006	0.006	0.006	0.002	0.002	0.002
author fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from MTMT. The unit of observation is author by year and the sample period is from 2005-2023. Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 9. Effect on academic performance and *voicing behaviours* – Political Opponents Treatment

	publications		pub. w. affiliation outside Hungary		pub. w. affiliation only in Hungary		nr pub. top 5%		pub. *rule of law*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Pol. opponent × post = 1	0.6740***		0.7554***		-0.2536		0.1619***		0.0619***	
	(0.1606)		(0.2566)		(0.2771)		(0.0386)		(0.0200)	
Pol. opponent × post = post_1mandate		0.5401***		-0.0297		0.1578		0.1351***		0.0254
		(0.1523)		(0.2586)		(0.3008)		(0.0352)		(0.0166)
Pol. opponent × post = post_2mandate		0.9499***		0.6708**		0.0933		0.1839***		0.0674**
		(0.2127)		(0.3227)		(0.3215)		(0.0427)		(0.0294)
Pol. opponent × post = post_3mandate		0.4464		1.507***		-0.7195		0.2416***		0.0413
		(0.2748)		(0.4900)		(0.4950)		(0.0729)		(0.0283)
Observations	26,131	24,191	6,734	6,103	6,734	6,103	26,131	24,191	26,131	24,191
R^2	0.537	0.547	0.634	0.650	0.525	0.544	0.547	0.554	0.197	0.231
Within R^2	0.003	0.004	0.006	0.013	0.000	0.002	0.003	0.004	0.003	0.003
Mean.Dep.Var.Pre	1.046	1.046	0.370	0.370	1.820	1.820	0.109	0.109	0.005	0.005
final_id fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from OpenAlex. The unit of observation is author by year and the sample period is from 2006-2020. Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 10. Effect on migration outcomes – Political Opponents Treatment

	has an affiliation in own country		has an affiliation in other country		for over 4 years		nr of international collaborations	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pol. opponent × post = 1	-0.0461		0.0426		0.1070***		0.1520***	
	(0.0451)		(0.0532)		(0.0233)		(0.0478)	
Pol. opponent × post = post_1mandate		0.1134***		-0.0657		0.0760***		0.0602
		(0.0411)		(0.0497)		(0.0222)		(0.0440)
Pol. opponent × post = post_2mandate		0.0088		-0.0469		0.0995***		0.1566**
		(0.0532)		(0.0623)		(0.0294)		(0.0616)
Pol. opponent × post = post_3mandate		-0.1913***		0.1249		0.1826***		0.1339*
		(0.0709)		(0.0773)		(0.0367)		(0.0704)
Observations	6,734	6,103	6,734	6,103	26,131	24,191	26,131	24,191
R^2	0.710	0.725	0.696	0.711	0.646	0.660	0.227	0.216
Within R^2	0.001	0.015	0.000	0.004	0.017	0.019	0.001	0.001
Mean.Dep.Var.Pre	0.866	0.866	0.263	0.263	0.018	0.018	0.084	0.084
final_id fixed effects	✓	✓	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from OpenAlex. The unit of observation is author by year and the sample period is from 2006-2020. Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 11. Effect on Research Outcomes – Loyal Researchers

	publications	pub. in english	pub. nat. language	nr pub. top 5%	nr co-authors	nr new co-authors	pub. *rule of law*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
conservative × post	0.3070	0.5953**	0.1054	-0.0142	2.067***	0.8752**	0.0073
	(0.6443)	(0.2444)	(0.4278)	(0.1455)	(0.7728)	(0.3395)	(0.0059)
Observations	12,708	12,708	12,708	12,708	12,708	12,708	12,708
R^2	0.662	0.755	0.596	0.702	0.768	0.568	0.235
Within R^2	0.000	0.003	0.000	0.000	0.004	0.002	0.000
Mean.Dep.Var.Pre	4.172	1.203	2.513	0.365	3.551	1.751	0.002
author fixed effects	✓	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓	✓

Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 12. Effect on Research Outcomes – Gender Topics Treatment

	publications		pub. in english		pub. nat. language	
	(1)	(2)	(3)	(4)	(5)	(6)
gender topic × post	-0.5380***		-0.2965***		-0.2084***	
	(0.1350)		(0.0839)		(0.0729)	
gender × post (1rst mandate)		-0.3095**		-0.1569**		-0.1360**
		(0.1230)		(0.0777)		(0.0666)
gender × post (2nd mandate)		-0.5675***		-0.3368***		-0.2056**
		(0.1622)		(0.0954)		(0.0909)
gender × post (3rd mandate)		-0.7017***		-0.4131***		-0.2709***
		(0.1737)		(0.1052)		(0.0929)
gender × post (4th mandate)		-0.7217***		-0.4877***		-0.2088*
		(0.2036)		(0.1254)		(0.1102)
Observations	90,702	90,702	90,702	90,702	90,702	90,702
R^2	0.601	0.601	0.609	0.610	0.547	0.547
Within R^2	0.001	0.001	0.001	0.001	0.000	0.000
Mean.Dep.Var.Pre	3.195	3.195	1.455	1.455	1.594	1.594
author fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓

Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table 13. Effect on Research Quality and Network – Gender Topics Treatment

	nr pub. top 1%		nr pub. top 5%		nr co-authors	
	(1)	(2)	(3)	(4)	(5)	(6)
gender topic × post	-0.0354***		-0.1647***		0.1721	
	(0.0112)		(0.0269)		(0.3412)	
gender × post (1rst mandate)		-0.0110		-0.0834***		-0.0272
		(0.0115)		(0.0274)		(0.2395)
gender × post (2nd mandate)		-0.0345***		-0.1755***		0.0875
		(0.0125)		(0.0301)		(0.3823)
gender × post (3rd mandate)		-0.0596***		-0.2261***		0.1725
		(0.0132)		(0.0317)		(0.5008)
gender × post (4th mandate)		-0.0601***		-0.2716***		-0.2422
		(0.0155)		(0.0364)		(0.5840)
Observations	90,702	90,702	90,702	90,702	90,702	90,702
R^2	0.426	0.427	0.534	0.535	0.625	0.625
Within R^2	0.000	0.001	0.002	0.003	0.000	0.000
Mean.Dep.Var.Pre	0.119	0.119	0.381	0.381	4.148	4.148
author fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓

Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

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Appendix

This Appendix presents further details on the political background, data collection, construction of variables, additional results and all robustness checks.

- Appendix A gives more details on the political context of Hungary and the state of academia before and after the 2010 elections. It also gives more detail on the case of the Central European University and descriptive statistics on the situation of the university.
- Appendix B provides a detailed explanation of the different data sources we collected and the harmonization process we performed up to our final data set.
- Appendix C is the appendix regarding sample and variables definitions.
- Appendix D presents complementary results that support the results we present in the main text.
- Appendix E finally shows all robustness checks we perform.

Appendices

A Political Background and the State of Academia in Hungary

We provide in this Appendix additional resources and descriptive statistics on the state of academia in Hungary (Appendix A.1) as well as on the particular case of the Central European University (Appendix A.2), about which we we display some descriptive statistics.

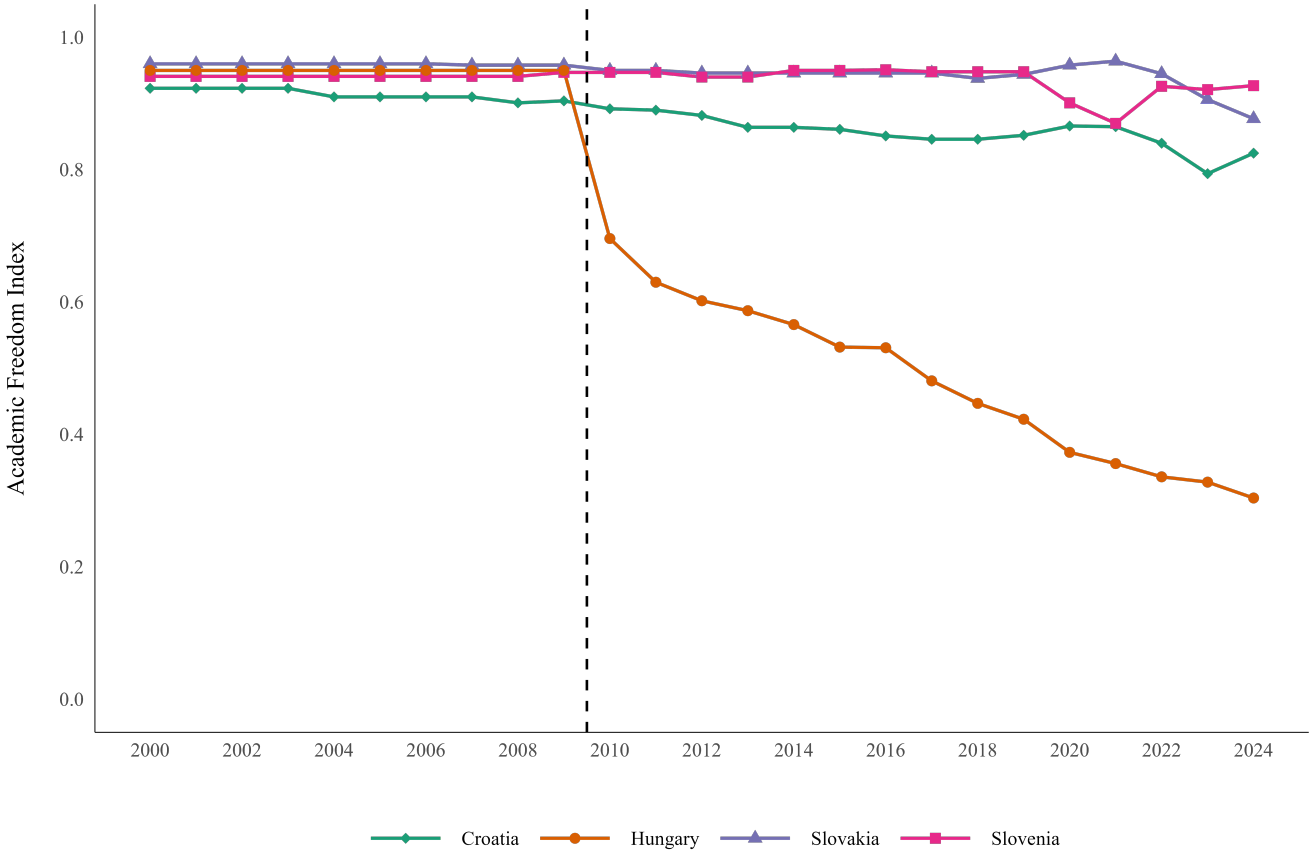
A.1 Descriptive evidence of the impact of illiberalism on Hungarian academia

In this section, we present aggregate evidence and contextual information on the overall state of Hungarian research before and after 2010, marking the beginning of illiberal policy implementation.
We would first like to recontextualise academic freedom in the Hungarian context by underlining the fact that the profession is used to being silent regarding political topics. The period over which academics have been involved in the public discourse without hindrance has been short, lasting only about twenty years between the end of the explicit ideological control of the communist period and the changes induced by Fidesz after 2010. During this time, academia became closely involved in politics. However, the chilling effect mentioned in this paper is a return to an earlier affect from before 1989. The main difference that he identifies is that for those who are not self-censoring, instead of a ban on anti-government speech from academics, they are simply confined to the margins of publications by the State-aligned media, which does not even discuss their arguments. In his opinion, the combination of a fear for their livelihoods and the media takeover are the main reasons why academic freedom declined after 2010.

As a descriptive piece of evidence showing the rise of illiberalism in Hungary, we show that the Academic Freedom Index (AFI) has dropped since Orbán's reelection in 2010. This index is compiled by V-Dem to measure the level of academic freedom in each country on an annual basis based on private interviews with researchers. In Figure A.1.1, it is clear that Hungary diverges significantly from the trajectory of other Central and Eastern European countries[21]. The AFI for Hungary begins to decline sharply after 2010 and continues to deteriorate in the following years, while the rest . Figure A.1.2 provides a more detailed view, displaying the individual components that are aggregated to construct the overall AFI. Although all dimensions taken into account by V-dem show a downward trend, some notable patterns emerge. In particular, the decline in "Institutional Autonomy" is especially strong in the Hungarian context, where academic freedom was initially challenged through governance reforms in 2011, 2014, and 2022. Interestingly, the indicator for "Cultural and Academic Expression" shows a sharp decline following the campaign against the Central European University and the adoption of the "Lex CEU" law. This trend may reflect the broader atmosphere of intimidation and pressure on academics between 2017 and 2019 (Kováts and Rónay, 2021; Jenne et al., 2022).

[21] This is the measure that we use in order to select the countries used as a control group. The countries from which we use affiliated researchers are selected in such a way that they do not experience the same changes in academic freedom levels as Hungary.

Figure A.1.1. Academic Freedom Index – Central-Eastern European Countries (2000-2024)



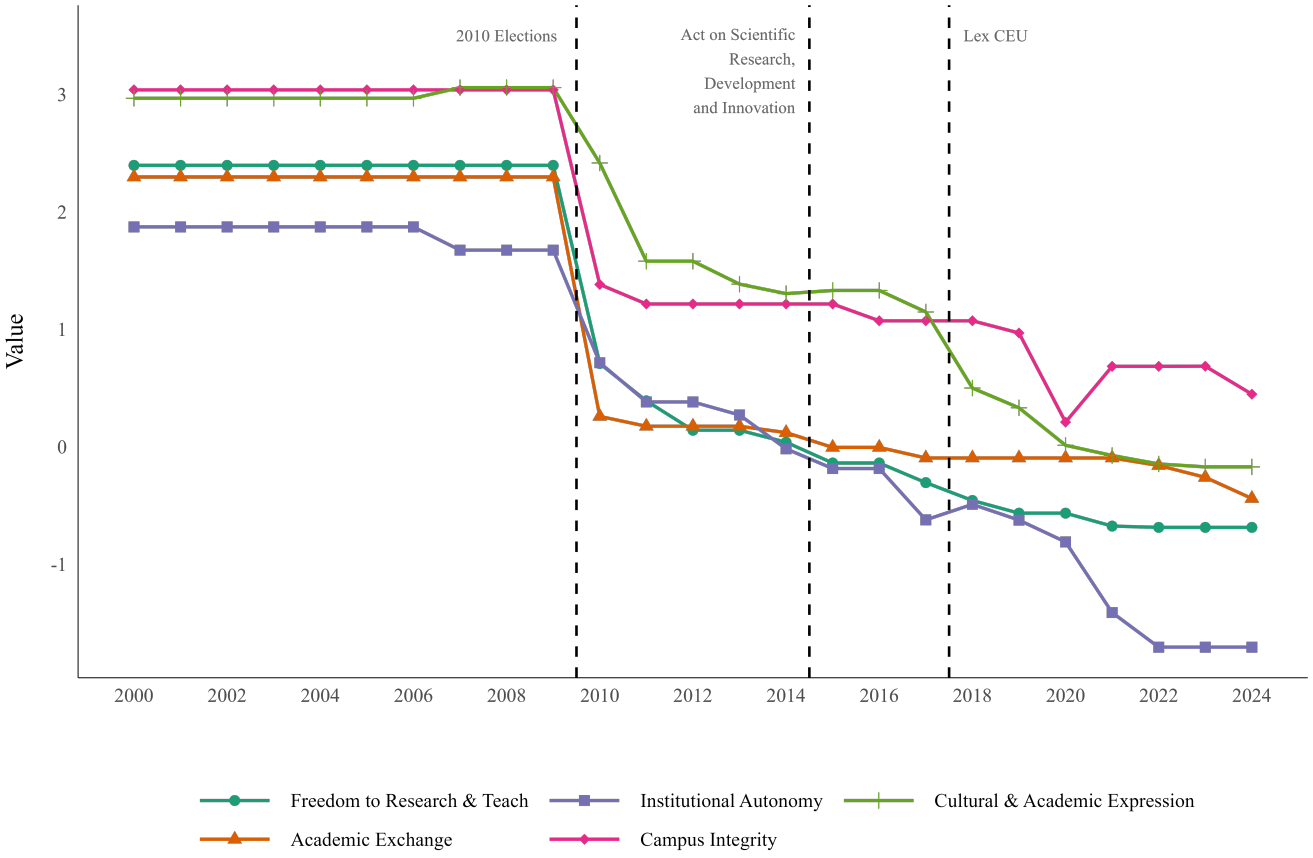
Notes: This graphs shows the normalized Academic Freedom Index (AFI), computed by V-Dem, fror Croatia, Hungary, Slovakia and Slovenia, between 2000 and 2024. Data are directly from V-Dem website. The dashed line indicates the year Viktor Orbán took office. The value of the index goes from 0 (no Academic Freedom) to 1.

While we cannot conduct a causal analysis on the entirety of Hungarian researchers, we can still descriptively document the impact of this decrease in academic freedom.

Figure A.1.3 highlights two notable patterns. First, it shows a slowdown in the size of PhD cohorts in public universities across all fields, with this decline becoming more pronounced after 2013. Second and interestingly, illiberal policies have not led to a reduction in the number of foreign PhD students. As the red curve in the figure indicates, the number of foreign students has continued to grow, representing an increasing share over time. In this sense, illiberal policies, in Hungary, do not appear to directly affect the arrival of foreign students; rather, their restrictive effects seem more targeted toward Hungarian researchers (see Section 5).

The trends observed in Figure A.1.3 for domestic researchers are echoed in Figure A.1.4, which displays a slowdown in the number of new researchers entering academia—especially after 2014–2015. These parallel trends also provide indirect validation of quality of the Hungarian CRIS data used in our analysis.

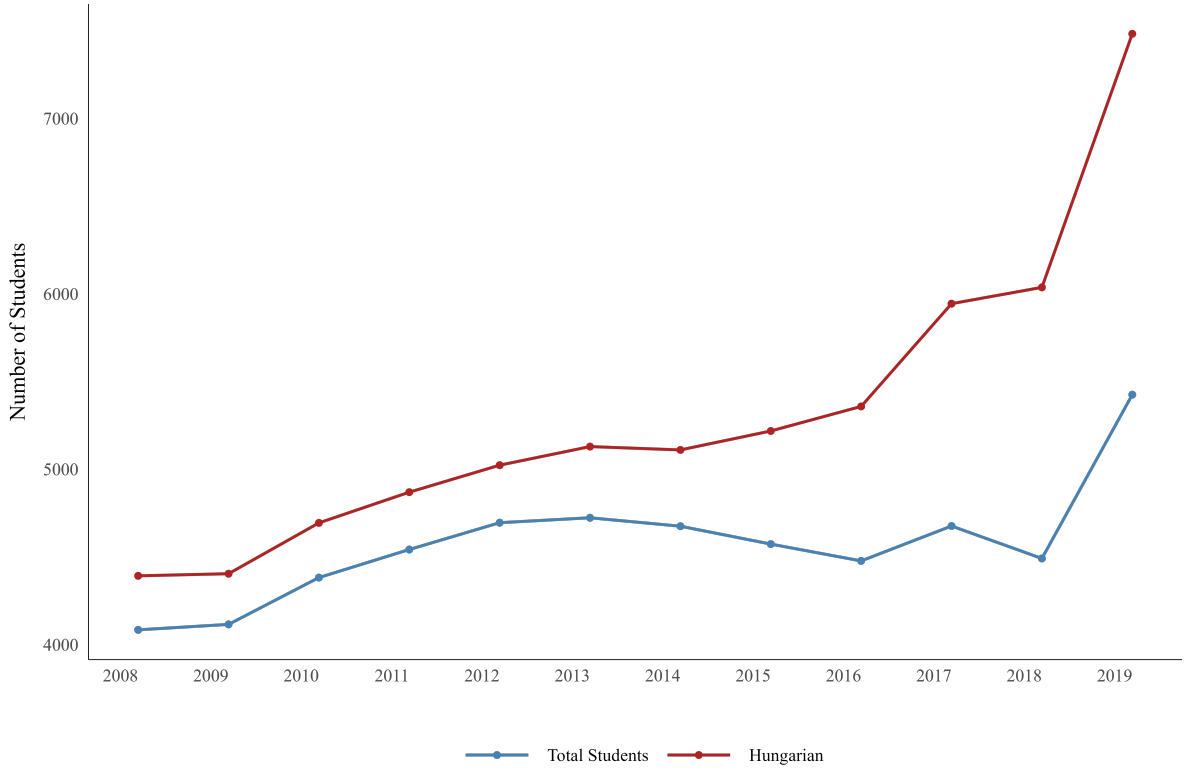
Figure A.1.2. Decomposition of the Academic Freedom Index - Hungary (2000-2024)



Notes: This graphs shows the decomposition of the Academic Freedom Index (AFI), computed by V-Dem, for Hungary between 2000 and 2024. Data are directly from V-Dem website. The dashed lines indicate the successive 3 main organizational reforms that we describe in Section 2 as being major turning points.

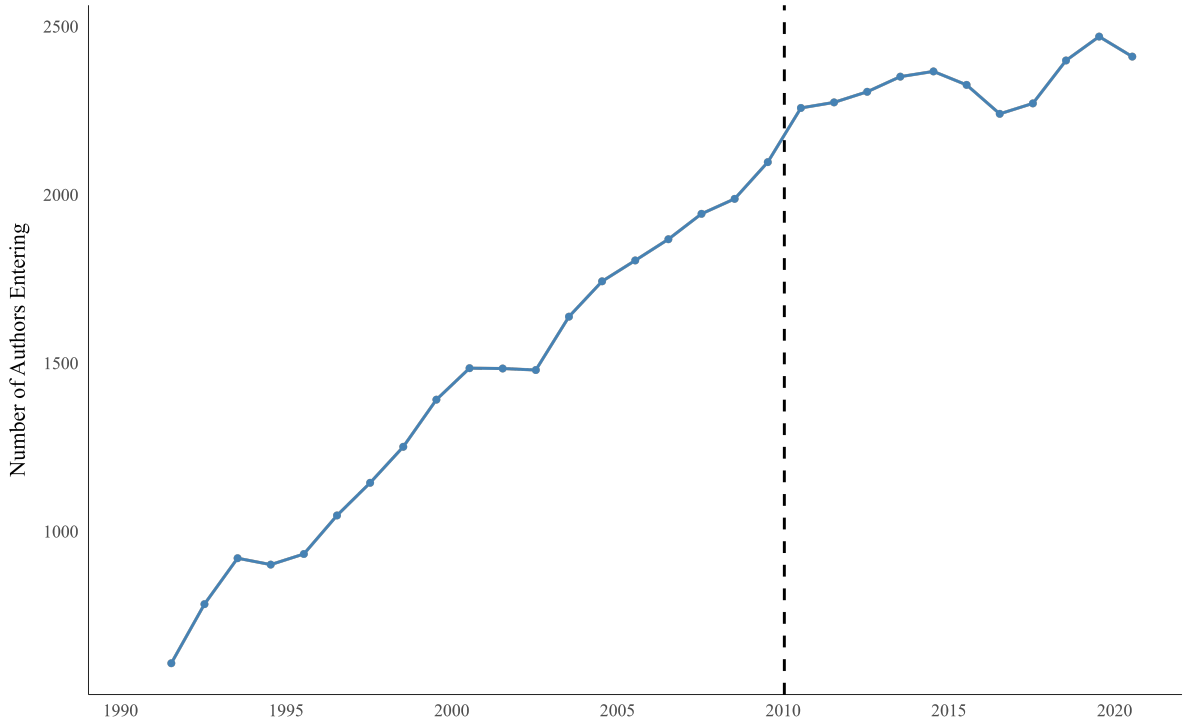
Kováts and Rónay (2021) make the case that the changes within the university and the use of media outlets to target scientists are two elements of a single strategy. This allows the government to maintain a controlled opposition within university to be able to point fingers at enemies of the regime, in a climate in which they have promoted anti-intellectualism, and to swiftly deal with them by controlling the internal structure of the university. While researchers are is directly told not to work on certain topics, they are all aware that they could become a target at any time. For instance, they report the following citations from an interview with a researcher about their freedom to research and teach: "You don't need these politicians to ever have any direct say in your curriculum [...]. So they put the gun on the table and you never have to pull the trigger, and they may never pull the trigger, but that gun, you always see it. It's very powerful. In an environment that's been through that kind of socialization, it brutally restrains courage.".

Figure A.1.3. Total Number of PhD Students in Hungary between 2008 and 2019 – by Nationality



Notes: The graph above displays the total number of PhD students enrolled at all Hungarian universities between 2008 and 2019. The data are sourced from the Hungarian Ministry of Higher Education. The count includes all students pursuing a doctorate, regardless of their year of study.

Figure A.1.4. Total Number of Entering Authors between 1990 and 2022 – CRIS



Notes: The graph above shows the total number of authors entering the Hungarian CRIS database (MTMT). An author's entry year is defined as the year of their first recorded publication. The dashed line indicates the year Viktor Orbán took office. To smooth overall trends, we compute a two-year rolling average; for example, the value shown for 2000 reflects the average number of new entries in 1999 and 2000.

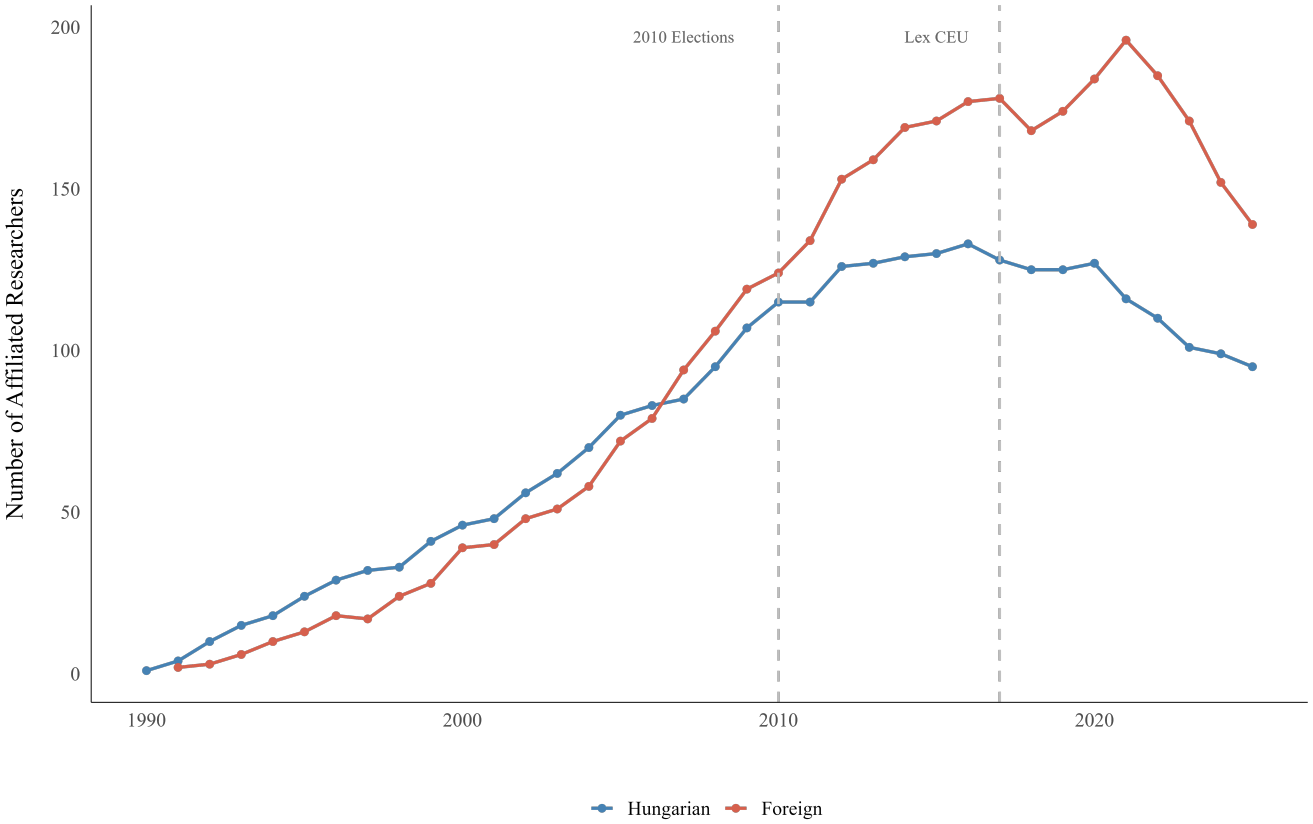
A.2 The Central European University

We first recapitulate the events leading up to the relocation of the CEU in Austria. In June 2018, after the election several "Stop Soros" legislative bills attempting to constrain the Hungarian civil society were introduced in Parliament; these laws banned people from helping undocumented immigrants and imposed a 25% tax on foreign donations to pro-immigrant NGOs (Benková (2019)). This led George Soros's Open Society foundation to move its headquarters from the country and the EU Parliament to vote a punishment for this breech of core EU values. Benková (2019) underlines the years-long campaign started in 2015 of Fidesz against George Soros, a billionaire from Hungary living in the US who is politically progressive, costing over 100 million euros. Krekó and Enyedi (2018) detail the goals as well as several stepping stones of this campaign. Finding this common enemy, the authors say, contributes to what Orbán calls a "cultural counter-revolution". The regime used its control of the media, including some private media receiving most of their funding from the state, to promote a narrative positing that progressive and pro-human rights movements in Hungary were funded by Soros, including publishing in the Figyelő a list of 200 academics and human rights activists accused to be "mercenaries of Soros". Orbán did not limit himself to such initiatives, however costly (about 250 million in US dollars on anti-Soros and anti-Brussels campaign in 2017 alone according to HVG[22], in publications, posters...).

We also present in this section some general descriptive evidence on the situation of the Central European University. Figure A.2.1 displays the number of researchers affiliated with Central European University each year between 1990 and 2025. The figure shows a steady increase in the total number of researchers—both Hungarian and international—until a shift occurs after 2010, particularly in the total number of Hungarian researchers affiliated to the university. Figure A.2.2 provides further insight on these trends. It shows that this change is driven by both an increase in the number of researchers leaving the Central European university and a sharp decline in the number of Hungarian researchers entering. Similar trends are observed for international researchers, although the decline in entries becomes most pronounced after 2014. Trends shift again after the "Lex CEU" and the main campus of the university leaving Budapest for Vienna in 2019.

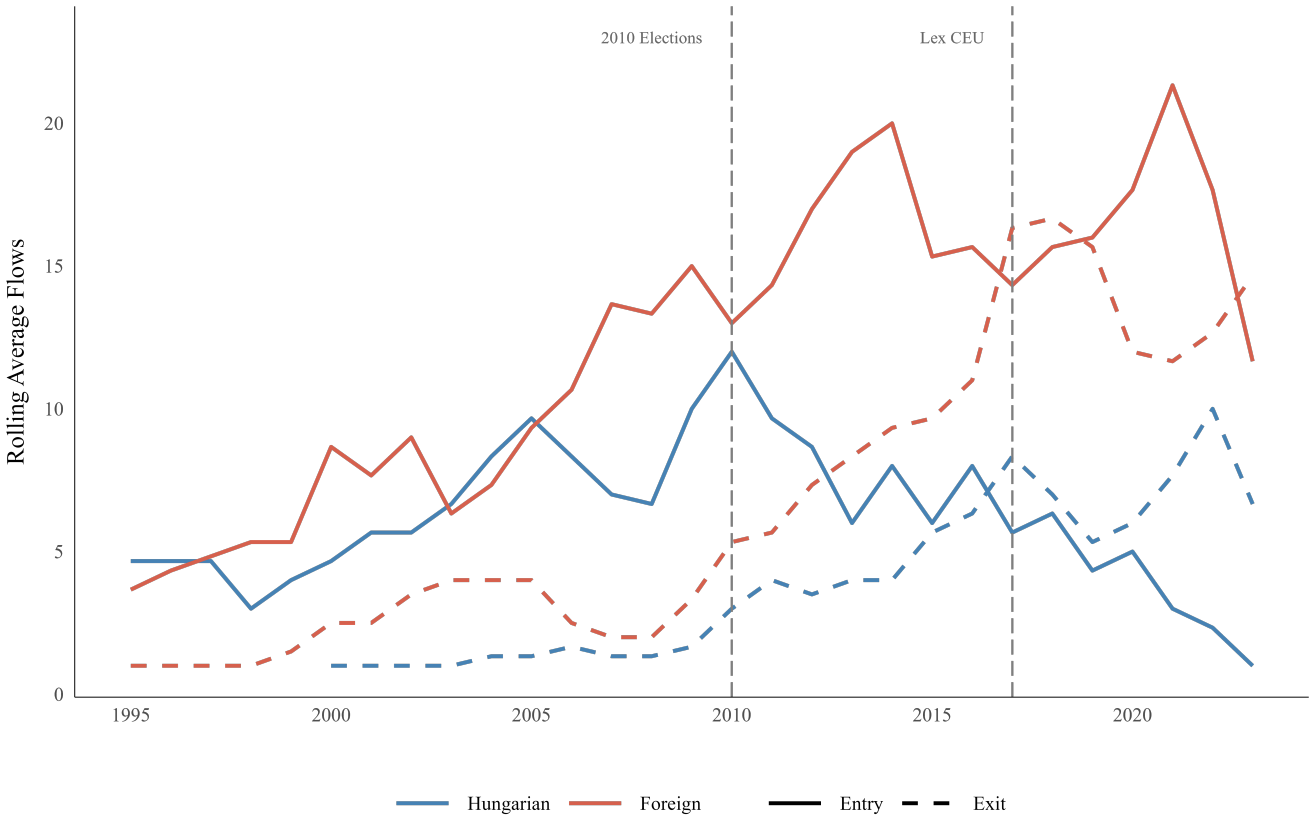
[22]Hava Nikita, January 2018 24, "Incomprehensible numbers: we show how much Orbán spent on propaganda last year", on hvg.hu, retrieved 26/04/24 at https://hvg.hu/gazdasag/20180124_Ennyit_koltottek_el_Orbnek_tavaly_propagandara__itt_a_lista.

Figure A.2.1. Number of Professors at the Central European University (1990-2025)



Notes: The graph aboves displays the total number of publishing researchers that we identified as being at the CEU. This statistics only includes researchers that published at least once.

Figure A.2.2. Exit flows of professors from the Central European University (2000-2025)



Notes: The graph above displays the flows of entering and existing researchers at the Central European University. Data comes from our data set matched by hand. To smooth overall trends, we compute a two-year rolling average; for example, the value shown for 2000 entries is the average number of new entries in 1999 and 2000.

B Appendix to the data collection and harmonization process

B.1 Collection of the data sets

OpenAlex is a fully open-access database. We use the full snapshot available from August the 29th, 2024. This iteration was released after a large improvement of author profiles resulting in the relabelling of all of them. We still find various instances of wrong author profiles compared to what we find in national databases, a pitfall that is unavoidable given the size of the dataset.

MTMT, ODT, SICRIS, COBISS and SKCRIS are public databases, but they do not provide a full data transfer. In order to collect them entirely, we automatically collected the data through their API or website for MTMT, ODT and SKCRIS, and through the official register for SICRIS/COBISS using a similar process for each of them. We first collect the identifiers of all authors in the database. We then use these identifiers to obtain information at the author level. Afterwards, we use the identifiers to obtain information about the publications of each author. This allows us to build a publication-author level dataset which we can then aggregate at the author level for sample construction at a later stage. We harmonize the variables of the different datasets, which are similar due to their shared CRIS design, and append them together in order to build the full CRIS dataset. In order to derive the field of a given author, we map each field of science named in the database to the classification used by OpenAlex, first by hand for fields that are given an identifier, then by using cosine distance of embeddings in SciBert (Beltagy et al. (2019)) in order to find the closest field in OpenAlex classification. We also proceed in the same way in order to identify subfields for MTMT and SICRIS, for the fields that are detailed enough (for instance, "linguistics" is mapped to OpenAlex subfield #1203, "Language and linguistics"). We then use this mapping to retrieve the domain of publication of the author in the OpenAlex classification. Because this information is directly provided by universities or researchers themselves, we consider it more trustworthy than the automatically computed value of the same variable in OpenAlex. Therefore, for the authors who are in both samples, this is the variable that we use instead of the OpenAlex variable "topic share". We believe that this allows us to remove some of the measurement error over fields of an author.

Hungary: We use two databases to assess the state of research and characteristics of researchers in Hungary. The first of the two is the list of doctoral programme members and student publicly available on the official website of the National Doctoral Council (Ors zágos Doktori Tanács, later referred to as ODT). By law (Act CXXXIX of 2005 on higher education), all doctoral schools have been under the scrutiny of the ODT (independent association) since 2007. The organisation had made mandatory starting from November 2007 for all doctoral schools to publish a public profile for each researcher of the country. The data on these profiles includes all academic titles of the researcher, the PHD students that she supervises, her research areas, her employment history and a list of her recent publications. All the information is directly entered by researchers themselves and validated by administrators of the doctoral school. Over all, the website contains about 52,000 profiles, from researchers or Ph.D. students. Any researcher who was active in a doctoral school after 2007 is supposed to have a profile, including now

retired or deceased researchers. This public information was obtained through the website doktori.hu.

The other source is the Library of Hungarian Scientific Works (*Magyar Tudományos Művek Tára* or MTMT), a publication-level bibliometric database published in 2010. Five different institutions, namely the ODT, the Hungarian Accreditation Committee, the Hungarian Rectors Conference, the Hungarian Scientific Research Fund (OTKA) and the Hungarian Academy of Sciences – which is also responsible for its management – contributed to its creation (Holl et al. (2014)). It is managed directly at the university level. Hungarian publications in social sciences are likely to be badly indexed on non-specialized databases (few have a DOI, few on Scopus (Sasvári (2022))). The database was retrieved through calls to its API using researcher profiles. We harvest 1,768,488 scientific publications out of the about 5 million records and 66,435 different author profiles from the database, which corresponds to the information recently provided by the curators of the data (Holl (2024))[23]. Among those, 15,643 are directly linked to a researcher profile in ODT.

Slovakia: The Slovakian CRIS (SK CRIS) is constructed with the explicit aim of providing the public with information on research projects and their outcomes. It is mainly based on data originating from the Central Information Portal for Research, Development and Innovation, instituted by Act 172/2005 on Public Support to Research and Development, which collects information directly from researchers for the constitution of publicly-funded projects, but also on information directly provided by researchers or third parties, or publicly available online (Turňa et al. (2012)). The publicly available information contains the R&D results of a project (publications, patents, products), its participants and their roles, and their affiliations, as well as external identifiers (Zendulková et al. (2025)). We retrieve 41,096 authors profiles and 28,581 publications.

Slovenia: SICRIS is created and maintained by IZUM, the Institute of Information Science, and the Slovenian Research and Innovation Agency (ARIS), instituted by the Research and Development Act 2002/26 (Curk et al. (2006)). ARIS is tasked to evaluate research projects and publishes the data that it obtains, not only at the project-level but also the researcher-, research group- and research institute-level. We use the SICRIS system to retrieve information about active researchers in Slovenia (48,022 records overall) (Korošec (2022)).

We then use the link provided by SICRIS to retrieve publication information for all these researchers in COBISS.net, which is the information system of Slovenian, North Macedonian, Serbian, Bulgarian, Albanian, Bosnian, Montenegrin and Kosovar libraries. Originating from the former communist system at the initiative of IZUM (Seljak (1994)), the database contains records on all publications from authors of the country, with relatively high quality (Badovinac (2021)). The COBISS.SI database contains over 7,3 million records. We only collect a subset of this through reports generated from authors of the SICRIS database, leading us to only consider 1,515,089 records. Some of the COBISS entries includes citations

[23] A few researcher profiles are not visible for all users, but this concerns about a hundred profiles in the entire database.

obtained from other sources such as Web of Science, but not systematically[24].

In order to use conjointly these data sources, we use the following steps to link the information available in them. First, we normalize the names of researcher profiles for each database. Then, for every field existing in each database, we match it to a field existing in OpenAlex (the classification of which is derived from the Scopus subject areas). We then match authors on their initials and last name. We keep matches that feature researchers with the same first and last name, provided that in the same OpenAlex-recoded field in the national database, there is only one researcher with that exact full name. We may keep matches that link the same national base researcher to several Open Alex profiles. Indeed, OpenAlex tends to create several profiles for the same author. We decide to trust that the authors profiles in the national databases are more accurate and we therefore assume that if an author has no homonym in the same field in these databases, it is more likely that a homonym profile in OpenAlex is an extra profile of the same person. Using this method, we are able to link to their OpenAlex profiles 4,221 Slovak profiles, 13,012 Czech profiles, 15,372 Slovenian profiles and 12,434 Hungarian profiles.

B.2 Merging the datasets

In order to conjointly use the different available data sources and reduce measurement error for our analysis, we reconcile the information available in these databases by merging them on common identifiers. For instance, in OpenAlex, a professor of literature corresponding to the ODT profile #14 corresponds not to one but to five different profiles. One of them features most of his publications (55) but 8 others are scattered across different profiles. In order to be able to compute our measurements of productivity, activity and location more precisely, we use the information available in the national CRIS to be able to tell that these profiles correspond to the same person.

We detail in this section how we deal with the several problems occurring in this process.

B.2.1 Details on the merging process

In theory, merging publications across databases should be easy. Indeed, every publication available online has a Digital Online Identifier (DOI) which should be the same across all databases. The issue we encounter is that for most publications in the databases, the DOI is not available (in MTMT, only 18% of publications have one). While there are other identifiers at our disposal, such as Web of Science or Scopus identifiers, merging only on those external identifiers does not allow us to capture most of the common information across databases. Therefore, we also merge on record title. In order to capture matches in which unicode encoding or capitalisation might be different, or using different stopwords, we normalise the titles by removing stopwords if the language of the publication is given, removing non-letter and non-digit characters, and converting the strings to the same encoding.

[24]Publications in other languages are frequent in the Hungarian CRIS data although it depends on the subjects (for instance theology and linguistics are often published in German) but less so in COBISS.

When we use matched authors to match publications, we further allow for some variation in publication title. Due to the fact that we may have removed stopwords in one record but not the other for the same publication due to missing data about the language, or simply to human error in typing the titles (for instance the title publication #12044 in MTMT includes "labortory" instead of "laboratory", preventing us from matching it directly to OpenAlex publication #1983568155), we keep matches in which the Levenshtein distance between normalized titles is below 10% of the length of the smallest of the two strings.

For author matches, we keep matches between authors who are shown by both databases to be the author of a matched publication, when their first name and last name are concordant, or when the Open Alex profile only has an initial instead of a first name and this initial and the first name are concordant. This allows us to match researchers even if they have the same name and publish in the same field, provided that the publications of two researchers with these common characteristics are not mixed together in OpenAlex.

In addition to this process, we further match researcher profiles based on names and fields. If a researcher is the only one in each database to have the same full name, or initial and last name, in a given field of publication, we decide that the match is probably true. This approach is complementary to the previous, as it allows us to retrieve researcher profiles for which publications have been mixed with homonyms from another field.

B.2.2 Eliminating incorrect matches

Due to the presence of homonyms in author names and in article names, we need to eliminate incorrect matches. While in theory, our procedure should allow us to distinguish authors who have the same name using their publications, this is not the case for all. Indeed, due to the size of the dataset, the author profile attribution algorithm in OpenAlex generates false links between authors and publications, on the basis of homonyms[25]. Therefore, our process necessarily generates false matches between author profiles.

Conversely, as explained above, we may want to keep profiles or publications that are not matched one-to-one across databases. Due to the presence of duplicates for publications and author profiles, it appears efficient to keep at least some of them. In this step, we consider the national databases as a source of truth, due to the fact that they are at least partly managed by universities and researchers, who have an incentive to check their profiles directly and correct them. Conversely, due to the sheer size of OpenAlex, there is no possibility to double-check author profiles and publication duplicates for the entire world. Therefore, we keep all matches to OpenAlex who are matched to a single identifier in the other database.

[25]For instance, some of the publications of the linguist and sociologist A5080416716 are attributed to her homonym A5004379723, who works on pulmonary diseases and endocrinology.

B.2.3 Data collection disparities

Due to the fact that all of the databases that we exploit were made separately, it is likely that they collect publications systematically starting from different times. This possibility could bias our estimates of the effect of the regime change in Hungary. In particular, due to the European Sovereign debt crisis, it could be the case that one of the databases suffers from a loss of funding which would hinder its ability to collect data efficiently.

We show the total number of publications across national databases for the period 2000-2020, irrespective of any sampling. We observe that there is no large trend break in data collection for either of the two databases in 2010. While the growth of the number of scientific publications in COBISS seems to decrease after 2010, this should in theory only bias our estimates towards 0, instead of leading us to overestimate the effect of the regime change.

In order to harmonize the domain and the field, we use the OpenAlex format, which is itself adapted from Scopus. For the others, if we are able to link them to an OpenAlex profile, we use the field in which this profile publishes the most. This classification has 4 main domains (Life sciences, Social sciences, Physical Sciences and Health Sciences) and 34 fields in total. We allow for one author to be in several fields or domain at the same time. In that case, the authors would be identified as being in one unique field that would correspond to the intersection between the different field the author publishes in.

B.3 Politically Aligned Sample

We detail in this section how we build our sample of researchers that we believe could be considered as "political opponents" or as "loyalists". We consider as perceived political opponents all researchers that are affiliated to the Central European University and a sample of researchers that are working with Non-Governmental Organization targeted by the Viktor Orbán policies. We consider as political loyalists members of the Batthyány Society of professors.

Central European University

We extract from OpenAlex all researchers affiliated with the Central European University since its creation. Given the relatively small sample size, we matched by hand CEU-affiliated researchers to their identifiers in the national CRIS database (MTMT) and in OpenAlex, based on publication records. To supplement and verify the data, we used researchers' personal websites, online CVs, and LinkedIn profiles to collect key information, including nationality, year of entry, and final year of affiliation with the Central European University. This process also allowed us to exclude deceased individuals and correct wrong affiliations in OpenAlex. For regression analyses using this sample, we restrict attention to researchers who began their affiliation with the Central European University prior to 2010—that is, before Viktor Orbán's return to power. This ensures we do not inadvertently include researchers who joined the university as a reaction to its political non-alignment with the current government.

Activists and NGOs

To identify researchers affiliated with NGOs, we use as a primary source the so-called "Soros list," a publicly circulated document published by *Figyelő*, a far-right newspaper. The list names around 200 academics and human rights activists accused of being "mercenaries of Soros." Approximately 80 individuals from this list are indexed in the Hungarian CRIS database.

Batthyány Society

The full list of members of the Society can be found at https://pbk.info.hu/archiv/index_en.html. Similarly to the CEU, we matched them by hand to their identifiers in MTMT and in OpenAlex based on publication records. We also retrieve the same information for these researchers as the information we obtain for the Central European University.

C Appendix to Methodology

C.1 Definition of the gender topics

The definition of whether or not one author publishes in topics related to gender is based on the number of publications we identify as being related to this topic. In order to do so, we create a list of keywords and key expressions that are commonly used in gender studies. Since one author may have one publication that has such words or expressions in its title, we always consider at least authors with 2 publications that we classified as being in gender.
Here the list of the words and expressions we use in English:

‘‘gender", ‘‘women", ‘‘woman", ‘‘girl", ‘‘sexism", ‘‘patriarch", ‘‘feminis", ‘‘mariag", ‘‘stereotype", ‘‘toxic masculinity", ‘‘patriarchal", ‘‘domestic work", ‘‘domestic labour", ‘‘domestic labor", ‘‘gendered division of labor", ‘‘care econom", ‘‘childbirth", ‘‘menstrual", ‘‘adenomyosis", ‘‘menopause", ‘‘obstetrics", ‘‘obstetrican", ‘‘endometriosis", ‘‘endometrial", ‘‘gynecologic", ‘‘andrology", ‘‘maternity", ‘‘motherhood", ‘‘reproductive health", ‘‘reproductive right", ‘‘abortion", ‘‘abortive", ‘‘contraception", ‘‘sexuality", ‘‘sexual empowermen", ‘‘female genital mutilation", ‘‘sexual abus", ‘‘female genital", ‘‘intercourse", ‘‘mother", ‘‘sexual violence", ‘‘sexual harassment", ‘‘menstrual", ‘‘forced sterilization", ‘‘fertility", ‘‘perinatal", ‘‘vaginal", ‘‘vagina", ‘‘uterus", ‘‘ovary", ‘‘ovaria", ‘‘sterility", ‘‘hiv", ‘‘neonat", ‘‘neonata", ‘‘feminization", ‘‘masculinity", ‘‘sexual identity", ‘‘intersectionality", ‘‘gynecolog", ‘‘gynaecolog", ‘‘gynecologis", ‘‘gynaecologis", ‘‘obstetricia", ‘‘andrologis", ‘‘placent", ‘‘embry", ‘‘fetu", ‘‘foetu", ‘‘estroge", ‘‘oestroge", ‘‘progesteron", ‘‘clitori", ‘‘labi", ‘‘lactatio", ‘‘breastfeedin", ‘‘postpartu", ‘‘prenata", ‘‘cervi", ‘‘pelvi", ‘‘amnioti", ‘‘midwif", ‘‘lgbt", ‘‘lesbian", ‘‘gay", ‘‘homosexual", ‘‘transgende", ‘‘transsexual", ‘‘quee", ‘‘androgyn", ‘‘interse", ‘‘bisexua", ‘‘cisgende", ‘‘non-binary", ‘‘sexual orientation", ‘‘trans rights", ‘‘deadnamin", ‘‘misgenderin", ‘‘pregnan", ‘‘pregnancy", ‘‘pregnancie", ‘‘feminist", ‘‘feminis", ‘‘womanis", ‘‘sexual politic", ‘‘performativit", ‘‘partner violenc", ‘‘femicid", ‘‘child marriag", ‘‘men’s studies", ‘‘masculinity", ‘‘male privilege", ‘‘caesarean", ‘‘caesarean section", ‘‘caesarian", ‘‘caesarian section", ‘‘family policy", ‘‘family policies"

C.2 Definition of Rule of Law Publications.

In order to measure the *voicing* against the illiberal policies, we use a list of key words and key expression that are commonly used by opponents to the regime in their publications relative to the illiberal policies led by Orban’s governments.
Here the list of the words and expressions we use in English:

‘‘human rights", ‘‘freedom of speech", ‘‘rule of law", ‘‘constitutional law", ‘‘humanitarian law", ‘‘ethics", ‘‘humanitarianism", ‘‘authoritarian", ‘‘nationalism", ‘‘hungarian conservatism", ‘‘neoconservatism", ‘‘hungarian conservatism", ‘‘neoconservatism", ‘‘political conservatism", ‘‘right wing populist", ‘‘populist", ‘‘populism", ‘‘radical right", ‘‘far right", ‘‘autocracy", ‘‘autocratic", ‘‘fascist", ‘‘political repression", ‘‘police state", ‘‘police violence", ‘‘surveillance state", ‘‘state surveillance", ‘‘mass surveillance", ‘‘political surveillance", ‘‘surveillance apparatus", ‘‘government surveillance", ‘‘erosion of democracy", ‘‘democratic backsliding", ‘‘rule by law", ‘‘legal repression", ‘‘politicized judiciary", ‘‘state of exception", ‘‘emergency powers", ‘‘constitutional crisis", ‘‘judicial capture", ‘‘anti-democratic", ‘‘manipulated elections", ‘‘electoral fraud", ‘‘media control", ‘‘civil liberties", ‘‘censorship", ‘‘media control", ‘‘propaganda", ‘‘press freedom", ‘‘freedom of assembly", ‘‘freedom of association", ‘‘political persecution", ‘‘arbitrary detention", ‘‘state violence", ‘‘enforced disappearance", ‘‘show trials", ‘‘corruption", ‘‘kleptocra", ‘‘state capture", ‘‘cronyism", ‘‘clientelism", ‘‘nepotism", ‘‘bribery", ‘‘illicit enrichment", ‘‘patronage system", ‘‘abuse of power", ‘‘rule of law", ‘‘constitutional state", ‘‘constitutional democracy", ‘‘separation of powers", ‘‘judicial independence", ‘‘legal certainty", ‘‘legal accountability", ‘‘access to justice", ‘‘fair trial", ‘‘legal equality", ‘‘non-discrimination", ‘‘checks and balances", ‘‘abuse of power", ‘‘legal repression", ‘‘arbitrary detention", ‘‘fundamental rights", ‘‘civil rights", ‘‘human rights", ‘‘individual freedoms", ‘‘freedom of speech", ‘‘freedom of expression", ‘‘freedom of the press", ‘‘freedom of assembly", ‘‘freedom of association", ‘‘freedom of religion", ‘‘freedom of opinion", ‘‘freedom of information", ‘‘freedom of communication", ‘‘right to privacy", ‘‘right to vote, ‘‘political rights", ‘‘illiberalism", ‘‘illiberal", ‘‘academic freedom", ‘‘university autonomy", ‘‘institutional autonomy", ‘‘scientific autonomy", ‘‘freedom of inquiry", ‘‘freedom of research", ‘‘intellectual freedom", ‘‘censorship in academia", ‘‘academic censorship", ‘‘media freedom", ‘‘free press", ‘‘media censorship", ‘‘political censorship", ‘‘state surveillance", ‘‘shrinking civic space", ‘‘chilling effect", ‘‘democratic institutions

C.3 Descriptive statistics by sample

In this subsection, we provide descriptive statistics by sample and group.

Table C.3.1. Descriptive statistics - cross-country sample in OpenAlex

Variable	Min.	1st Quart.	Median	Mean	3rd Quart.	Max.
Treat = 0						
Entry year	1990	1997.25	2001	2000.07	2003	2005
Life sciences	0	0	0	0.105	0	1
Social sciences	0	0	0	0.252	1	1
Physical sciences	0	0	0	0.446	1	1
Health sciences	0	0	0	0.231	0	1
Nr. of pub. in top 5% journals, 2000–2005	0	0	0	0.940	1	36
Nr. of publications 2000–2005	1	1	3	4.550	5	85
Treat = 1						
Entry year	1990	1998	2001	2000.38	2004	2005
Life sciences	0	0	0	0.234	0	1
Social sciences	0	0	0	0.192	0	1
Physical sciences	0	0	0	0.341	1	1
Health sciences	0	0	0	0.273	1	1
Nr. of pub. in top 5% journals, 2000–2005	0	0	0	1.056	1	36
Nr. of publications 2000–2005	1	1	2	3.972	5	72

D Appendix to the Results

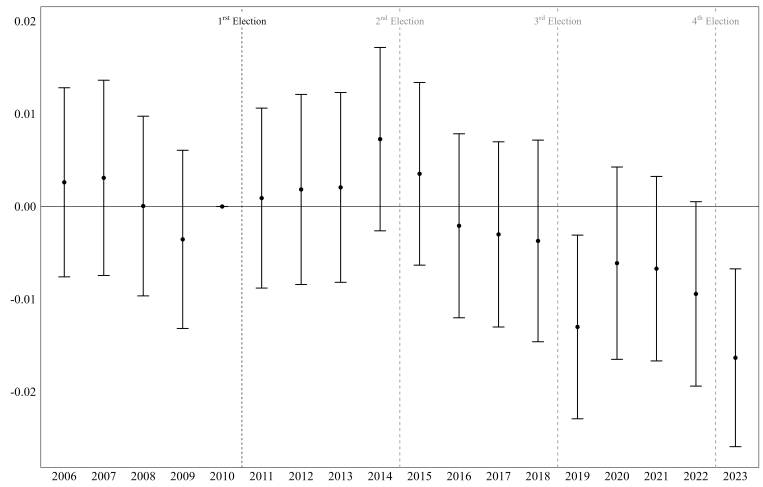
D.1 Cross-country comparison with CRIS data

Table D.1.1. F.E. OLS on publication outcomes: Hungarian vs Slovenian - National Databases

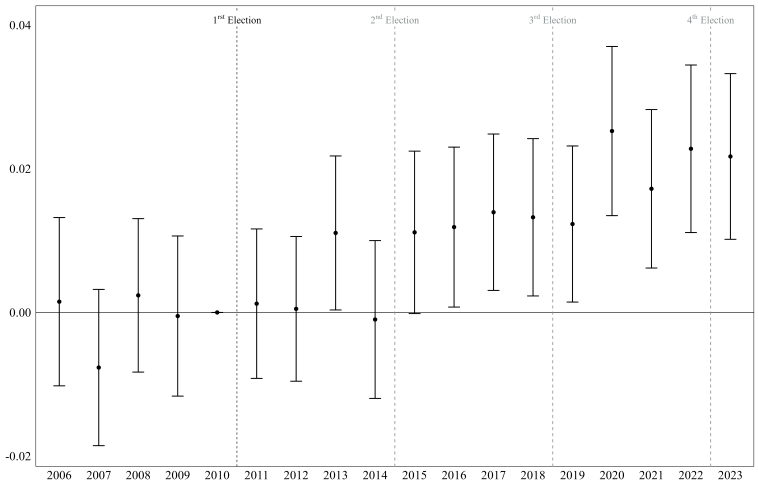
	publications			
	(1)	(2)	(3)	(4)
treat × post	0.2951***	0.2968***	0.2665***	0.2306***
	(0.0639)	(0.0646)	(0.0661)	(0.0654)
Observations	130,410	130,410	130,410	130,410
R^2	0.556	0.559	0.561	0.563
Within R^2	0.001	0.001	0.000	0.000
Mean.Dep.Var.Pre	2.026	2.026	2.026	2.026
author fixed effects	✓	✓	✓	✓
year x domain fixed effects	✓			
year x field fixed effects		✓	✓	✓
year x entry cohort fixed effects			✓	✓
year x pub. cohort fixed effects				✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from MTMT and COBISS. The unit of observation is author by year and the sample period is from 2005-2023. Treated authors are authors from Hungary. Control authors are Slovenian researchers matched to the treated. The table show the different set of controls that we test, all interacted with a year variable. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Figure D.1.1. Effect on the journal rank of publications per year.



(a) Publications in top 1% journals.



(b) Share of publications in the bottom 50% journals.

Notes: The graph above reports Fixed-Effect OLS regression estimates for the difference in the number of publications in the 1% highest ranked journals this year using Citescore methodology (left pane) and the share of publications in the bottom 50% journals ranked using the same method (right pane) by year for Hungarian researchers compared to Slovenian researchers for the period 2006-2023. Authors are matched using their number of publications, number of publications in English and in Hungarian for the treated and Slovenian for the control and number of co-authors, over the period 2000-2005. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

Table D.1.2. F.E. OLS on research quality outcomes by cohort of entry, treatment : Hungarian vs Slovenian - National Databases

	share pub. top 5% journal		
	(1)	(2)	(3)
treat × post	-0.0194	-0.0590***	-0.0191**
	(0.0200)	(0.0129)	(0.0075)
Entry-year cohort	1990-1994	1995-1999	2000-2005
Observations	3,258	8,715	22,549
R^2	0.579	0.565	0.509
Within R^2	0.001	0.004	0.000
Mean.Dep.Var.Pre	0.123	0.123	0.123
author fixed effects	✓	✓	✓
year x field fixed effects	✓	✓	✓
year x entry cohort fixed effects	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from MTMT and COBISS. The unit of observation is author by year and the sample period is from 2005-2023. Treated authors are authors from Hungary. Control authors are Slovenian researchers matched to the treated. The dependent variable is the share of publications over the total number of publications (column (4)) for authors who first published in the database between 1990 and 1994 (column (1)), between 1995 and 1999 (column (2)) and between 2000 and 2005 (column (3)). Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table D.1.3. Effect on Migration, Hungarian vs. Central Europe — OpenAlex

	affiliation in other country for over 2 years		for over 3 years		emigrated	
	(1)	(2)	(3)	(4)	(5)	(6)
treat × post = 1	0.0114***		0.0144***		0.0146***	
	(0.0038)		(0.0038)		(0.0046)	
treat × post (1rst mandate)		0.0131***		0.0130***		0.0109***
		(0.0036)		(0.0035)		(0.0041)
treat × post (2nd mandate)		0.0117**		0.0163***		0.0202***
		(0.0047)		(0.0047)		(0.0057)
treat × post (3rd mandate)		0.0101*		0.0139***		0.0165**
		(0.0055)		(0.0053)		(0.0067)
Observations	203,938	203,938	203,938	203,938	203,938	203,938
R^2	0.667	0.667	0.683	0.683	0.806	0.806
Within R^2	0.000	0.000	0.000	0.000	0.000	0.001
Mean.Dep.Var.Pre	0.078	0.078	0.063	0.063	0.098	0.098
final_id fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from OpenAlex. The unit of observation is author by year and the sample period is from 2005-2020. Treated authors are authors from Hungary. Control authors are Slovenian researchers matched to the treated. The dependent variable is an indicator variable taking the value 1 if the author publishes with an affiliation outside of Hungary for the treateed and Slovenia for the control after that date for two or three consecutive years (resp. columns (1), (2)), and another indicator variable taking the value 1 if the author is never seen publishing with an affiliation in Hungary for the treateed and Slovenia for the control after that date (column (3)). Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

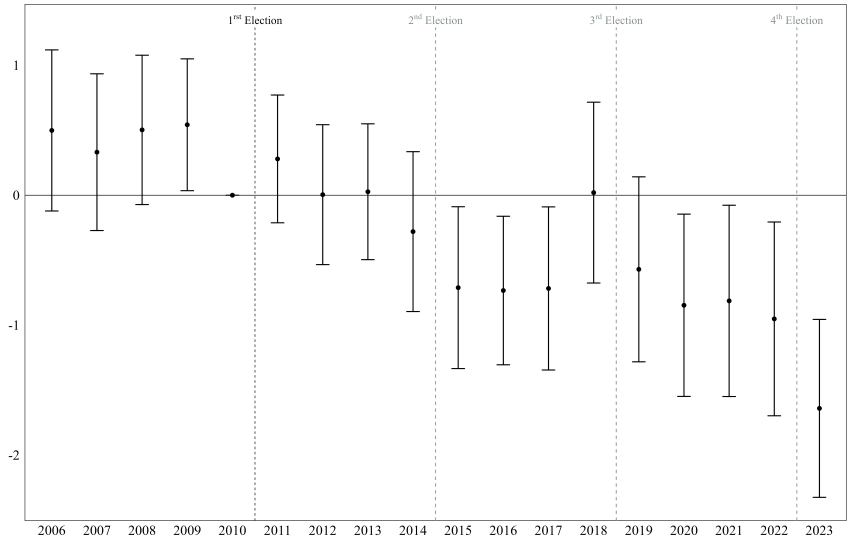
Table D.2.1. F.E. OLS on migration outcomes, by cohort on entry year, treatment: Hungarian vs. Slovenian — OpenAlex

	away_sp_country_4y		
	(1)	(2)	(3)
treat × post = 1	0.0190**	0.0015	0.0164***
	(0.0087)	(0.0070)	(0.0045)
Observations	30,352	48,678	124,908
R^2	0.757	0.730	0.688
Within R^2	0.001	0.000	0.001
Mean.Dep.Var.Pre	0.076	0.068	0.040
final_id fixed effects	✓	✓	✓
year fixed effects	✓	✓	✓
subclass-year fixed effects	✓	✓	✓

Note: results are from Fixed-Effect OLS regression, for each outcome, on data from OpenAlex. The unit of observation is author by year and the sample period is from 2005-2020. Treated authors are authors from Hungary. Control authors are Slovenian researchers matched to the treated. The dependent variable is an indicator variable taking the value 1 if the author is never seen publishing with an affiliation in Hungary for the treateed and Slovenia for the control after that date, for authors whose first publication in OpenAlex occurs between 1990 and 1994 (column (1)), between 1995 and 1999 (column (2)) and between 2000 and 2005 (column (3)). Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

D.2 Cross-country comparison with OpenAlex data

Figure D.2.1. F.E. OLS on number of publications, treatment: Political opponent vs other



Notes: The graph above reports Fixed-Effect OLS regression estimates for the difference in the total number of publications by year for researchers of the CEU and the "Soros-list" researchers compared to other Hungarian researchers for the period 2006-2023. Authors are matched using their number of publications, number of publications in English and in Hungarian for the treated and Slovenian for the control and number of co-authors, over the period 2000-2005. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

E Robustness tests

We present in this section the results of the robustness tests that we perform for the regression results presented in section 5 and section 6.

E.1 Alternative sample selection

We first show that the results obtained in the *cross-country sample in national databases* is robust to removing some of the variables used for matching. In Figure E.1.1, we use the same matching variables apart from the publications in Hungarian or Slovenian. In this sample, we consider 10,000 Hungarian researchers and 5,000 Slovenian researchers. The effect on research quality is very similar to what we find on the restricted sample.

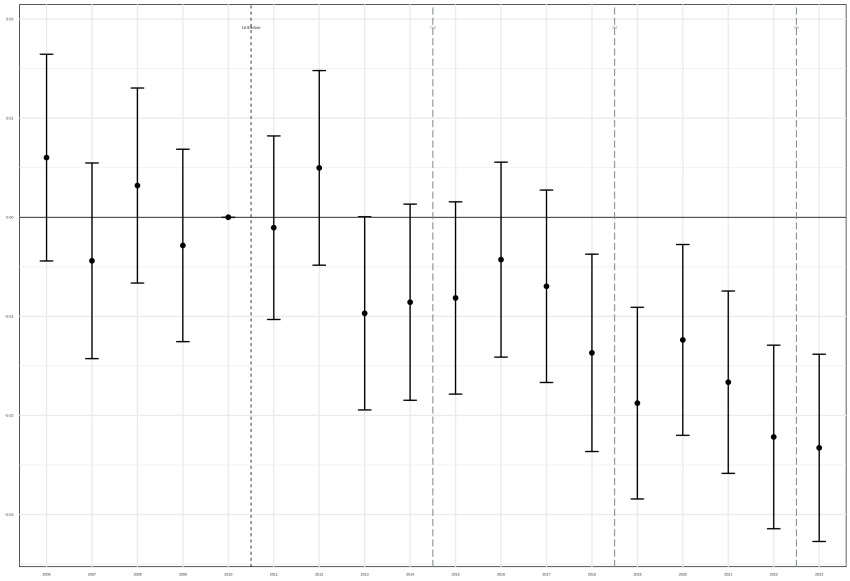


Figure E.1.1. Effect on number top 1% publications - larger subset

Notes: The graph above reports Fixed-Effect OLS regression estimates for the difference in the total number of publications by year for Hungarian researchers compared to Slovenian researchers for the period 2006-2023. Authors are matched using their number of publications, number of publications in English and in Hungarian for the treated and Slovenian for the control and number of co-authors, over the period 2000-2005. The dataset is winsorized at the top of the distribution at the 1 percent level for the outcome variable.

We also show that our results on researchers working on gender are robust to an alternative definition of a researcher who works on gender. If instead of keeping researchers who have worked on gender topics until 2010, we keep only those who worked on them until 2005, we find similar patterns to what we show in the main text.

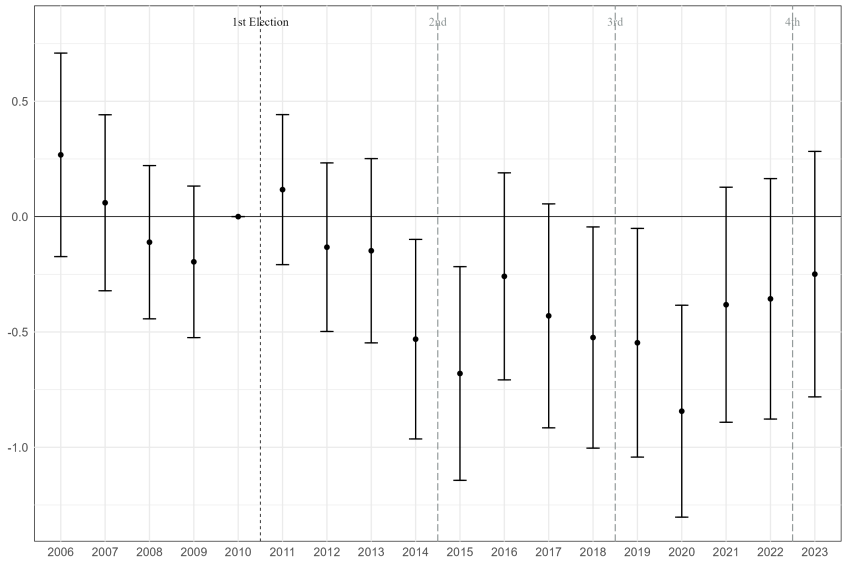


Figure E.1.2. Effect on the number of publications.

Note: results are from Fixed-Effect OLS regression for the number of publications on data from MTMT. The unit of observation is author by year and the sample period is from 2005-2023. Treated authors are authors who have at least two publications in gender in their first five years post-first publication. Control authors are Hungarian researchers matched to the treated. The dependent variable is the number of publications (column (1)), the number of publications in English (column (2)), the number of publications in the top 1% and 5% and bottom 50% most cited journals (resp. columns (3),(4),(5)), and the number of co-authors present in the database (column (6)). Control variables account for field and cohort trends over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

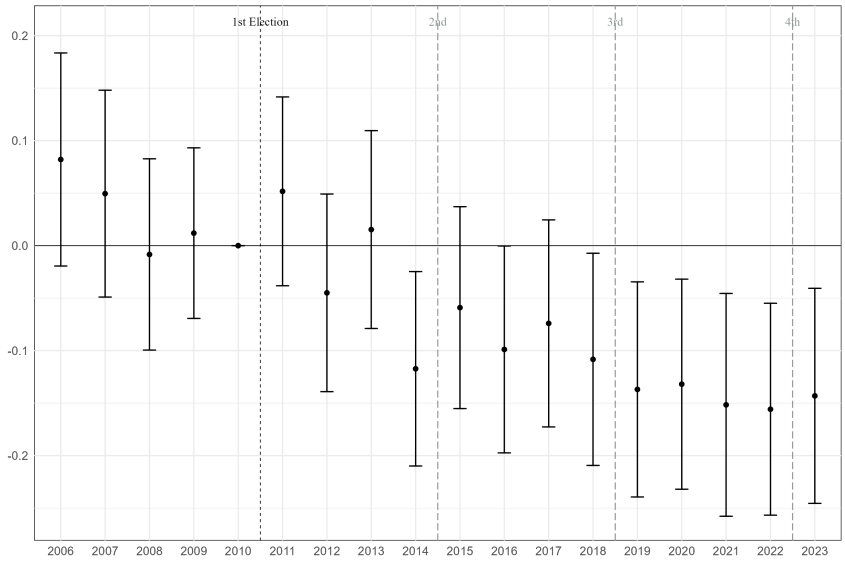


Figure E.1.3. Effect on the number of publications in top 5% journals.

Note: results are from Fixed-Effect OLS regression for the number of publications in top 5% journals on data from MTMT. The unit of observation is author by year and the sample period is from 2005-2023. Treated authors are authors who have at least two publications in gender in their first five years post-first publication. Control authors are Hungarian researchers matched to the treated. The dependent variable is the number of publications (column (1)), the number of publications in English (column (2)), the number of publications in the top 1% and 5% and bottom 50% most cited journals (resp. columns (3),(4),(5)), and the number of co-authors present in the database (column (6)). Control variables account for field and cohort trends over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

E.2 Gender topics

In this section, we discuss alternative measures of the effect of political repression based on gender topics.

We first increase the number of fixed effects included in the regression presented in the main text. Table E.2.3 and Table E.2.4 show that our main analysis remains valid when accounting for trends based on publications in the first two and five years, in addition to field and entry year.

Table E.2.1. Effect on Research Quantity – gender topics treatment before 2005

	publications		pub. in english		pub. nat. language	
	(1)	(2)	(3)	(4)	(5)	(6)
gender topic × post	-0.5065***		-0.2970***		-0.1508*	
	(0.1537)		(0.0977)		(0.0845)	
gender × post (1rst mandate)		-0.3433**		-0.1654*		-0.1288*
		(0.1424)		(0.0911)		(0.0779)
gender × post (2nd mandate)		-0.5348***		-0.3151***		-0.1640
		(0.1852)		(0.1103)		(0.1046)
gender × post (3rd mandate)		-0.6653***		-0.3641***		-0.2529**
		(0.2008)		(0.1206)		(0.1083)
gender × post (4th mandate)		-0.4832**		-0.3190**		-0.1451
		(0.2458)		(0.1490)		(0.1336)
Observations	72,288	72,288	72,288	72,288	72,288	72,288
R^2	0.621	0.621	0.625	0.625	0.554	0.554
Within R^2	0.001	0.001	0.001	0.001	0.000	0.000
Mean.Dep.Var.Pre	3.134	3.134	1.511	1.511	1.495	1.495
author fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓

Note: Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Second, we conduct the same analysis in OpenAlex. Starting from the building blocks of the *political opponents in OpenAlex*, instead of looking at whether a researcher is part of the CEU or the list of opponents, we compute the number of publications in the five first years of a researcher's career that include keywords related to gender. We then compare those that have at least two such publications early in their career to researchers who have none, matched on entry year and field of publication. The sample comprises 143 researchers working on gender issues and 1873 control researchers. Table E.2.5 summarises the results obtained on this sample. While the period of analysis is smaller, the estimates for the drop in the number of publications both overall and in top 5% cited journals are very similar to those obtained in MTMT (respectively 0.50 in OpenAlex and 0.54 in MTMT, -0.18 in OpenAlex and -0.17 in MTMT). The

Table E.2.2. Effect on Research Quality and Network – gender topics treatment before 2005

	nr pub. top 1%		nr pub. top 5%		nr co-authors	
	(1)	(2)	(3)	(4)	(5)	(6)
gender topic × post	-0.0287**		-0.1158***		-0.2191	
	(0.0130)		(0.0309)		(0.3707)	
gender × post (1rst mandate)		-0.0137		-0.0588*		-0.1153
		(0.0130)		(0.0316)		(0.2773)
gender × post (2nd mandate)		-0.0240*		-0.1162***		-0.3720
		(0.0143)		(0.0349)		(0.4304)
gender × post (3rd mandate)		-0.0378**		-0.1578***		-0.5741
		(0.0150)		(0.0360)		(0.5499)
gender × post (4th mandate)		-0.0454**		-0.1709***		-0.6049
		(0.0187)		(0.0429)		(0.6486)
Observations	72,288	72,288	72,288	72,288	72,288	72,288
R^2	0.426	0.426	0.541	0.542	0.620	0.620
Within R^2	0.000	0.000	0.001	0.001	0.000	0.000
Mean.Dep.Var.Pre	0.128	0.128	0.415	0.415	4.408	4.408
author fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓

Note: Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

number of publications mentioning the keywords used for determination of gender also drops. However, we find no effect on probability of exit, suggesting that these researchers are indeed silenced.

Table E.2.3. Effect on Research Quantity – gender topics treatment, extended FE

	publications		pub. in english		pub. nat. language	
	(1)	(2)	(3)	(4)	(5)	(6)
gender topic × post	-0.3197**		-0.1788**		-0.1134	
	(0.1355)		(0.0840)		(0.0745)	
gender × post (1rst mandate)		-0.1741		-0.0875		-0.0679
		(0.1232)		(0.0779)		(0.0677)
gender × post (2nd mandate)		-0.3300**		-0.1908**		-0.1232
		(0.1612)		(0.0945)		(0.0919)
gender × post (3rd mandate)		-0.4616***		-0.2910***		-0.1668*
		(0.1733)		(0.1050)		(0.0948)
gender × post (4th mandate)		-0.3885*		-0.3187**		-0.0649
		(0.2031)		(0.1260)		(0.1119)
Observations	90,702	90,702	90,702	90,702	90,702	90,702
R^2	0.605	0.605	0.613	0.613	0.549	0.549
Within R^2	0.000	0.000	0.000	0.001	0.000	0.000
Mean.Dep.Var.Pre	3.195	3.195	1.455	1.455	1.594	1.594
author fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓
year × pub. cohort (2y) fixed effects	✓	✓	✓	✓	✓	✓
year × pub. cohort (5y) fixed effects	✓	✓	✓	✓	✓	✓

Note: Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table E.2.4. Effect on Research Quality and Network – gender topics treatment, extended FE

	nr pub. top 1%		nr pub. top 5%		nr co-authors	
	(1)	(2)	(3)	(4)	(5)	(6)
gender topic × post	-0.0281**		-0.1292***		0.1286	
	(0.0115)		(0.0271)		(0.3277)	
gender × post (1rst mandate)		-0.0044		-0.0590**		-0.0237
		(0.0116)		(0.0277)		(0.2300)
gender × post (2nd mandate)		-0.0266**		-0.1341***		0.1182
		(0.0126)		(0.0299)		(0.3730)
gender × post (3rd mandate)		-0.0496***		-0.1835***		0.0325
		(0.0134)		(0.0316)		(0.4830)
gender × post (4th mandate)		-0.0514***		-0.2098***		-0.3343
		(0.0157)		(0.0363)		(0.5826)
Observations	90,702	90,702	90,702	90,702	90,702	90,702
R^2	0.428	0.428	0.538	0.538	0.626	0.626
Within R^2	0.000	0.001	0.001	0.002	0.000	0.000
Mean.Dep.Var.Pre	0.119	0.119	0.381	0.381	4.148	4.148
author fixed effects	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓
year × pub. cohort (2y) fixed effects	✓	✓	✓	✓	✓	✓
year × pub. cohort (5y) fixed effects	✓	✓	✓	✓	✓	✓

Note: Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.

Table E.2.5. Effect on research and migration outcomes – gender topics treatment in OpenAlex

	publications		nr pub. top 5%		pub. *gender*		has an affiliation in other country		for over 4 years	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
treatment gender × post = 1	-0.5007***		-0.1795**		-0.2054***		0.0323		-0.0018	
	(0.1896)		(0.0804)		(0.0697)		(0.0214)		(0.0090)	
treatment gender × post = post_1mandate		-0.2137		0.0233		-0.1698**		0.0415*		0.0081
		(0.1786)		(0.0813)		(0.0722)		(0.0228)		(0.0090)
treatment gender × post = post_2mandate		-0.6150***		-0.2195**		-0.2336***		0.0421		-0.0041
		(0.2270)		(0.0958)		(0.0819)		(0.0287)		(0.0112)
treatment gender × post = post_3mandate		-1.026***		-0.3622***		-0.2749***		0.0331		-0.0090
		(0.2315)		(0.1296)		(0.0663)		(0.0289)		(0.0119)
Observations	30,240	28,224	30,240	28,224	30,240	28,224	12,261	11,518	30,240	28,224
R^2	0.601	0.607	0.509	0.517	0.449	0.446	0.498	0.497	0.716	0.715
Within R^2	0.001	0.002	0.000	0.001	0.006	0.006	0.000	0.001	0.000	0.000
Mean.Dep.Var.Pre	1.254	1.254	0.374	0.374	0.053	0.053	0.063	0.063	0.008	0.008
final_id fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
year × entry cohort fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
year × field fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note: Control variables account for trends for the matching cell over time. Standard errors (SE) are clustered by author. *** p<0.01, ** p<0.05, * p<0.1.