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Youth responses to political populism: Education abroad as a step toward emigration

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ABSTRACT

Populism is on the rise, and democratic rights are deteriorating in many countries as a result of authoritarian policies adopted by populist leaders. This study analyzes how rising political populism in developing countries affects whether their citizens pursue higher education abroad. Applying the Synthetic Control Method, student migration patterns from Hungary, Ukraine, Venezuela, and Indonesia are explored as cases constituting early examples of authoritarian populism. The estimates show that the rise of authoritarianism after the closely contested elections that result in favor of the populist leaders in these countries increases the number of citizens who attend universities in foreign countries. Finding limited evidence for worsening higher education options in the origin countries suggests that more students start pursuing foreign education to increase their chances of living abroad after graduation. Emigration of skilled citizens from developing countries as a consequence of political populism is likely to constitute a threat to the economic performance of these countries in the long-term.

1. Introduction

Populist ideas have become prevalent all around the world in recent decades, and populist leaders have come into power in various countries, from Hungary and Poland in Europe to Venezuela and Brazil in Latin America and India and Indonesia in Asia.[2] Despite differences in opinion among populist leaders about fundamental policy issues, they all claim to defend the interests of "the people" against "the elites" in their country. In their fight against "the elites", populist leaders have not refrained from attacking the long-standing institutions of their countries. As a result, the eroding of democratic institutions, such as independent courts and free media, and the deterioration of civil liberties, such as the freedom of thought and expression, have been experienced in most of the countries

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[2] Defining populism is not easy. Mudde (2004) provides a broad definition of populism in which many historical and contemporary examples of populism can be framed. In this definition, populism is an ideology that considers society as consisting of two homogenous and antagonistic groups, "the pure people" and "the corrupt elite", and populist politics is an expression of the general will of "the people". Guriev and Papaioannou (2022) state some commonly accepted pillars of populism, including the strong distinction between "the people" and "the elites", heavy reliance on identity politics, and taking an authoritarian angle in policy issues. Despite these common pillars, the stand of populist leaders is mixed in relation to fundamental policy issues. For instance, left-wing populists are mostly culturally liberal and usually favor redistributive policies, whereas right-wing populists are culturally conservative and usually against redistribution.

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governed by populist leaders.[3] Resentment towards such adverse implications of rising political populism have emerged especially among young people. As a manifestation of this discontent, massive demonstrations have taken place in urban centers of many countries with the active participation of young people. However, these protests have mostly been suppressed by force, and the authoritarian tone of populist leaders has intensified over time. Moreover, the economic outlook has deteriorated noticeably over time in some of the countries governed by populist leaders. All these adverse consequences of the rise in political populism in their origin country might cause young people to explore new destinations as countries in which to study and live. In this paper, I analyze how the rise of political populism in a country affects the outmigration of its citizens as international students.

Political populism might increase the tendency to study abroad for two main reasons. First, rising populism in a country might diminish higher education options provided in its universities. In particular, limitations to fully exercising the freedom of thought in teaching might weaken the quality of education. Moreover, in a country with rising populism, hiring new faculty members from abroad and retaining existing faculty members might become more challenging, which consequently impinges on the enrollment capacity of its universities. To cope with these limitations, more students from such countries might prefer to study abroad. Second, a larger number of young people might start planning to live abroad after the election of populist leaders in their country of origin to escape from the deterioration of personal freedoms and economic outlook. For young people with such a plan, education abroad might serve as a pathway to long-term residency in foreign countries. Earlier studies in the literature show that most college-educated immigrants obtained their highest post-secondary degree in the country of destination, and most international students have continued to stay in the destination country after their graduation.[4] Given such a strong relationship between foreign education and migration, rising political populism might encourage more students to pursue degrees from foreign universities to increase their likelihood of living abroad.

Although the political discourse of populism and the vote share of populist parties have been on the rise in many countries, including those with a long tradition of democracy, only in a relatively small number of countries have populist leaders obtained the power to govern and the chance to apply their authoritarian policies.[5] In this study, I focus on earlier examples of such countries: Hungary, Ukraine, Venezuela, and Indonesia in the 2004–2016 period and analyze student migration from these to countries that were members of the Organization for Economic Co-operation and Development (OECD). In particular, in each of these origin countries, either a new leader was elected or new constitutional amendments that extended the power of an incumbent populist leader were approved approximately during the middle of the analyzed sample period. According to Freedom House data, civil liberties deteriorated in these countries as a result of political changes of this kind. Since these elections were decided in favor of populist leaders by close margins, their results and the associated deterioration of civil liberties can plausibly be considered as events whose outcome was not certain in advance. They can therefore serve as quasi-experiments to explore the effect of rising populism on student migration.

I analyze the effect of the rise of authoritarian populism on student migration in the framework of the Synthetic Control Method (SCM). I select countries located in Europe, the Americas, and Asia with stable levels of civil liberties during the sample period, as a set of potentially comparable countries to construct the synthetic units. Estimates show that the population of students who pursued higher education in foreign OECD countries increased annually by 24.3% in Hungary, 77.3% in Ukraine, 39.3% in Venezuela, and 20.2% in Indonesia after the deterioration of civil liberties in these origin countries compared to the population of international students originating from their synthetic control units. While the results for Hungary, Ukraine, and Venezuela are robust to various empirical specifications, the one for Indonesia is sensitive to the set of countries used as the donor pool.

The lack of information on the intentions of international students in the data presents limitations to identifying the reasons behind the estimated increase in student outmigration. However, the analysis of patterns in student migration by characteristics of destination countries and the analysis of economic outcomes in origin countries provide some insights. In particular, estimates show that more students from the origin countries of interest started attending universities in destinations that were historically less popular and had fewer high-quality universities. Moreover, estimates provide no statistical evidence for worsening higher education options in the origin countries of interest (as measured by the total number of scientific publications by researchers in its universities), except in Venezuela, with respect to their synthetic control units. These findings suggest that a larger number of students started pursuing higher education abroad with the intention of facilitating their migration as workers in their post-graduation period rather than obtaining high-quality education abroad due to worsening higher education options in their origin country. Moreover, the analysis of economic

[3] Several institutes report the decline in democratic rights globally in recent years. See "Global Democracy Has Another Bad Year" from The Economist (2020) and Repucci (2020) from Freedom House for a review of recent trends in global democracy. Section 2 of this paper also provides an analysis of the Freedom House data.

[4] For instance, Bound et al. (2015) show that 59% of college-educated immigrant workers who were aged between 25 and 34 and resided in the United States as of 2010 held a bachelor's degree obtained from a U.S. institution, and this rate was even larger among advanced degree holders. A few other studies analyze the location choice of international students graduating from US universities. For instance, Finn (2014) shows that 76% of the 2006 graduates of science and engineering doctoral programs continued to stay in the United States one year after their graduation. Demirci (2019) reports that 72% of international students from the 2004-2011 graduation cohorts initially stayed in the United States, and that this rate was even higher among graduates of master's and doctoral programs. In addition, a few other papers show that studying abroad short-term via exchange programs increases the likelihood of working in a foreign country after graduation (e.g., Oosterbeek and Webbink, 2011, Parey and Waldinger, 2011).

[5] Rodrik (2018b) reports that the vote share of right-wing populist parties in Europe was less than five percent in 2000, but exceeded 20% as of 2015. Based on a textual analysis of leaders' speeches, Hawkins et al. (2019) find that the index of populism almost doubled globally during the 2000-2018 period, with countries in Western Europe experiencing the largest increase. Funke et al. (2020) analyze 60 countries and find that populist leaders were in power only in four in 2000 and that this number increased to 15 in 2018.

outcomes shows that output per capita and unemployment deteriorate only in Ukraine and Venezuela and only a certain period after the rise in populism. This result suggests that not just deteriorating economic conditions but also increasing authoritarianism in the origin countries grow intentions of living abroad among youth.

A large strand of the literature provides a conceptualization for populism and discusses contemporary examples (for a recent example, see Mudde and Kaltwasser, 2017), and another strand analyzes potential reasons for the rise of political populism (for a review of this literature, see Guriev and Papaioannou, 2022). There is also a growing body of the literature that explores its potential implications. For instance, some studies highlight the adverse effects of rising populism on economic output (e.g., Born et al., 2019, Funke et al., 2020, Absher et al., 2020), whereas other studies explore its impact on social norms and hate crimes (e.g., Burzstyn et al., 2020, Müller and Schwarz, 2020). This study highlights the outmigration of skilled citizens as a possible consequence of rising political populism.

Increasing outmigration constitutes a potential channel to explain the adverse effects of populist leaders on the institutions and on the long-term economic prospects of their countries. There is a well-established relationship between the quality of institutions and economic growth (e.g., Acemoglu et al., 2001, Rodrik et al., 2004). Some studies in the literature find evidence also for the relationship between migration and the quality of institutions. For instance, Powel et al. (2017) show that the influx of immigrants to Israel after the collapse of the Soviet Union increased the quality of economic institutions in Israel. In particular, this study highlights the participation of immigrants into the political system by establishing new political parties as the main channel through which migration affects institutions. Similarly, Nowrasteh et al. (2020) find the positive effects of migration on institutions in Jordan after the First Gulf War. They claim that the economic boom generated by the influx of Kuwaiti-Palestinian migrants made the passage of economic reforms possible by the new government consisting of a record number of Palestinian ministers. These findings suggest that people are key for establishing and sustaining sound institutions. The outmigration of youth as international students after the adoption of authoritarian policies by populist leaders might adversely affect the quality of institutions in their origin countries. These adverse implications might be more acute if most of these international students stay abroad after graduation and do not actively participate in the political process of their origin countries. The eventual lack of skilled citizens in the origin countries might cause lower economic performance in the long-term.

This study also contributes to the literature on determinants of international migration by highlighting the rise of political populism in origin countries as a potential push factor.[6] In a related strand of the literature, some studies explore the effect of political and civil liberties in origin countries and do not find evidence for outmigration.[7] Unlike the earlier studies, this paper analyzes the effect of populism, which has caused an immediate deterioration of civil liberties but not necessarily of political rights in the countries analyzed.[8] Moreover, populism might affect other determinants of migration, such as economic conditions in origin countries. Populism therefore might change migration behavior for a variety of reasons, and this paper consequently estimates the overall impact of the adoption of authoritarian populist policies on international mobility. Analyzing such a relationship in the context of student migration is preferred because it is less restricted by visa policies compared to alternative migration paths.[9]

[6] In the literature focusing on student migration, some studies show the importance of destination-specific characteristics, such as quality of universities (e.g., Beine et al., 2014, Kahanec and Kralikova, 2011), income level (e.g., Beine et al., 2014, Caruso and De Wit, 2015, Wei 2013), tuition fees (e.g., Beine et al., 2020, Van Bouwel and Veugelers, 2013), visa policies (e.g., Amuedo-Dorantes et al., 2019, Arenas 2021, Shih 2016), and fiscal conditions of hosting universities (e.g., Bound et al., 2020), whereas some studies highlight the importance of dyadic factors between the destination and origin countries, including common language (e.g., Abbott and Silles, 2016), distance (e.g., Bessey, 2012, Van Bouwel and Veugelers, 2013), migration network (e.g., Beine et al., 2014), and trade volume (e.g., Wei 2013). A number of studies focus on origin-specific factors, such as income level (e.g., Kaushal and Lanati, 2019) and college-aged population (e.g., Bird and Turner, 2014, Thomas and Inkpen, 2017). Two recent studies analyze the effect of rising populism in destination countries on the migration behavior of international students. In particular, Falkingham et al. (2021) explore the effect of Brexit on return intentions of international students graduating from U.K. universities, and Amuedo-Dorantes and Romiti (2021) explore its effect on international student applications to U.K. institutions. In a related study about the effect of political shocks on student migration, Blanchard et al. (2009) show that the establishment of diplomatic relations and opening educational exchange between China and the United States in the early 1980s and the establishment of trade relations between Western countries and Eastern European countries in the early 1990s increased the number of doctoral students originating from these countries in the U.S. higher education.

[7] For instance, in their analysis of determinants of the mobility of international students, Bessey (2012) and Kaushal and Lanati (2019) find no evidence for a statistically significant association between political and civil liberties in countries of origin and outflow of international students. Analyzing determinants of broader classes of migration, some studies show that deteriorating liberties in origin countries decreases outmigration (e.g., Ashby, 2010, Karemera et al., 2000, Vogler and Rotte, 2000). They interpret this finding as evidence that governments in less free countries adopt policies that restrict outmigration. However, student migration is probably one of the least restricted migration types in terms of visa policies. Moreover, it involves the decisions of younger people who are likely to enjoy the benefits of migration longer and presumably are subject to lower costs of migration than an average migrant.

[8] Civil liberties refer to freedom of expression and belief as well as associational and organizational rights. Although the presence of civil liberties and political rights are positively correlated, their values do not change simultaneously. For instance, the deterioration of civil liberties was followed by the deterioration of political rights in Hungary. In contrast, initially political rights were eroded in Venezuela, which were followed by the deterioration of civil liberties. On the other hand, political rights worsened only temporarily in Ukraine after the deterioration of civil liberties, and they did not worsen in Indonesia during the sample period analyzed (Appendix Figure 1).

[9] In none of the origin countries of interest, were visa policies that restricted the rights of their citizens to study abroad adopted in the sample period analyzed, whereas major destination countries do not have caps on the number of admitted international students. Therefore, the main obstacles to study abroad have been tuition fees as well as language and cultural barriers. Section 5.4 provides a more detailed discussion of institutional factors affecting student migration to top destinations.

This study also makes a methodological contribution to the literature in terms of the manner in which it analyzes determinants of international migration. The earlier studies estimate a gravity equation and rely on variation in the value of explanatory variables across a wide spectrum of countries. For instance, the studies about the effect of political and civil liberties in the origin countries on international migration exploit the variation in these liberties that results from the overthrow of governments by means of coups and civil wars in the least democratic countries. In such cases, the current conditions of liberties are likely to be associated with past migration patterns, which raises concerns about the endogeneity. In contrast, this study analyzes student migration from relatively more democratic countries where elections were held and populist leaders gained power in closely contested elections. The analyzed events therefore can be considered as quasi-experiments, and the estimation of their impact can be achieved by comparing the migration patterns from the country that experienced the event to those from similar countries that did not. The SCM allows for a data-driven technique to find an appropriate comparison unit for that purpose.[10]

The paper proceeds as follows: Section 2 discusses trends in populism and international student migration; Section 3 explains the empirical methodology; Section 4 describes data; Section 5 presents results and discussions; and Section 6 constitutes the conclusion.

2. Research background

2.1. Trends in populism and democracy

There has been a rise in populism globally in the last two decades based on various indicators, such as the presence of populist leaders in governments, the vote share of populist parties, voters' attitudes to populist ideas, and populist rhetoric in politicians' speeches. A growing body of literature explores the reasons for the rise in populism, including changes in industrial production, trade, immigration, and technological progress (Guriev and Papaioannou, 2022). Since most populist leaders have adopted authoritarian policies, one of the immediate consequences of their attaining power has been a decline in democratic rights.

To discern the relationship between the rise of political populism and the endurance of democratic rights, I analyze data from Freedom House, which tracks different dimensions of democracy worldwide. In particular, Freedom House assigns values for the Political Rights (PR) and Civil Liberties (CL) indices in each country and for each year since 1972. The PR index evaluates the quality of democratic institutions in relation to electoral process, political pluralism and participation, and the functioning of government, whereas the CL index evaluates freedom of expression and belief, associational and organizational rights, rule of law, personal autonomy and individual rights. Each index can take integer values between 1 and 7, and the smaller values indicate the presence of more democratic rights. As shown in Fig. 1, the global average of the strength of civil liberties had been stagnant, whereas the global average for that of political rights had improved slightly in the 1970s and 1980s. Following the end of the Cold War, the prevalence of political rights and civil liberties had improved noticeably worldwide in the 1990s. But this trend ceased when populist leaders gained power. Consequently, the global average of the strength of civil liberties started to deteriorate in 2005.

Fig. 2 illustrates the evolution of the CL index in the post-2005 period across countries that have been classified based on their initial level of freedom. Civil liberties have deteriorated in "free" and "partially free" countries on average, whereas they have stayed stable in "not free" countries.[11] The observed deterioration in civil liberties in countries classified as "free" and "partly free" was mostly driven by the authoritarian policies enacted by recently elected populist leaders. In such countries, elections were held and new leaders came to power based on election outcomes. In many instances, a deterioration of civil liberties was evident after the election of a new populist leader or the approval of new constitutional amendments.

2.2. Case selection

This study focuses on four countries that have gone through such a process: Hungary, Ukraine, Venezuela, and Indonesia. This sample of origin countries was chosen for two main reasons. First, since the data on student mobility cover the 2004–2016 period (see Section 4 for details), countries that experienced a rise in authoritarian populism around the middle of the sample period are selected to have a sufficiently long period before and after this experience for reasonable statistical inferences. Second, this sample consists of countries where the increase in authoritarian populism as measured with deterioration of civil liberties can be associated with the outcome of closely contested electoral processes that result in favor of populist leaders (either parliamentary elections or constitutional referendums). Since the outcome of such events is not certain in advance, they can therefore be considered quasi-experiments that help to obtain the causal effect of rising authoritarian populism on student migration.

[10] Abadie et al. (2015) discuss advantages of using the SCM in the analysis of comparative case studies. In recent years, the SCM has become an increasingly popular tool of quantitative analysis. For instance, Funke et al. (2020) apply the SCM to analyze the effect of being governed by populist leaders on long-term economic outcomes, whereas Born et al. (2019) apply it to understand the effect of Brexit on various economic indicators. There are a few studies using the SCM in the migration literature to estimate its impact on labor market outcomes. For instance, Borjas (2017) and Peri and Yasenov (2019) apply the method to estimate the effect of refugees on the labor market in the United States, Mäkelä (2017) applies it to estimate the effects of migrants on the labor market in Portugal, and Aracı et al. (2022) apply it to estimate the effects of Syrian refugees on the labor market in Turkey. To my knowledge, the present study is the first paper using the SCM in the analysis of determinants of international migration patterns.

[11] Freedom House categorizes countries as "free", "partly free" and "not free" based on the average of the CL and PR scores. If the average is between 1 and 2.5, then the country is classified as "free". If the average is between 3 and 5, then it is classified as "partly free". If the average is between 5.5 and 7, then it is classified as "not free".

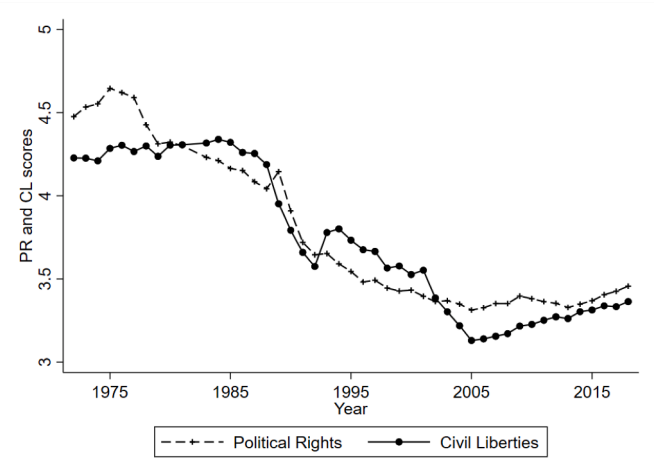

Fig. 1. The Evolution of Democratic Rights.
Notes: Freedom House data. The figure shows the average Political Rights (PR) and Civil Liberties (CL) scores among countries. Each index takes an integer value from 1 to 7 in each country. The PR score evaluates the quality of democratic institutions in electoral process, political pluralism and participation, and functioning of government, whereas the CL score evaluates freedom of expression and belief, associational and organizational rights, rule of law, personal autonomy and individual rights. Lower scores indicate the presence of more democratic rights.

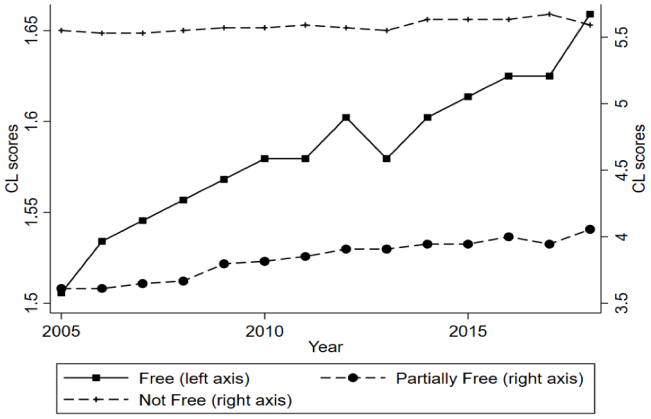

Fig. 2. Recent Trends in Civil Liberties.
Notes: Freedom House data. The figure shows the average of the CL scores for various groups of countries that are classified by Freedom House based on their level of freedom in 2004. See notes to Fig. 1 for further explanations of the CL index.

Each of the selected cases satisfies these two conditions.[12] Viktor Orban, the leader of a right-wing political party in Hungary, became the prime minister after the 2010 elections by winning 53% of the popular vote. Orban's party approved a new constitution in the parliament, which consists of articles reflecting conservative views on social issues, and the CL index in Hungary consequently increased from 1 to 2 in 2011. Since the smaller values of the index indicate the presence of more democratic rights, the increase in the

[12] Two things are noteworthy in regarding the case selection. First, Venezuela actually realized a larger shift towards authoritarian populism when Hugo Chavez first elected in 1999. The CL index in Venezuela consequently increased from 3 to 5 until 2000. However, the following period in Venezuela until the 2009 referendum was relatively more liberal as even reflected by an improvement in its CL index in 2002. Indeed, there were mostly peaceful demonstrations on the streets and strong student movements, and Chavez even lost the 2007 referendum where he attempted to abolish important balance and checks of Venezuelan democracy. However, his victory in the 2009 referendum allowing him to stay in power indefinitely changed the landscape in Venezuela, and his authoritarian tone increased as reflected as further deterioration in the CL index. Therefore, in the empirical analysis, this study compares more liberal times of the Chavez regime with his later and more authoritarian term. Second, the rise in authoritarian populism in Indonesia was realized towards to the end of the sample period, which means a shorter post-event period for the empirical analysis. Indeed, this might be one of the reasons for finding mixed results for Indonesia. Despite these caveats, Venezuelan and Indonesian cases are kept in the analysis because each represents a particular type of political populism. Analyzing different types helps to understand the generalizability of the relationship between political populism and outmigration.

CL score of Hungary in 2011 illustrated the deterioration of civil liberties. In Ukraine, Viktor Yanukovych, a pro-Russian politician, won the presidential election in 2010 by a 3-percent margin of the popular vote with the CL index in Ukraine increasing from 2 to 3 in the same year as the Ukrainian government violently suppressed demonstrations and intensified its war against free media. In Venezuela, as an example of a country where a left-wing populist party has been in power, a new constitutional amendment was approved in the 2009 referendum with 54% of voters supporting the abolishing of the limit on the number of terms a president can serve. This amendment increased the political power of Hugo Chavez, which resulted in more oppression against the opposition as well as an increase of the CL index in Venezuela from 4 to 5 in 2010. In Indonesia, the election of Juko Widodo as governor of Jakarta in the 2012 local elections changed the political landscape in favor of outsiders against establishment figures. In the period preceding the 2014 presidential elections, the rise of populism resulted in an increase in the CL index of Indonesia from 3 to 4 in 2013. Widodo was elected as the new president by winning 54% of the popular vote in 2014 with the support of some Islamic groups, and his administration continued to enact some populist policies, such as strict rules against blasphemy and policies targeting homosexuality.

In characterizing regimes as political populists in this study, I look for the existence of a strong political leader and a discourse about the clash between "the people" and "the elites". In each of the analyzed cases, the leader of interest emphasized a strong distinction between his supporters and his opponents to create this clash. For instance, Orban and Yanukovych generated such a clash by using identity politics, and Chavez did this by emphasizing inequalities across socioeconomic classes.[13] On the other hand, Widodo used the discourse of the clash between "the corrupt elite politicians" and "the ordinary people". He refused to tie himself to any political party to better situate his position among the ordinary people (Mietzner 2020). This criterion for populism is taken from Mudde (2004) where populist politics are conceptualized as the expression of the general will of "the people" against the interests of "the corrupt elite". Moreover, it is important to highlight differences between political populism and economic populism. Rodrik (2018a) defines the former as the set of policies that undermines liberal, pluralist, and democratic norms, while economic populism is relaxing the constraints on economic policy and undermining the autonomy of independent economic agents, such as the central banks. In this paper, I focus on various types of political populism, yet it is important to highlight that political and economic populism go hand in hand in some cases. Throughout the paper, I also use the term of "authoritarian populism" to refer to this illiberal side of political populism. To capture this illiberal feature empirically, I use the deterioration of civil liberties (based on Freedom House) to construct the sample of analyzed cases.

Political leaders emphasizing a discourse of the clash between "the people" and "the elites" came to power in other countries in the recent decades, and some of these leaders even took an authoritarian tone. I do not analyze these other cases in this study mainly because these leaders came to power either quite early or lately for the analyzed sample period providing data for student migration.[14] On the other hand, civil liberties deteriorated in some countries (mostly in totalitarian regimes) around the middle of the sample period in a way that is difficult to associate with an election victory of a populist leader. As a falsification test, I analyze the effect of deterioration of civil liberties on student outmigration in these countries and find no effect (see Section 5.2).

2.3. *Mobility of international students*

The mobility of international students has increased noticeably in the last decades.[15] For instance, the population of international students increased globally from about 2.8 million students in 2005 to 5 million in 2016. OECD countries hosted the majority of international students, who reached a population of 3.5 million in these countries in 2016 (OECD, 2018). In 2016, the United States was the most popular destination country, hosting 27.5% of all international students in OECD countries, followed by the United Kingdom, Australia, France, and Germany, respectively (Table 1, Panel A). However, the predominance of the top destination countries had already begun to decline over time, as the top five countries' share of the international student population dropped from 72.2% in 2004 to 64.3% in 2016.

Among origin countries, China has sent the largest number of students to universities in OECD countries (Table 1, Panel B). Since

[13] Hawkins et al. (2019) score speeches of some political leaders in the range between 0 (not populist) to 2 (very strong populist), and they detect high values of populist tone for the leaders of interest in this study (0.875 for Orban, 0.625 for Yanukovych, 1.75 for Chavez).

[14] Populism has been historically common in Latin American countries (for a detailed discussion of populism in Latin America, see Edwards, 2019). A new wave of populism emerged in the continent in the early 2000s, including Argentina (2003-2015), Bolivia (2006-2019), Ecuador (2007-2017), Honduras (2006-2009), and Nicaragua (2007-present). Since enough number of observations is not available for student migration from these countries in their pre-populism era, they are not analyzed in this study. It is also important to highlight that the value of the CL index was stable in Argentina and Bolivia throughout the sample period despite being governed by populist leaders. On the other hand, civil liberties deteriorated (based on the CL index) sometime after the election of populist leaders in Ecuador, Honduras, and Nicaragua. Since it is difficult to associate these deteriorations as imminent result of a closely contested election, they are not analyzed as the main cases in the study. However, I report the estimated effect on student outmigration in these countries by using the year the CL index deteriorated as the event year in Honduras and Nicaragua and using the year of the referendum that abolished the term limits for presidency in Ecuador (because the deterioration of the CL index was realized at the very end of the sample period). I find statistically significant increases in student outmigration from Ecuador and Honduras (Appendix Table 6). More recently, Brazil (2019-present) and Mexico (since 2018) also elected populist presidents. Populism spread to other continents over the last decade as well. For instance, Poland (since 2015), India (since 2014) and Philippines (since 2016) have been governed by leaders who can be characterized as populists. These countries are not analyzed because of having limited number of observations for the post-populism period.

[15] See Chellaraj (2019) for a review of the literature related to determinants of international student mobility and the consequences for connectivity between countries. Bound et al. (2021) provide a more recent review article by focusing on international students in the United States.

the population of Chinese students increased at a faster rate than that of most other countries, the share of Chinese students rose from 18.6% to 23.8% among all international students in OECD countries between 2004 and 2016. In 2004 China was followed by India, South Korea, Japan, and Germany respectively, whereas Saudi Arabia became the fifth largest origin country in 2016 due to a generous fellowship program introduced by the government. As displayed in Panel C of Table 1, the population of students originating from each country of interest (i.e., Hungary, Ukraine, Venezuela, and Indonesia) also increased between 2004 and 2016. In Section 4, a detailed analysis of student migration patterns from these countries is provided after a description of the data and sample restrictions.

3. Empirical strategy

3.1. The synthetic control method

To identify the impact of the rise in authoritarian populism in a particular country on the population of international students originating from it, the corresponding population that would be observed in the absence of populism needs to be known. The Synthetic Control Method (SCM), initially developed by Abadie and Gardeazabal (2003), provides a systematic method to construct the path of an outcome variable for the counterfactual scenario in which the event of interest does not occur. In particular, the SCM assigns weights to each possible comparison unit and calculates the counterfactual path of the outcome in the unit of interest as a weighted sum of values of the outcome variable observed in the comparison units. The method works as follows.

Let $K+1$ countries exist, indexed by $k = 0, 1, 2, \ldots, K$. The country 0 is the treated country where an event occurred (i.e., the rise in authoritarian populism as evidenced by the deterioration of civil liberties following an election victory of populist leaders in this context). All other countries make up the donor pool, with none of the countries in the donor pool having experienced the event. Let $\boldsymbol{X}$ be an M by K matrix of predictor variables for countries in the donor pool where M shows the number of predictors. Let $\boldsymbol{X_0}$ be the vector of predictors for the treated country. The optimal vector of weights, $\boldsymbol{W^*} = (w_1^*, w_2^*, \ldots, w_K^*)$, are determined as

$$W^* = \underset{W}{\operatorname{argmin}} \left(X_0 - XW\right)' V \left(X_0 - XW\right) \tag{1}$$

subject to $\sum_{k=1}^{K} w_k^* = 1$, $w_k^* \geq 0$ for each k, and V is an M by M diagonal positive-definite matrix that determines the importance of each predictor.[16] After $\boldsymbol{W^*}$ is obtained, the effect of the event on the value of the outcome variable in the treated country for year t is calculated as

$$\Delta_{0t} = Y_{0t} - \sum_{k=1}^{K} w_k^* Y_{kt} \tag{2}$$

where Y_{0t} is the value of the outcome variable in the treated country at time t and Y_{kt} is the corresponding value for country k at time t.

Abadie et al. (2010) propose a permutation-based inference technique to decide the statistical significance of the estimated effect. To apply this method, the effect of the event is estimated for each country as described above regardless of whether the country actually experienced the event or not, which is known as placebo permutations. Then, the ratio of the root mean squared prediction error (MSPE) in the post-event period to the root MSPE in the pre-event period is calculated for country k as

$$r_k = \sqrt{\frac{\sum_{t=T_0+1}^{T} (\Delta_{kt})^2 \Big/ (T - T_0)}{\sum_{t=1}^{T_0} (\Delta_{kt})^2 \Big/ T_0}} \tag{3}$$

where T denotes the last period of observation and T_0 denotes the last period before the event. These ratios are ranked from the largest to the smallest among countries, and the p-value for the n^{th} ranked country is calculated as n divided by $(K+1)$. In this study, I report the p-values calculated based on this method. However, this inference method generates higher p-values for units that have a bad pre-event match (i.e., have a high MSPE value in the pre-event period). Relatedly, the existence of such units causes an overstatement of the statistical significance for the units with a better pre-event match. To address this issue, I also calculate p-values with the same method (i.e., the one described in Abadie et al., 2010) but by dropping the countries with high pre-event MSPE values. I report these p-values as "the corrected p-value" statistics (following Acemoglu et al., 2016).[17] Moreover, Firpo and Possebom (2018) introduce a method to calculate confidence intervals for the SCM estimates in the framework of placebo permutations in Abadie et al. (2010). I also report the 90% confidence intervals for the estimated average effect based on this method. Lastly, Chernozhukov et al. (2021) provide an inference method for a time series setup in the framework of testing a structural break, which is applicable to the SCM estimates. In this study, I report p-values based on this method as well.

3.2. Application of the SCM

In this study, I estimate the impact of rising political populism on student migration and the associated p-values separately for each origin country. The event year for each country is taken as the year when the civil liberties deteriorated according to the CL index of

[16] The diagonal elements of $\boldsymbol{V}$ assign the importance of each predictor in $\boldsymbol{X}$. The default option in STATA is adopted to estimate $\boldsymbol{V}$.

[17] Acemoglu et al. (2016) drop units with the pre-event MPSE statistics more than $\sqrt{3}$ of the average pre-event MPSEs in their application. I apply the same threshold to determine bad pre-event matches in this study.

Table 1
International Students in OECD Countries.

	Year 2004			Year 2016	
	Total	Percentage		Total	Percentage
Panel A: Top Destination Countries					
United States	572,509	28.5%	United States	971,417	27.5%
United Kingdom	300,056	15.0%	United Kingdom	432,001	12.2%
France	210,180	10.5%	Australia	335,512	9.5%
Germany	198,565	9.9%	France	288,109	8.2%
Australia	166,954	8.3%	Germany	244,575	6.9%
Panel B: Top Origin Countries					
China	318,963	18.6%	China	790,138	23.8%
India	119,034	6.9%	India	258,500	7.8%
South Korea	91,269	5.3%	Germany	113,271	3.4%
Japan	58,984	3.4%	South Korea	107,493	3.2%
Germany	51,611	3.0%	Saudi Arabia	81,989	2.5%
Panel C: Origin Countries of Interest					
Hungary	6,722	0.39%	Hungary	11,284	0.34%
Ukraine	14,128	0.82%	Ukraine	51,518	1.55%
Venezuela	7,505	0.44%	Venezuela	11,508	0.35%
Indonesia	24,950	1.45%	Indonesia	33,398	1.01%

Notes: OECD data. Each number in the Total column shows the population of international students in the destination country of interest in Panel A and from the origin country of interest in Panel B and Panel C. Each number in the Percentage column shows the percentage of specified students among all international students in the OECD countries. The destination countries used in Panel A include Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Japan, South Korea, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States. Panel B and Panel C exclude data for Belgium, Norway, Spain, Sweden, and Turkey due to the lack of reliable origin-specific information.

Freedom House (i.e., 2011 for Hungary, 2010 for Ukraine and Venezuela, and 2013 for Indonesia). The estimation is conducted with the data of international students from the 2004–2016 period for Hungary and Venezuela and from the 2005–2016 period for Indonesia and Ukraine because civil liberties had improved in the latter countries in 2004 (Appendix Figure 1).

The gross domestic product (GDP) per capita, youth unemployment, the share of youth population, and civil liberties in origin countries as well as the share of students in each of the three most popular destination countries are used as predictors ($\boldsymbol{X}$) to determine the optimal weights of units in the donor pool. These variables have been selected because they are considered as main determinants of international student migration. GDP per capita in particular controls for the affordability of foreign education, whereas youth unemployment and youth population measure job opportunities and the competition for education options in origin countries.[18] The index of civil liberties controls for initial freedom conditions in origin countries. The share of students in each top destination country controls for the effect of destination-specific factors on student migration and enhances the similarity of the treated country and the countries in its synthetic control.[19]

As discussed in the next section, the number of international students originating from each country take values from a wide range, and the application of SCM with this measure of student migration (i.e., in levels) failed to generate close synthetic matches. Abadie (2021) suggests normalizing the outcome variable in SCM applications if good matches for the pre-event period are not obtained when it is used in levels.[20] In this paper, I normalize the outcome variable for each origin with respect to its average in the pre-event period. With this normalization, the application of the SCM in this study matches countries that have similar time trend of growth in the population of international students.[21] Moreover, this normalization allows an easy and consistent interpretation across cases as the

[18] I use a normalized version of youth population by calculating the share of young citizens (those aged between 20 and 24) among the adult population in each origin country. This normalization allows capturing the role of "cohort crowding", which refers to larger cohorts receiving lower public subsidies per student in higher education (Bound and Turner, 2007), in explaining the demand for foreign education.

[19] To determine top destination countries, the share of international students in each destination country among all international students originating from the origin country of interest is calculated for the pre-event period. Then, three destination countries with the largest shares are detected separately for each treated country, and the share of students in these destination countries are used as predictors in the SCM estimations. Particularly, Austria, Germany, and the United Kingdom appear to be the top three destination countries for Hungary, whereas they are Germany, Poland, and the United States for Ukraine; the United States, France, and Germany for Venezuela; Australia, the United States, and Japan for Indonesia.

[20] Ferman and Pinto (2021) show that the SCM estimates based on the level of outcome variable might be biased if poor pre-event fits exist. They also show that normalizing the outcome variable, such as demeaning it with respect to the pre-event average, addresses this issue.

[21] Not matching the outcome variable by its level might be problematic in certain cases. As exampled in Abadie (2021), in case where the outcome variable is GDP per capita, its normalization would be problematic because the convergence hypothesis implies different growth rates for countries with different levels of GDP per capita even in the absence of any intervention. Since there is no such theoretical basis for student migration, this study uses a normalized version of the population of international students. Nonetheless, as mentioned in the text, countries with very large or small population (i.e., countries with very large or small flows of international students) are excluded from the donor pool to achieve some degree of similarity in the levels of student outmigration across comparison countries.

estimated effect for each county shows the percentage changes in the outcome variable after the event of interest.

The donor pool for constructing the synthetic units is chosen among the countries which had stable levels of civil liberties as an indicator of the lack of authoritarian populism during the sample period. Abadie (2021) also suggests constructing the donor pool from units that have similar characteristics to the treated unit. To achieve some level of similarity between units in the application of the SCM in this study, countries in the donor pool are restricted to those in Europe, the Americas, and Asia because the treated countries analyzed are located on these continents. Also, China and India as well as countries whose population is less than one million are excluded from the donor pool because of the large divergence in their scale.[22] The countries that are also governed by populist regimes (but not analyzed in this study because of the lack of student mobility data for their pre-populism era) are also excluded from the donor pool despite having stable levels of civil liberties in the analyzed sample period.[23] Thus, the donor pool consists of the remaining 54 countries. Appendix Table 1 provides the full list of countries in the donor pool. As discussed below, results using different subsets of this donor pool are similar, except for Indonesia.

4. Data

4.1. International students

The population of international students studying in each OECD country is obtained from the OECD. Each destination country reports the total population of foreign students studying in its universities as well as their origin country in each year for the 2004–2016 period.[24] Countries reported the population statistics of international students under two classifications: "non-citizen" and "non-resident". Students in the non-citizen category refer to all foreign students, including those who migrated with their parents as minors, whereas statistics in the non-resident category demonstrate a subset of foreign students by referring only to students who came to the destination country for the purpose of pursuing higher education.[25] Using statistics of non-resident students is more appropriate for the empirical analysis in this study because it directly measures the migration for education. However, only Australia, Canada, Denmark, Ireland, Germany, the Netherlands, New Zealand, Slovakia, Switzerland, the United Kingdom and the United States reported statistics for non-resident students throughout the sample period. This information is employed for these countries in the analysis. On the other hand, Czech Republic, Iceland, Italy, and South Korea reported statistics for non-citizen students, and this type of data is used for these countries. Since the population of immigrants is small in these destination countries, their statistics for non-citizen students include mostly non-resident international students who entered these countries for educational purposes.

The remaining destination countries in the sample, namely Austria, Finland, France, Japan, Poland, and Portugal, changed the manner of their reporting over time by providing the population of non-citizen and non-resident students separately in some years. To have consistent statistics over the period under review, the population of non-resident students in Portugal for the 2004–2007 period and the population of non-citizen students in Austria, Finland, France, Japan and Poland for the 2013–2016 period are inferred. This inference is conducted by calculating the population of non-citizen students who are residents of the destination country and by assuming that the population of residents remained unchanged in each year during the relevant period. (See Appendix for details.) Thus, unreasonable jumps or drops that are observed in the population of international students in the year when the type of reporting in these counties was changed are corrected without altering the variation in annual changes in the population statistics that are reported for the rest of the sample period. As shown in the online appendix (Appendix Table 3), results are robust but statistically less precise if the raw data based on inconsistent classification of international students in these destination countries are used in the empirical analysis.

[22] The data of the freedom index for Hong Kong, Palestine, and Puerto Rico and the data of international students for Kosovo, Montenegro, Taiwan, Timor-Leste, and Serbia are not available for the entire 2004-2016 period. These countries are excluded from the analysis for that reason.

[23] As mentioned in an earlier footnote, Argentina, Bolivia, Ecuador, Honduras, and Nicaragua had a populist regime in our sample period. Since enough number of observations is not available for student outmigration from these countries in their pre-populism era, they are not analyzed. As the civil liberties in Ecuador, Honduras, and Nicaragua deteriorated in our sample period according to the CL index of Freedom House, they are also excluded from the donor pool. Despite having a stable level of liberties, Argentina and Bolivia are also excluded from the donor pool with the purpose of constructing synthetic units from non-populist regimes. However, the results are similar when Argentina and Bolivia are used. The estimated effect becomes slightly less statistically significant for Venezuela (Appendix Table 2).

[24] The most recent year for which the data are available was 2016 when this project was started. The data before 2004 was available only for a few destination countries and these data do not look compatible with more recent statistics. During the 2004-2016 period, 27 countries reported statistics of international students during the sample period, but the information about origin country for most students pursuing education in Belgium, Norway, Spain, Sweden, and Turkey is missing in the data. For this reason, these destination countries are excluded from the analysis. Also, student flows to Hungary are excluded because it is one of the treated countries of interest. Thus, the sample of destination countries consists of the remaining 21 members of OECD as listed in the main text.

[25] The non-citizen category refers to students who do not hold the citizenship of the destination country. Thus, the non-citizen category includes students who migrated as minor age and are therefore residents of the destination country. Undocumented immigrants and refugees are also recorded in the non-citizen category. The non-resident category is therefore a subset of the non-citizen category and refers to students who came to the destination country for the purpose of pursuing higher education. Some countries reported the population of students under the "foreign" category rather than that of the "non-resident" students in some years, and these values are used as statistics of non-resident students in the analysis. In particular, this classification was used by Ireland, Germany and Switzerland for the 2004-2007 period and by the Netherlands in 2004.

4.2. Other variables

Data for the GDP per capita in 2010 US dollars, the unemployment rate for people aged between 15 and 24 (i.e., youth unemployment), and the population of people aged between 20 and 24 in origin countries (i.e., youth population) are obtained from the World Bank Indicators. Values of the CL index are obtained from Freedom House. As a measure of higher education options in origin countries, the total count of international scientific publications written by researchers located in each country and by those affiliated with the best universities of each country is obtained from SCImago statistics.[26] Lastly, the THE and the QS world university rankings are used to identify the best universities in origin countries and to classify destination countries based on the quality of education options provided by their universities.

4.3. Sample statistics

Table 2 provides summary statistics of the variables for the 2004–2016 period for the donor pool and the origin countries of interest, classifying countries in the donor pool according to their democracy level. The most democratic countries of the donor pool where the CL index was constant at one throughout the 2004–2016 period had a considerably larger average income compared to other countries. Partially democratic countries where the CL index was constant at the value of two, three or four are developing middle-income countries with high levels of youth employment. The least democratic countries where the CL index was constant at the value of five, six or seven had slightly higher average income but a considerably lower unemployment rate than partially democratic countries did, whereas their average income and unemployment rate are considerably lower than those in the most democratic countries.

As presented in Panel B of Table 2, the unemployment rate in the origin countries of interest, where populist policies were adopted and civil liberties deteriorated, was similar to the average unemployment rate of the most democratic and partially democratic countries. Their average income was similar to those of partially democratic and the least democratic countries, with the exception of Ukraine and Indonesia which had considerably lower average income than the other countries. Also, youth population and the number of international students originating from each country varied considerably across the countries analyzed. For instance, Indonesia had the most crowded youth cohort and the number of international students originating from there was larger compared to that from the other origin countries of interest.

Table 3 displays the top destination countries for international students originating from the countries of interest. These tabulations show the importance of distance in international student migration as students usually preferred geographically closer countries in which to study, such as Austria for Hungarian citizens, Poland for Ukrainians, the United States for Venezuelans, and Australia for Indonesians. However, the preference of international students on top destination countries differs according to the origin of students. The preferences of Venezuelan students display the most noticeable concentration in that 70% went to the United States to study, whereas the destination countries for students from Hungary, Ukraine, and Indonesia were more diverse. Section 5.4 provides a more detailed discussion of destination-specific institutional factors and how the estimation strategy accounts for these factors.

5. Results

5.1. Main results

Table 4 shows the estimated average annual effect of the rise in authoritarian populism (as measured with the deterioration of civil liberties according to the CL index of Freedom House after an election victory of the populist leader) on the population of international students originating from each country of interest (i.e., the average of Δ_{0t} values in Eq. (2) for the post-event period). Because of the above-mentioned normalization of the outcome variable with respect to its average in the pre-event period, the reported coefficients multiplied by 100 in the table can be interpreted as percentage changes in the annual population of international students originating from the country of interest after the deterioration of civil liberties in that country.

The column (1) of Table 4 displays the estimated effects from the specification that employs the donor pool consisting of origin countries of all democracy levels in the pool. The estimates show that the population of international students who originated from Hungary and attended universities in other OECD countries increased by 24.3% annually on average after civil liberties deteriorated as a consequence of the rise of authoritarian populism in Hungary. The estimates also indicate a 77.3% increase in the population of Ukrainian students studying in OECD countries, a 39.3% increase in the population of Venezuelan students, and a 20.2% increase in the population of Indonesian students.

Fig. 3 displays the pattern of student migration from each treated country and its synthetic control unit that is obtained based on the specification in column (1) of Table 4. The student outmigration was stable around its mean in each origin country of interest before the event; and the synthetic unit captures this pattern quite closely (which is also reflected as low pre-event MSPE values in Table 4). However, the population of international students originating from each country noticeably differed from the population of students originating from its synthetic control unit after the year when civil liberties deteriorated in these countries. The largest divergence between the treated country and its synthetic control unit is observed for Ukraine, which is consistent with the reported average effects in Table 4.

[26] This variable captures both the quantity and quality of higher education options in origin countries. Alternatively, the enrollment in universities in origin countries might measure the quantity, but the enrollment data are not available for all countries in the sample.

Table 2
Summary Statistics.

Panel A: Countries in the Donor Pool		All	Most Democratic	Partially Democratic	Least Democratic
GDP per capita	Mean	$24,318	$39,279	$9,451	$12,485
	S.D.	$20,387	$19,476	$11,109	$19,558
Youth Unemployment Rate	Mean	16.1	16.9	19.0	7.9
	S.D.	11.3	8.4	14.1	7.3
Youth Population (in million)	Mean	2.15	1.78	2.06	3.43
	S.D.	4.25	4.20	3.51	5.48
International Students	Mean	14,485	15,378	16,632	7,371
	S.D.	20,387	18,910	25,035	8969

Panel B: Origin Countries of Interest		Hungary	Ukraine	Venezuela	Indonesia
GDP per capita	Mean	$13,645	$3,006	$13,568	$3,158
	S.D.	$710	$200	$1,261	$510
Youth Unemployment Rate	Mean	21.1	17.5	15.9	19.0
	S.D.	5.1	3.5	3.2	3.7
Youth Population (in million)	Mean	0.64	3.41	2.56	20.90
	S.D.	0.03	0.41	0.09	0.37
International Students	Mean	7,903	23,335	8,207	25,993
	S.D.	1,565	11,629	1,744	3,185

Notes: Statistics for international students are tabulated from the OECD data and the ones for other variables are tabulated from the World Bank Indicators for the 2004–2016 period. Youth unemployment refers to the percentage of unemployed people among those aged between 15 and 24. Youth population shows the population of people aged between 20 and 24 in terms of millions. Countries where the CL index has been constant at the value of 1 during the 2004–2016 period are defined as "the most democratic", at the value of 2, 3, or 4 as "partially democratic", and at the value of 5, 6, or 7 as "the least democratic" countries.

As mentioned before, statistical significance is inferred based on different methods in this study. According to all of the inference methods employed, the estimated effects for all countries are statistically significant at the conventional levels in the specification of column (1). In particular, the estimates for Hungary and Ukraine are statistically significant at five percent, and the ones for Venezuela

Table 3
Top Destination Countries for Students from the Origin Countries of Interest.

	All Periods	Pre-event Periods	Post-event Periods
Panel A: Hungary			
Germany	0.241	0.309	0.182
Austria	0.227	0.198	0.251
United Kingdom	0.143	0.128	0.156
United States	0.094	0.117	0.074
France	0.078	0.089	0.069
Number of Students	7903	6841	9141
Panel B: Ukraine			
Poland	0.363	0.171	0.445
Germany	0.256	0.418	0.187
United States	0.071	0.120	0.051
Czechia	0.060	0.049	0.065
France	0.059	0.078	0.051
Number of Students	23,334	15,185	30,320
Panel C: Venezuela			
United States	0.706	0.719	0.697
France	0.070	0.065	0.074
Germany	0.043	0.049	0.039
Canada	0.043	0.031	0.050
United Kingdom	0.038	0.048	0.032
Number of Students	8207	6891	9336
Panel D: Indonesia			
Australia	0.381	0.408	0.331
United States	0.305	0.312	0.291
Japan	0.076	0.072	0.083
Germany	0.065	0.066	0.062
United Kingdom	0.059	0.047	0.081
Number of Students	25,993	24,183	30,065

Notes: OECD data for the 2004–2016 period. Each column in each panel shows the distribution of international students who originate from the specified origin country across top destination countries for the specified period. The pre-event (post-event) period shows the period before (after) the rise of authoritarian populism in the origin country of interest. The row, titled as Number of Students, shows the annual average of the number of international students originating from the specified origin country and studying in OECD countries of the destination sample.

Table 4
SCM Estimates on Student Migration.

	(1)	(2)	(3)
Panel A: Hungary			
Average Effect	0.243	0.160	0.341
P-value (Abadie et al., 2010)	*(0.036)*	*(0.022)*	*(0.300)*
P-value (corrected)	*(0.043)*	*(0.026)*	*(0.353)*
P-value (Chernozhukov et al., 2021)	*(0.077)*	*(0.077)*	*(0.077)*
90% Confidence Interval	[0.155, 0.332]	[0.116, 0.204]	[−0.056, 0.738]
Pre-event MSPE	0.030	0.024	0.061
Post-event MSPE	0.282	0.202	0.377
Panel B: Ukraine			
Average Effect	0.773	0.694	0.906
P-value (Abadie et al., 2010)	*(0.018)*	*(0.022)*	*(0.050)*
P-value (corrected)	*(0.021)*	*(0.026)*	*(0.059)*
P-value (Chernozhukov et al., 2021)	*(0.083)*	*(0.167)*	*(0.083)*
90% Confidence Interval	[0.691, 0.861]	[0.286, 1.101]	[0.547, 1.264]
Pre-event MSPE	0.020	0.059	0.051
Post-event MSPE	0.994	0.956	1.130
Panel C: Venezuela			
Average Effect	0.393	0.423	0.384
P-value (Abadie et al., 2010)	*(0.073)*	*(0.022)*	*(0.050)*
P-value (corrected)	*(0.085)*	*(0.026)*	*(0.059)*
P-value (Chernozhukov et al., 2021)	*(0.077)*	*(0.077)*	*(0.077)*
90% Confidence Interval	[0.068, 0.719]	[0.205, 0.642]	[0.052, 0.716]
Pre-event MSPE	0.049	0.044	0.039
Post-event MSPE	0.419	0.447	0.407
Panel D: Indonesia			
Average Effect	0.202	−0.156	0.044
P-value (Abadie et al., 2010)	*(0.073)*	*(0.696)*	*(1.000)*
P-value (corrected)	*(0.082)*	*(0.650)*	*(1.000)*
P-value (Chernozhukov et al., 2021)	*(0.083)*	*(0.250)*	*(0.917)*
90% Confidence Interval	[0.014, 0.390]	[−0.753, 0.430]	[−0.244, 0.333]
Pre-event MSPE	0.040	0.115	0.082
Post-event MSPE	0.208	0.157	0.057

Notes: The average effect shows the annual effect of the rise of authoritarian populism on the population of international students originating from the country of interest as the ratio of the pre-treatment average of the population of international students from that country. Numbers that are in italics and below the coefficients show the associated p-values. "P-value (corrected)" calculates p-values based on Abadie et al. (2010) as well but drops the units with bad pre-event fit. "P-values (Chernozhukov et al., 2021)" calculates p-values based on moving block permutations. The 90% confidence intervals are calculated based on the method in Firpo and Possebom (2018). The column (1) employs countries of all democracy levels in the donor pool, the column (2) employs both the most democratic and partially democratic counties, and the column (3) employs only partially democratic countries.

and Indonesia are significant at 10 percent based on the inference technique in Abadie et al. (2010). When the same inference method is applied by dropping the countries with poor pre-event fits, the estimates remain statistically significant at the same levels (see the "corrected p-values" in column (1) of Table 4). The 90% confidence intervals based on the method in Firpo and Possebom (2018) also show that the estimated effects are statistically significant. Table 4 also reports p-values based on the method of moving block permutations in Chernozhukov et al. (2021). The estimated effects are statistically significant at 10 percent based on this method despite the limitation of having a short time series in this study.[27]

Fig. 4 displays the distribution of the gaps in student outmigration between each origin country and its synthetic unit. While the superimposed black line in the figure displays the gap estimated for the origin of interest, gray lines display the gaps for each origin in the donor pool (excluding a few countries with poor pre-event fits as done in the calculation of corrected p-values). Two things are noteworthy in Fig. 4. First, the trends in student outmigration for the pre-event period are well captured in most countries as the gaps are close to zero. Second, in the post-event period, the gap becomes noticeably large in favor of the origin countries of interest compared to their synthetic units (i.e., the superimposed black line). This divergence is larger in the origin country of interest compared to most countries in the donor pool, which explains the low p-values obtained for the origins of interest.

Results in column (2) are obtained from the specification where the most democratic and partially democratic countries of the donor pool are employed. In other words, the least democratic countries are excluded from the donor pool. Since the political system of these countries can be characterized as totalitarian regimes, they are quite different than the countries of interest in this study. Similar to the previous specification, the estimates in column (2) show statistically significant increases in the population of international

[27] Chernozhukov et al. (2021) also describe a method to calculate p-values based on iid block permutations. Since p-values based on this method for the application in this study are found to be smaller than the ones based on moving block permutations, only the latter ones are presented in the table. For instance, for all estimates in column (1), p-values based on iid permutations show statistical significance at one percent.

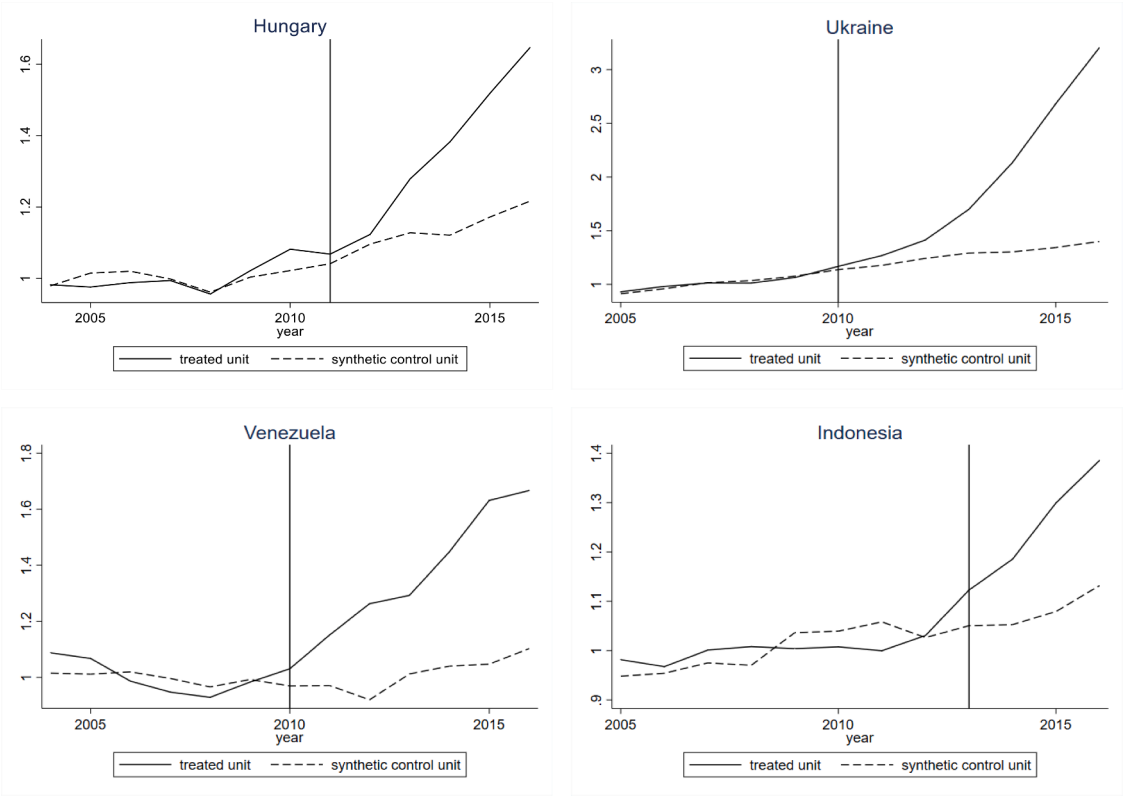

Fig. 3. Student Migration.

Notes: The OECD data. Each solid line shows the normalized population of international students who originate from the specified country of interest and attend universities in OECD countries. The normalization for a particular year is achieved by dividing the population of international students originating from the specified country in that year to the annual average population of international students originating from that country in the pre-event period. The vertical line in each subfigure shows the event year for the specified country (i.e., the year when civil liberties deteriorated according to the CL index of Freedom House). Each dashed line shows the normalized population of international students originating from the synthetic control unit for the country of interest. The synthetic units are constructed from the donor pool consisting of countries of all freedom levels. In particular, the synthetic control units consist of the following countries with the associated weights displayed in parentheses: Bulgaria (0.435), Slovenia (0.353), Croatia (0.169), Austria (0.032), and Spain (0.011) for Hungary; Belarus (0.473), Bulgaria (0.320), Mongolia (0.117), Czechia (0.085), Slovakia (0.003), and Macedonia (0.002) for Ukraine; Jamaica (0.386), Guatemala (0.289), Canada (0.192), Armenia (0.075), El Salvador (0.043), and Cambodia (0.015) for Venezuela; Malaysia (0.398), New Zealand (0.301), Jamaica (0.186), Macedonia (0.083), and Laos (0.033) for Indonesia.

students originating from Hungary (16.0% annually on average), Ukraine (69.4%), and Venezuela (42.3%) after the deterioration of civil liberties in these countries.[28] Unlike column (1), the estimated effect for Indonesia becomes statistically insignificant (and it is also negative).

Lastly, column (3) of Table 4 shows the estimated effects from the specification that employs the narrowest donor pool consisting of only partially democratic countries. As discussed before, these countries constitute the most similar group to the countries of interest. However, since the number of countries in this subset of the donor pool is smaller (exactly 19 countries), obtaining statistical significance becomes more difficult.[29] Despite this limitation, the estimates with this specification show that the rise of political populism statistically increased the outmigration of youth as international students from Ukraine (90.6% annually on average) and Venezuela (38.4%) at the level of five percent. The estimated effect for Hungary in this specification is also positive (34.1%) but not significant at conventional levels based on the inference method in Abadie et al. (2010). The main reason for this insignificancy seems to be a poor

[28] The estimated effect for Ukraine appears to be barely statistically insignificant at 10 percent based on moving block permutations in Chernozhukov et al. (2021). However, since none of the other methods implies insignificance and iid permutations in Chernozhukov et al. (2021) show significance at five percent, I interpret the estimated effect for Ukraine in column (2) as statistically significant. Also, as displayed in Appendix Figure 2, the gap in student outmigration for Ukraine quietly differs than the gaps for countries in the donor pool in the post-event period.

[29] More specifically, the p-value can be 0.05 at minimum in this specification, which is equal to 1 over 20 (i.e., the ratio of the rank of the country with the largest r-statistics to the total number of countries).

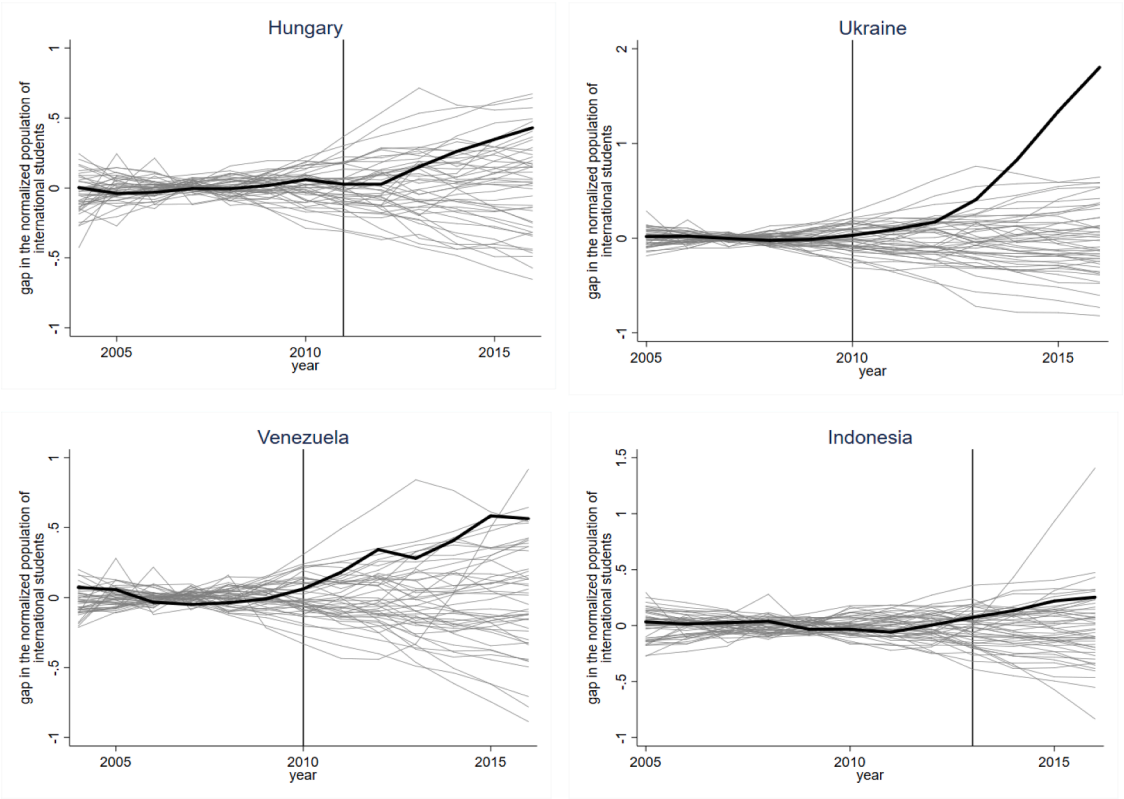

Fig. 4. The Gaps in student Migration Between the Actual Units and the Synthetic Units.
Notes: The OECD data. Each figure displays the distribution of the gaps in the population international students (normalized as the ratio of the pre-treatment average of the population of international students) between the actual country and its synthetic unit. The superimposed black lines display the gaps for the origin of interest, the gray lines display the gaps for each country in the donor pool. The countries with poor pre-event fit are excluded (i.e., the countries whose MPSE statistics is more than $\sqrt{3}$ of the average pre-event MPSEs as done in Acemoglu et al., 2016). The vertical line in each subfigure shows the event year for the specified country (i.e., the year when civil liberties deteriorated according to the CL index of Freedom House). The synthetic units are constructed from the donor pool consisting of countries of all freedom levels.

pre-event fit for Hungary. In particular, the pre-event MSPE in this specification for Hungary is higher than the ones in earlier specifications. Although the trend of student outmigration in Hungary differed from its synthetic unit after the rise of authoritarian populism as indicated by a large value of post-event MSPE in the table, the ratio of the MSPEs does not turn to be large enough for statistical significance because of low pre-event MSPE. Indeed, as displayed Appendix Figure 3, the gap in student migration between Hungary and its synthetic unit differs quite apparently from the gaps for other countries in the post-event period. As further evidence for the statistical significance of the estimated effect for Hungary in this specification, the corresponding 90% confidence interval, which ranges between −0.056 and 0.738, barely contains the null point; and the p-value calculated based on Chernozhukov et al. (2021) implies significance at 10 percent. On the other hand, the estimated effect for Indonesia in this specification is also statistically insignificant. It is difficult to claim that this null finding results from a poor pre-event fit because the gap for Indonesia does not seem to be different than the gaps for countries in the donor pool (Appendix Figure 3).

In sum, the analysis in this section shows that the rise of authoritarian populism increases student outmigration from Hungary, Ukraine, and Venezuela; but the findings for Indonesia are mixed.[30] In two out of three choices of the donor pool, there is a null result

[30] Based on a regression analysis with data pooled across the origin countries of interest and their synthetic units, it can be shown that the rise of authoritarian populism increases student outmigration on average. In particular, with the pooled data, I estimate the parameters of the following difference-in-differences specification $Y_{jst} = \beta_0 + \beta_1 Event_{jst} + \delta_j + \delta_t + e_{jst}$ where Y_{jst} is the (normalized) number of students originating from country j of type s (either actual country or its synthetic unit) at time t, the variable $Event_{jst}$ takes the value of 1 for the actual observations of each origin country after the rise of authoritarian populism in that country, δ_j denotes country fixed effects, and δ_t denotes year fixed effects. Panel A in Appendix Table 4 presents the estimates of β_1. The estimates show that populism increases student outmigration on average across countries in a statistically significant way. Panel B in Appendix Table 4 presents the country-specific effects of populism in the same framework by interacting the variable $Event_{jst}$ with the country dummies. Consistent with the SCM estimates, populism increases student outmigration from Hungary, Ukraine, and Venezuela, while there is no effect for Indonesia.

for Indonesia; and the sign of the estimated effect in one of these cases is even negative. The analysis about changes in higher education opportunities in origin countries and the heterogeneity of the effect by time (as presented in Section 5.3) provides some insights about this null result for Indonesia. Moreover, unlike the other origin countries of interest, Indonesia has a long history of being governed under a highly authoritarian regime (in particular, the Sukarno regime between 1967 and 1998). In such a context, the deterioration of civil liberties in the era of populism might not be considered as a major shift by Indonesian citizens, which might explain no change in migration patterns.

5.2. Robustness

This section presents the results of several robustness checks. Abadie (2021) notes that results of SCM applications might be sensitive to the choice of the donor pool or predictor variables. While robustness of the results of this study to using different donor pools is presented in the previous section (Table 4), their sensitivity to using different sets of the predictors is explored in this section. To do so, I exclude predictors from the benchmark analysis one at a time. Appendix Table 5 provides the estimated effects from these specifications where the donor pool consists of the origin countries of all freedom categories with stable levels of the CL index (i.e., the specification in column (1) of Table 4). Most estimates from this robustness check show that the deterioration of civil liberties due to the rise in populism increases the outmigration of citizens from the analyzed countries as international students.[31] This robustness exercise displays that the findings are not sensitive to using a particular predictor.

As another robustness check, I shifted the event year to a date that is three years earlier than the actual event year for each origin country of interest. This exercise is labelled as “backdating” in Abadie (2021), and it serves to check whether any anticipation effects exist. Two important features of the results of this exercise are noteworthy (Appendix Figure 4). First, the synthetic units closely track the evolution of student outmigration from the treated countries of interest in the period between the backdated event year and the actual event year. This finding suggests no anticipation effect in this context. Second, the student migration patterns of the treated countries diverged from those of their synthetic units after the actual event date, which bolsters the credibility of the estimates.

Lastly, I analyze how student outmigration is affected in the countries where civil liberties deteriorated in a way that is difficult to explain with an election victory of a populist leader. In particular, I analyze eight origin countries where the value of the CL index increased around the middle of the sample period and stayed so until its end.[32] As displayed in Appendix Table 6, there is no statistical significant effect on student outmigration for these analyzed countries, with the exception of Honduras and Turkey.[33] This analysis suggests that the estimated effects for Hungary, Ukraine and Venezuela stem from the rise of authoritarian populism as an event affecting different parameters of the migration decision (rather than only from the effect of deteriorating civil liberties).

5.3. Potential reasons

Estimates presented in the previous section show that the rise in political populism in origin countries increases the number of their citizens pursuing higher education abroad. Rosenzweig (2006), in his pioneering work, conceptualizes the mobility of international students by means of two motives: the lack of high-quality education options in origin countries and the intention to stay in destination countries after graduation. Relying on the same framework, there can be two reasons behind the estimated increase in student

[31] The estimated effect is not statistically significant in some specifications. However, it is important to note that the pre-event fit of these specifications is not well as reflected by their high MSPE statistics for the pre-event period. The results for Indonesia seem to be more sensitive to the choice of predictors as the estimated effect becomes negative when the share of top destination countries is not used in the analysis; while the estimated effects remain positive for the other origin countries.

[32] Namely, I estimate the effect of deteriorating civil liberties on student outmigration from Azerbaijan (the CL index increased from 5 to 6 in 2013), Bahrain (the CL index increased from 5 to 6 in 2011), Dominican Republic (the CL index increased from 2 to 3 in 2013), Honduras (the CL index increased from 3 to 4 in 2009), Latvia (the CL index increased from 1 to 2 in 2010), Tajikistan (the CL index increased from 5 to 6 in 2012), Turkey (the CL index increased from 3 to 4 in 2012), and Yemen (the CL index increased from 5 to 6 in 2011). As displayed in the same table, I also analyze the effect of temporary deterioration in civil liberties in Nicaragua (the CL index increased from 3 to 4 between 2009 and 2012) and the effect of abolishing terms limits for presidency in 2008 in Ecuador. These two cases can be considered as examples of populist regimes where the deterioration in civil liberties was less obvious. The estimates show a statistically significant increase on student outmigration from Ecuador after 2008 (the year of the referendum that abolished the term limit and allowed Rafael Correa to be re-elected as the president with a wide margin of victory).

[33] The SCM estimates show that student migration from Honduras increased after the increase in its CL index in 2009. The reason for this deterioration was indeed related to a political crisis associated with actions of Manuel Zelaya, who can be characterized as a populist leader as well. In 2009, Zelaya planned to have a referendum about changing the constitution to be re-elected as president without being subject to the current term limitations. However, his plans backfired, and he was ousted from the office by a military coup. The SCM estimates suggest that the deterioration of civil liberties in this process increased the tendency of Hondurans to pursue education in foreign countries. On the other hand, some specifications show that student migration from Turkey decreased after the deterioration of civil liberties in 2012. Although this negative effect seems counter-intuitive, it is important to highlight that Turkey used to be one of the top origin countries among graduate students in OECD countries. Demirci (2022) shows that both the increasing capacity of graduate programs in Turkish universities in recent years and the increasing global competition for placement into prestigious international doctoral programs cause a drop in the number of Turkish citizens pursing doctoral education abroad. The estimated decrease for Turkey in Appendix Table 6 can be attributed to these specific factors.

outmigration from the countries with rising populism in this study: 1) increasing demand to obtain high-quality education abroad because of worsening higher education options provided in origin countries, and 2) growing intention to migrate in long-term and seeing education abroad as a pathway to the labor market of the destination country.

To explore the validity of the first reason, I employ the total number of publications by researchers who reside in origin countries as a measure of conditions of their higher education system and analyze the effect of rising populism on this outcome via the SCM. Estimates show that none of the origin countries of interest, except Venezuela for some specifications, experienced a statistically significant drop in its scientific production after the rise in political populism compared to its synthetic control unit (Appendix Table 7 and Appendix Figure 5). It is important to highlight that the characteristics of populism observed in Venezuela differ than those observed in other origin countries of interest. In particular, Venezuela has experienced "left-wing populism" emphasizing redistribution policies, whereas the analyzed examples of populism in other countries can be classified as "right-wing populism" focusing on cultural issues. Due to this distinction, the quality of universities is likely to be negatively affected in Venezuela as redistributive populist policies might target to increase the enrollment capacity of universities at the expense of scientific publishing in international journals. Our results are consistent with that conjecture. In order to hold this hypothesis to closer scrutiny, I also analyze the effect of the rise in populism on the scientific production of the best universities in the origin countries of interest.[34] Results of our analysis display a similar pattern such that the total number of publications in top universities deteriorated only in Venezuela after the rise of populism compared to its synthetic control (Appendix Figure 6). While the scientific production in all and top universities of Hungary and Ukraine followed a similar pattern to those of their synthetic controls, the scientific production in all and top universities of Indonesia even increased compared to their synthetic control. Indeed, this improvement in higher education system of Indonesia might explain the finding of null effect of populism on student outmigration (in some specifications). With access to more education options at home, Indonesian youth might become less likely to study abroad, which balances potentially opposite effects of rising authoritarian populism on student migration.

Next, I analyze student migration to destination countries where the best universities of the world are located.[35] As shown in Panel A of Table 5, student migration from the origin countries of interest to the destination countries with high-quality education options did not differ statistically after the rise of political populism (except Venezuela). This null result along with the lack of evidence for the worsening of higher education options in the origin countries (except Venezuela) suggest that the reason for increasing student outmigration is not the pursuit of high-quality education abroad. Instead, the estimates show that student migration to the destination countries that do not have high-quality education options increased after the rise of populism.

These findings suggest that the pursuit of long-term migration after graduation might be the main reason behind the estimated increase in the number of international students.[36] Indeed, anecdotal evidence shows that young citizens started expressing their intention to live abroad after re-election of populist leaders in the countries of interest (Than, 2018). Mass demonstrations took place in the first term of populist leaders in many countries, but these protests could not succeed in eroding public support for the authoritarian leaders in the elections that followed. In such circumstances, a larger number of young people might have started considering migration as a solution to escape from undesirable conditions resulting from the rising populism in their origin country. Consistent with this conjecture, estimates show that the population of international students abroad became noticeably larger three years after the deterioration of civil liberties compared to the initial three years (Panel B in Table 5). Moreover, estimates show that the population of international students increased also in destination countries that had not been popular locations previously (Panel C in Table 5). These findings suggest that a greater number of young people lost their hope in the future of their country after the rise of populism and started to explore new destinations gradually over time.

Lastly, prior studies in the literature point out adverse consequences of populism for economic performance of the countries governed by populist leaders, particularly in the long term (e.g., Funke et al., 2020, Grier and Maynard, 2016, Absher et al., 2020). Young citizens might prefer to live abroad to escape from worsening economic opportunities in their origin countries in addition to the desire to enjoy personal freedoms abroad. On the other hand, deteriorating economic conditions in the origin country decrease the capacity of students to pay tuition fees abroad. To get a better sense of economic conditions in the origin countries, I analyze the effects of the rise in populism on the youth unemployment rate and GDP per capita with the SCM setup of this study. The estimates show that none of these outcomes in the origin countries of interest differed statistically than those in their synthetic control unit on average in the post-event period. However, exploring heterogeneities in the estimated effects over time shows that the economic outcomes in Ukraine and Venezuela worsened once a certain time had passed after the deterioration of civil liberties (Appendix Table 8). Indeed, Ukrainian and Venezuelan citizens might have anticipated the deterioration in economic opportunity in the near future because a larger number started pursuing higher education abroad even in the initial three years following the rise of political populism as shown

[34] I used the THE world university rankings for the 2010-2019 period to construct the list of the best universities in origin countries. The THE used to rank top 200 universities of the world together with the QS until 2010. Since no university from the origin countries of interest was included in the rankings for the pre-2010 period, I do not use this information.

[35] Destination countries where at least five institutions on average annually entered the list of the top-200 universities in the world according to the QS rankings during the 2004-2016 period are considered the destinations with high-quality education options. These countries include Australia, Canada, France, Germany, Japan, the Netherlands, Switzerland, the United Kingdom, and the United States.

[36] To directly test this claim, knowing the location choices of international students in their post-graduation period would be helpful, but the relevant information does not exist in the OECD data. The post-graduation location choices are known only in a few contexts. For instance, Finn (2014) and Kahn and MacGarvie (2019) explore stay rates of doctoral students in the United States based on survey data. Employing administrative data, Demirci (2019) analyzes stay rates for students of all levels in the United States.

Table 5
Heterogeneity in Effects by Destination Characteristics and Over Time.

	Hungary	Ukraine	Venezuela	Indonesia
Panel A: Quality of Education in Destination				
Higher Quality	0.012	0.095	0.445	0.060
	(0.691)	*(0.218)*	*(0.091)*	*(0.691)*
Other countries	0.572	2.251	−0.856	1.041
	(0.018)	*(0.018)*	*(0.400)*	*(0.091)*
Panel B: Time after Event				
The initial three years	0.146	0.222	0.268	0.202
	(0.055)	*(0.018)*	*(0.073)*	*(0.073)*
After three years	0.388	1.324	0.519	x
	(0.018)	*(0.018)*	*(0.127)*	
Panel C: Popularity of Destination				
Top-3 countries	0.092	1.089	0.274	−0.121
	(0.164)	*(0.036)*	*(0.236)*	*(0.455)*
Other countries	0.440	0.355	0.215	0.564
	(0.091)	*(0.018)*	*(0.327)*	*(0.036)*

Notes: Each SCM estimate shows the annual effect of the rise of authoritarian populism on the population of international students originating from the country of interest as the ratio of the pre-treatment average of the population of international students from that country. Numbers that are in parentheses and below the coefficients show the associated p-values calculated based on the method in Abadie et al. (2010). The donor set consists of stable countries of all freedom levels. Destination countries with high-quality education options include Australia, Canada, France, Germany, Japan, Netherlands, Switzerland, United Kingdom and United States. The top-3 destination countries in the pre-treatment period are Austria, Germany, and United Kingdom for Hungary; the United States, France, and Germany for Venezuela; Germany, Poland, and the United States for Ukraine; Australia, the United States, and Japan for Indonesia.

in the empirical analysis.[37] The estimated effect in the initial years after the rise in populism in Ukraine and Venezuela can be also interpreted as evidence for the escape of youth from increasing authoritarianism. Similarly, finding increases in outmigration of youth as international students in Hungary despite the stability of its economic conditions suggests that deterioration in personal freedoms is one of the reasons for the outmigration of youth.

5.4. Discussion

This section provides a discussion of several related issues, including the role of destination-specific institutional factors, student migration by the level of studies, and emigration of low-skilled people.

5.4.1. Destination countries

Institutional factors in destination countries determine limitations and opportunities experienced by foreign students. These factors therefore affect the estimated magnitude of the impact of authoritarian populism on student migration. Moreover, any changes in these factors around the event of interest might be confounding the estimated effect of populism. In this subsection, I briefly discuss relevant factors in the major destination countries and explain how the estimation strategy adopted in this study accounts for the potentially confounding role of these factors.

European countries seem to offer the least costly destination options for foreign education, particularly for Hungarian and Ukrainian citizens for various reasons, including their geographical closeness. Indeed, as displayed in Table 3, four of five top destinations for Hungarian and Ukrainian students were European countries in our sample period. While Germany (24.1% of all Hungarian students) and Austria (22.7%) were the top two destinations for Hungary, studying in Poland and Czechia became popular among Ukrainian students especially in the post-event period (the share of them increased from 17.1% to 44.5% in Poland and from 4.9% to 6.5% in Czechia). Higher education system in most European countries mainly consists of public institutions charging no or low tuition fees (Kahanec and Kralikova, 2011). Because of its European Union (EU) membership, Hungarian students are eligible to study in universities in other EU countries under the same conditions as nationals of those countries. For instance, in Germany as one of the major providers of higher education in Europe, there is no tuition. Although some German states introduced tuition fees in the 2000s, these policies were abolished by 2014 (WENR, 2021). A few EU countries, including Germany, even apply the same tuition rates to international students who come from non-EU countries. In some European countries, such as Poland and Czechia, the average

[37] The estimates in Table 5 show that student migration from Ukraine and Venezuela increased statistically compared to those from their synthetic control units even in the initial three years following the rise of populism in these countries. Despite the lack of statistical evidence for the deterioration of economic conditions in this period, some students might anticipate the worsening of economic opportunities in the near future and they might start pursuing higher education abroad with the purpose of migration in the long-term. Indeed, it is well known that the populism in Venezuela eventually resulted in an economic catastrophe and triggered very large flows of outmigration. For instance, Hausmann et al. (2018) predict that up to 2.9 million Venezuelans left the country in 2017. It is important to highlight that this economic collapse observed in Venezuela particularly after 2016 probably restricted the feasibility of foreign education to a great extent because of emerging affordability issues. Thus, it is likely to observe a smaller effect on student outmigration from Venezuela if the same SCM analysis is conducted with the post-2016 data.

tuition charged to non-EU students is considerably low and seems affordable by many foreign students (Sandström and Neghina, 2017).

Given the availability of affordable options, one of the most important barriers for international students in European countries is the language. For instance, in Germany, most undergraduate programs are taught in German and students must show their language proficiency to enroll. However, Hungarian and Ukrainian students hold some language advantages in certain destinations. In particular, since German is one of the most commonly known foreign languages in Hungary, this language barrier is less binding for Hungarian students in German-speaking countries, such as Germany and Austria.[38] Likewise, the similarity between the Polish and Ukrainian languages makes universities in Poland attractive choices for Ukrainian students (Wdowisnka, 2018). Also, the number of higher education programs taught in English has been increasing considerably over time in Europe, while the Netherlands, Denmark, and Sweden appeared to be the top providers of such programs (Wächter and Maiworm, 2014). In sum, because of their easier access to programs in the aforementioned destinations (due to lower tuition and language barriers), studying abroad might be a feasible way to respond to authoritarian populism among Hungarian and Ukrainian citizens, and the empirical findings shown in the earlier parts of this study are consistent with this conjecture.

On the other hand, Indonesian and Venezuelan citizens seem to have more restricted access to foreign education compared to students from Hungary and Ukraine. While Venezuela is geographically close only to the United States among major hubs for international students, Indonesia is close to Australia. Indeed, these two destinations were respectively the most popular choices among Venezuelans and Indonesians (Table 3). Unlike most European countries, private institutions play a larger role in higher education system of the United States and Australia (as well as in those of Canada and the United Kingdom), and the average tuition fees charged to foreign students in these destinations were relatively higher (Kahanec and Kralikova, 2011). Thus, high tuition is an important barrier for student migration to these countries. This constraint is expected to be even more binding for Indonesian students, as the average income in Indonesia is much lower compared to other origin countries (as displayed in Table 2). Indeed, this might be one of the reasons for finding smaller and even null results (in two out of three specifications) for Indonesia in the SCM estimates. On the other hand, both in the United States and Australia, transition paths to the labor market after graduation are well defined with post-graduation visa programs. For instance, the Optional Practical Training (OPT) program allows to extend the duration of student visas for a certain period after graduation in which students can work at US firms without being subject to any visa cap (Demirci, 2019). This makes studying in US universities an attractive option particularly for students with migration intention.

As mentioned at the beginning of this subsection, any changes in these institutional factors around the time of the rise of authoritarian populism in the origin countries might confound the SCM estimates. For instance, changes in the post-graduation work permits (such as the extension of the OPT term for science and engineering students in the United States in 2008), changes in tuition policies (such as the introduction and abolishment of tuition fees in some German regions), and increasing availability of English-taught programs in some destination countries over time are possible confounding factors for this study. Since the magnitude of the estimates is determined by the difference in student outmigration with respect to the synthetic units, the SCM indeed allows to control for the role of destination-specific factors as long as these factors similarly affect the origin of interest and the countries constituting its synthetic unit. To achieve this in practice, the shares of top destinations for each origin country are used among the predictors in determining the synthetic units. As a result, countries constructing the synthetic units in this study and the origin country of interest have a similar destination composition.

To give a sense of destination-specific changes in international student mobility, I analyze the trend in student migration from each origin of interest to major destination countries, the one from the corresponding synthetic units to the same destinations, and the one from all countries in the donor pool (i.e., a synthetic unit that weighs each country in the donor pool equally). Appendix Figure 9 displays the student outmigration to top two destinations of each origin, while Appendix Figure 10 displays the same for the two non-top destinations that experienced the largest growth in the post-event period. Apparently, in most of these cases, the synthetic units closely capture the pre-event trends for the origin countries of interest even if the trend is different than the one observed for all countries (for instance, the case of student migration to Denmark for Hungary in Appendix Figure 10). This evidence shows the success of the SCM application in accounting for destination-specific factors, which bolsters the credibility of the estimated effect of authoritarian populism in this study.

I acknowledge that the SCM fails to control for the role of any origin-specific changes realized in institutional factors of a particular destination country around the event time. To the best of my knowledge, there is no such an institutional change to be worried about for the origin countries of interest in this study. Nonetheless, I conduct the same analysis by dropping the three destination countries that experienced the largest increases in the post-event period one at a time (Appendix Table 9). The estimated positive effect of populism on student outmigration remains in each specification, with the exception of excluding migration to the United States in the case of Venezuela. This finding shows that the results are not driven by a specific destination country (except Venezuela). Since there was no change in institutional determinants of student migration to the United States that was specific to Venezuela around the year 2010, I attribute the estimated SCM effect for Venezuela to the rise of authoritarian populism.

5.4.2. Student migration by the level of study

Institutional factors affecting student migration also differ by the level of study even for the same destination country. In general, undergraduate programs charge full tuition fees with very limited scholarship opportunities, and the number of English-taught

[38] According to the Hungarian Census (2011) data, 16.1% of Hungarian population know English as the most popular foreign language, and 11.2% of them know German as the second most popular foreign language.

programs is also more limited at this level. However, compared to advanced level programs, the admission criteria are more lenient at the bachelor's level. On the other hand, admission to doctoral programs is quite competitive and the number of enrollment slots for doctorate students is also smaller. However, doctoral programs usually provide education in English and offer scholarships to foreign students. In terms of these dimensions, master's programs are somewhere between the bachelor's and doctoral programs as they offer some scholarships and might be selective in admissions (compared to the bachelor's level), and the increasing number of them provide education in English. The most distinct feature of master's programs is their shortness (usually 1 to 2 years). Indeed, this feature makes attending master's programs a less costly transition opportunity to the labor market of the destination country, and a sizeable number of international students at the master's level started to benefit from this opportunity in recent years (Demirci, 2020).

The data on international students by the level of study is available only for the post-2012 period in the OECD. To get a sense of how the estimated effect of authoritarian populism on student migration differs by the level of study, I analyze these data for the origin countries of interest (Appendix Figure 11). Since the United States and Germany report the statistics in a less detailed way, student migration to OECD countries and the one to the United States and Germany are given separately. The figures on the left display the student migration to OECD countries (except these two destinations) separately for the bachelor's, master's, and doctoral levels, while the figures on the right display student migration to the United States and Germany for the undergraduate and graduate levels. Doctoral students constitute the smallest share of international students for each origin of interest, but their share considerably differs across the origins. For instance, as of 2013, 7.4% of students from Hungary were doctoral students in the OECD countries (excluding the United States and Germany), while 4.2% of Ukrainians, 3.8% of Venezuelans, and 11.1% of Indonesians were so. On the other hand, bachelor's students constitute the largest share for Indonesia and Venezuela, and the shares of bachelor's and master's students were similar for Hungary and Ukraine. For instance, in 2013, 50.3% of Hungarian students in the OECD countries were at bachelor's level, while 51.4% of Ukrainians, 68.0% of Venezuelans, and 59.3% of Indonesians were at this level.

From 2013 to 2016, the largest increases in the number of foreign students were observed at the bachelor's level for each origin country of interest. In particular, during this period, the number of Hungarian bachelor's students studying in the OECD countries increased by 50.3% (by 27.6% in the United States and Germany), while the corresponding figures for Ukraine, Venezuela, and Indonesia are 123.0%, 39.4%, and 16.8% respectively (16.5%, 44.3%, and 20.8% respectively for the destinations of the United States and Germany). On the other hand, the number of students at the graduate level increased particularly in master's-level programs in the OECD countries among Ukraine (by 65.5%) and Indonesia (24.7%), while the number of graduate students from the other origin countries were relatively stable. In essence, the analysis in this section suggests that the rise of authoritarian populism increased student outmigration mainly at the bachelor's and master's levels. Given that these programs are less selective and shorter in duration compared to doctoral programs, apparently, the youth in the origin countries prefer these less costly options as the means of outmigration.

5.4.3. Emigration by skill levels

Although this study focuses on the outmigration of high-skilled citizens as international students in response to the rise in authoritarian populism, populism is likely to trigger outmigration of low-skilled citizens as well. Whether high-skilled or low-skilled individuals migrate more depends on differences across these groups in preferences for personal freedoms, in economic gains from migration, and in access to migration options. The progression of outmigration from Venezuela over the last decade provides some insights about these issues.

It is well-known that the economic collapse that Venezuela experienced towards the end of the analyzed sample period in this study resulted in a large humanitarian crisis with shortages in food and medicine, and many Venezuelans left the county in that period. As of 2020, 5.2 million Venezuelans were living abroad, with Colombia being the major host country. The evidence from Colombia shows that the majority of Venezuelan migrants holds at least a secondary degree, and they are more educated than local people (Bahar et al., 2018). Indeed, Penalver and Paez (2017) highlight the skill-biased feature of emigration from Venezuela especially before the period where the scarcity in food and medicine reached at critical levels. For instance, they report that 94% of Venezuelans who emigrated before 2014 had college degrees. Similarly, several journalists report the outmigration of medical staff, information and technology specialists, executive level managers, and gas and oil engineers from Venezuela in the early 2010s (Cobb and Rowlins, 2014; Gupta 2015). Apparently, in Venezuela, professionals, especially those who could more easily migrate because of the transferability of their credentials to foreign countries, emigrated first in response to the rise of authoritarian populism. After the economic collapse, Venezuelans of all skill levels started to emigrate at large numbers. At this stage, the outmigration from Venezuela took a form of a massive loss in human capital of all types rather than only brain drain of professionals.

6. Conclusion

Populist leaders came to power in several countries as a result of elections over the last two decades, and their authoritarian policies resulted in the deterioration of civil liberties. This study shows that the rise of authoritarian populism as evidenced by the deterioration of civil liberties increases the population of people who pursue higher education abroad among citizens of the countries governed by populist leaders. The finding that student outmigration has increased despite the lack of evidence for worsening higher education options in the origin countries suggests that more students start pursuing higher education abroad with the purpose of long-term migration. The intention to escape from the lack of freedoms and from the deterioration of the economic outlook in their origin countries appears to explain this behavior.

Populism might generate several adverse implications. One of the direct consequences of the election of a populist leader in a country is the weakening of its democratic institutions, which is likely to result in the deterioration of its long-term economic

performance given the well-documented association between the quality of institutions and the growth rate of countries. In this study, finding evidence for outmigration of youth as international students in response to the rise of authoritarian populism suggests that populism might cause a decline in long-term economic outcomes partially by triggering outmigration of skilled citizens. Particularly if these citizens do not return to their origin countries after their graduation and do not participate the political process of these countries, the quality of democratic institutions in these countries is likely to erode further. Backsliding in legal and economic institutions and the lack of human capital are likely to cause further deterioration of the economic performance of these countries in the long run.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jce.2023.01.003.

References

Abadie, A., 2021. Using synthetic controls: feasibility, data requirements, and methodological aspects. J. Econ. Lit. 59 (2), 391–425.
Abadie, A., Diamond, A., Hainmueller, J., 2010. Synthetic control methods for comparative case studies: estimating the effect of California's tobacco control program. J. Am. Stat. Assoc. 105 (490), 493–505.
Abadie, A., Diamond, A., Hainmueller, J., 2015. Comparative politics and the synthetic control method. Am. J. Pol. Sci. 59 (2), 495–510.
Abadie, A., Gardeazabal, J., 2003. The economic costs of conflict: a case study of the Basque Country. Am. Econ. Rev. 93 (1), 113–132.
Abbott, A., Silles, M., 2016. Determinants of international student migration. The World Econ. 39 (5), 621–635.
Absher, S., Grier, K., Grier, R., 2020. The economic consequences of durable left-populist regimes in Latin America. J. Econ. Behav. Organ. 177, 787–817.
Acemoglu, D., Johnson, S., Kermani, A., Kwak, J., Mitton, T., 2016. The value of connections in turbulent times: evidence from the United States. J. Financ. Econ. 121 (2), 368–391.
Acemoglu, D., Johnson, S., Robinson, J.A., 2001. The colonial origins of comparative development: an empirical investigation. Am. Econ. Rev. 91 (5), 1369–1401.
Amuedo-Dorantes, C., Furtado, D., Xu, H., 2019. OPT policy changes and foreign born STEM talent in the US. Labour Econ. 61, 101752.
Amuedo-Dorantes, C., Romiti, A., 2021. International student applications in the United Kingdom after Brexit. IZA Working Paper No. 14427.
Aracı, D.T., Demirci, M., Kırdar, M.G., 2022. Development level of hosting areas and the impact of refugees on natives' labor market outcomes in Turkey. Eur. Econ. Rev. 145, 104132.
Arenas, A., 2021. Human capital portability and international student migration. J. Econ. Geography 21 (2), 195–229.
Ashby, N.J., 2010. Freedom and international migration. South Econ. J. 77 (1), 49–62.
Bahar, D., Dooely, M., Huang, C., 2018. Integrating Venezuelans into the Colombian labor market. Global economy and development at brookings. Policy Brief.
Beine, M., Delogu, M., Ragot, L., 2020. The role of fees in foreign education: evidence from Italy. J. Econ. Geography 20 (2), 571–600.
Beine, M., Noël, R., Ragot, L., 2014. Determinants of the international mobility of students. Econ. Educ. Rev. 41, 40–54.
Bessey, D., 2012. International student migration to Germany. Empir. Econ. 42 (1), 345–361.
Bird, K., Turner, S., 2014. College in the States: Foreign student Demand and Higher Education Supply in the US. Education Policy Working Paper No. 23. University of Virginia.
Blanchard, E., Bound, J., Turner, S., 2009. Opening (and closing) doors: country specific shocks in US doctorate education. Population Stud. Center Report 09–674.
Borjas, G.J., 2017. The wage impact of the Marielitos: a reappraisal. Ind.Labor Relations Rev. 70 (5), 1077–1110.
Born, B., Müller, G.J., Schularick, M., Sedláček, P., 2019. The costs of economic nationalism: evidence from the Brexit experiment. The Econ. J. 129 (623), 2722–2744.
Bound, J., Braga, B., Khanna, G., Turner, S., 2020. A passage to America: university funding and international students. Am. Econ. J. Econ. Policy 12 (1), 97–126.
Bound, J., Braga, B., Khanna, G., Turner, S., 2021. The globalization of postsecondary education: the role of international students in the US higher education system. J. Econ. Perspectives 35 (1), 163–184.
Bound, J., Demirci, M., Khanna, G., Turner, S., 2015. Finishing degrees and finding jobs: US higher education and the flow of foreign IT workers. Innovation Policy and the Econ. 15 (1), 27–72.
Bound, J., Turner, S., 2007. Cohort crowding: how resources affect collegiate attainment. J. Public Econ. 91 (5–6), 877–899.
Bursztyn, L., Egorov, G., Fiorin, S., 2020. From extreme to mainstream: the erosion of social norms. Am. Econ. Rev. 110 (11), 3522–3548.
Caruso, R., De Wit, H., 2015. Determinants of mobility of students in Europe: empirical evidence for the period 1998-2009. J. Stud. Int. Educ. 19 (3), 265–282.
Chellaraj, G., 2019. The economics of international student and scholar mobility: directions for research. World Bank Policy Res. Working Paper No. 8848.
Chernozhukov, V., Wüthrich, K., Zhu, Y., 2021. An exact and robust conformal inference method for counterfactual and synthetic controls. J. Am. Stat. Assoc. 116 (536), 1849–1864.
Cobb, J.S., Rawlins, C.G., 2014. Economic crisis, political strife drive Venezuela brain-drain. Available at https://www.reuters.com/article/us-venezuela-migration-idUSKCN0I41C820141015.
Demirci, M., 2019. Transition of international science, technology, engineering, and mathematics students to the US labor market: the role of visa policy. Econ. Inq. 57 (3), 1367–1391.
Demirci, M., 2020. International students and labour market outcomes of US-born workers. Canadian J. Econ./Revue canadienne d'économique 53 (4), 1495–1522.
Demirci, M., 2022. Reasons for the decline in the population of Turkish Republic citizens pursuing doctoral education abroad. METU Stud. Dev. 49 (2), 257–291.
Edwards, S., 2019. On Latin American populism, and its echoes around the world. J. Econ. Perspectives 33 (4), 76–99.
Falkingham, J., Giulietti, C., Wahba, J., Wang, C., 2021. The impact of Brexit on international students' return intentions. The Manchester School 89 (2), 139–171.
Ferman, B., Pinto, C., 2021. Synthetic controls with imperfect pretreatment fit. Quant. Econ. 12 (4), 1197–1221.
Finn, M.G., 2014. Stay Rates of Foreign Doctorate Recipients from US universities, 2011. Oak Ridge Institute for Science and Education, Oak Ridge, TN.
Firpo, S., Possebom, V., 2018. Synthetic control method: inference, sensitivity analysis and confidence sets. J. Causal Inference 6 (2).
Funke, M., Schularick, M., Trebesch, C., 2020. Populist leaders and the economy. ECONtribute Discussion Paper No. 036.
Grier, K., Maynard, N., 2016. The economic consequences of Hugo Chavez: a synthetic control analysis. J. Econ. Behav. Organ. 125, 1–21.
Gupta, G., 2015. A clear sign that Venezuela's economy is decaying. Available at https://www.businessinsider.com/headhunters-are-taking-advantage-of-venezuelas-decaying-economy-2015-8.
Guriev, S., Papaioannou, E., 2022. The political economy of populism. J. Econ. Lit. 60 (3), 753–832.

Hausmann, R., Hinz, J., Yildirim, M.A., 2018. Measuring Venezuelan emigration with Twitter. Kiel Working Paper No 2106.
Hawkins, K.A., Aguilar, R., Silva, B.C., Jenne, E.K., Kocijan, B., Kaltwasser, C.R., 2019. Measuring populist discourse: the global populism database. Paper presented at the 2019 EPSA Annual Conference in Belfast, UK, June 20-22.
Hungarian Census, 2011. The population by language knowledge and gender. Available at https://www.ksh.hu/nepszamlalas/tablak_teruleti_00.
Kahanec, M., Králiková, R., 2011. Pulls of international student mobility. IZA Working Paper No. 6233.
Kahn, S., MacGarvie, M., 2019. The impact of permanent residency delays for stem PhDs: who leaves and why. Res. Policy 49 (9), 103879.
Karemera, D., Oguledo, V.I., Davis, B., 2000. A gravity model analysis of international migration to North America. Appl. Econ. 32 (13), 1745–1755.
Kaushal, N., Lanati, M., 2019. International student mobility: growth and dispersion. NBER Working Paper No 25921.
Mäkelä, E., 2017. The effect of mass influx on labor markets: portuguese 1974 evidence revisited. Eur. Econ. Rev. 98, 240–263.
Mietzner, M., 2020. Rival populisms and the democratic crisis in Indonesia: chauvinists, Islamists and technocrats. Australian J. Int. Affairs 74 (4), 420–438.
Mudde, C., 2004. The populist zeitgeist. Government and Opposition 39 (4), 541–563.
Mudde, C., Kaltwasser, C.R., 2017. Populism: A Very Short Introduction. Oxford University Press.
Müller, K., Schwarz, C., 2020. From hashtag to hate crime: twitter and anti-minority sentiment. Available at SSRN 3149103.
Nowrasteh, A., Forrester, A.C., Blondin, C., 2020. How mass immigration affects countries with weak economic institutions: a natural experiment in Jordan. World Bank Econ. Rev. 34 (2), 533–549.
Oosterbeek, H., Webbink, D., 2011. Does studying abroad induce a brain drain? Economica 78 (310), 347–366.
Organisation for Economic Co-operation and Development (OECD), 2018. Education At a Glance: OECD Indicators. OECD, Paris.
Paez, T., Vivas, L., 2017. The Venezuelan diaspora: another impending crisis. Freedom House Report.
Parey, M., Waldinger, F., 2011. Studying abroad and the effect on international labour market mobility: evidence from the introduction of ERASMUS. The Econ. J. 121 (551), 194–222.
Peri, G., Yasenov, V., 2019. The labor market effects of a refugee wave: applying the synthetic control method to the Mariel boatlift. J. Human Resour. 54(2): 267–309.
Powell, B., Clark, J.R., Nowrasteh, A., 2017. Does mass immigration destroy institutions? 1990s Israel as a natural experiment. J. Econ. Behav. Organ. 141, 83–95.
Repucci, S., 2020. Freedom in the world 2020: a leaderless struggle for democracy. Available at from https://freedomhouse.org/report/freedom-world/2020/leaderless-struggle-democracy.
Rodrik, D., 2018a. Is populism necessarily bad economics? AEA Papers and Proceedings 108, 196–199.
Rodrik, D., 2018b. Populism and the economics of globalization. J. Int. Bus. Policy 1 (1), 12–33.
Rodrik, D., Subramanian, A., Trebbi, F., 2004. Institutions rule: the primacy of institutions over geography and integration in economic development. J. Econ. Growth 9 (2), 131–165.
Rosenzweig, M., 2006. Global wage differences and international student flows. Brookings Trade Forum, 57–96.
Sandström, A., Neghina, C. 2017. English-taught bachelor's programmes. Available at https://studyportals.com/.
Shih, K., 2016. Labor market openness, H-1B visa policy, and the scale of international student enrollment in the United States. Econ. Inq. 54 (1), 121–138.
Than, K., 2018. Young Hungarians weigh migration option as election nears. Available at https://www.reuters.com/article/us-hungary-election-youth/young-hungarians-weigh-migration-option-as-election-nears-idUSKCN1HB1JL.
The Economist, 2020 (January 22). Global democracy has another bad year. Available at https://www.economist.com/graphic-detail/2020/01/22/global-democracy-has-another-bad-year.
Thomas, K.J., Inkpen, C., 2017. Foreign student emigration to the United States: pathways of entry, demographic antecedents, and origin-country contexts. Int. Migration Rev. 51 (3), 789–820.
Van Bouwel, L., Veugelers, R., 2013. The determinants of student mobility in Europe: the quality dimension. Eur. J. Higher Educ. 3 (2), 172–190.
Vogler, M., Rotte, R., 2000. The effects of development on migration: theoretical issues and new empirical evidence. J. Popul. Econ. 13 (3), 485–508.
Wächter, B., Maiworm, F., 2014. English-taught programmes in European higher education: the state of play in 2014. ACA Papers on Int. Cooperation in Educ.
Wdowinska, A., 2018. Record Numbers of Ukrainian undergraduates Currently Studying At Polish universities. Perspektywy Education Foundation.
Wei, H., 2013. An empirical study on the determinants of international student mobility: a global perspective. Higher education 66 (1), 105–122.
World Education News + Reviews (WENR), 2021. Education in Germany. Available at https://wenr.wes.org/2021/01/education-in-germany-2/print/.