Effect of Sending Country Regime Type on Healthcare Worker Migration

Tsuda, Emma

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Emma Tsuda

S3117944

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Contents

1.1 Introduction

Since 2000, the number of people living outside their country of birth increased from 175 million to 272 million, 3.5% of the world's population (Dodani & LaPorte, 2005; Edmond, 2020). Such movement can go hand in hand with sudden events of political instability, economic crisis, and conflict (Edmond, 2020). The World Economic Forum highlights the conflicts in countries including Syria, Yemen, the Democratic Republic of the Congo, and South Sudan to be causes of human displacement (2020). Williams & Pradhan (2008) specify political events that can spur out-migration such as changes to government structure or leadership, states of emergency, or protests that disrupt people's daily lives (p.5). Such political instability can decrease one's sense of security and wellbeing, which push people to migrate as a precaution to avoid dangers or in reaction to major destabilizing events (p. 14-15).

Healthcare worker migration is defined as the movement of skilled medical professionals across nations which is vital for addressing current labor shortages in many countries. This issue becomes even more crucial as the World Health Organization (WHO) estimates a global shortage of 4.3 million healthcare professionals which threatens the quality and sustainability of health systems around the world (Aluttis, Bishaw & Frank, 2013, p. 1). Healthcare worker shortages in both developed and developing countries have led to high demands for qualified healthcare professionals. Due to such shortages, many developed countries have engaged in the recruitment of healthcare workers from abroad to supplement the lack of personnel (Vries, Steinmetz & Tijdens, 2016). Such professionals are leaving countries like India and Pakistan in the hundreds of thousands (Dodani & LaPorte, 2005, p. 488). These sending countries shoulder disproportionately more costs from the movement of healthcare workers than receiving countries (Aluttis, Bishaw & Frank, 2014). While those receiving countries benefit from the influx of skilled professionals that fill in the gaps in their workforce, there is a growing concern that increased out-migration of healthcare personnel is undermining the health systems of developing countries by lowering the quality of healthcare and depleting the workforce (Bach, p. 13). Connell et al. (2007) reiterate the declining effectiveness of healthcare delivery due to the loss of social and human capital (p. 1876). Not only do sending countries lose qualified personnel they incur a financial loss in the investment from training and educating those workers as well as from consumption and taxes (Aluttis, Bishaw & Frank, 2014). Going beyond monetary loss, the remaining workers experience reduced morale and commitment along with the specialized knowledge in academia and education (Connell et al.,

2007, p. 1876). This presents a unique dilemma for both developed nations adapting to evolving healthcare demands and developing countries safeguarding workers' migration rights and citizens' access to healthcare in addition it poses challenges for policymakers striving to optimize healthcare service provision (Ray, Lowell & Spencer, 2006, p. 181). The Global Code of Practice on the International Recruitment of Health Personnel was introduced by the WHO in 2010 to ensure the ethical practices of receiving countries and protect the health systems of developing countries.

Understanding the reasoning and causes behind healthcare worker migration is important to tackling the brain drain of developing countries and achieving better healthcare systems globally. However, little attention has been paid to theoretical analyses of healthcare worker migration and how it differs from other types of migration (Beladi et al., 2015, p. 392). The existing literature that utilizes the push-pull factor model to explain migration focuses on the receiving countries as opposed to sending countries and economic factors while overlooking political factors (p. 392). This push-pull factor theory simplifies the complex dynamics of migration by delineating push factors that compel individuals to leave their home country and pull factors that attract them to a chosen destination (Khalid & Urbanski, 2021). While the state of the art predominantly focuses on the factors influencing individuals' choice of destination countries, a notable gap exists in understanding the political push factors originating from sending countries. In the decision-making process, migrants often weigh political considerations, opting to relocate to economically developed and democratic nations. However, there is a discernible scarcity of research examining the political dynamics such as regime types that act as push factors within the sending countries. Recognizing the significance of the political context is imperative for individuals contemplating migration intentions (Hiskey, Montalvo, & Orcés, 2014, p. 90).

Research Question: What is the effect of the regime type of the sending country on the pattern of healthcare worker migration?

Hypothesis: Healthcare workers are more likely to migrate from countries with authoritarian or unstable political regimes (push factors) to democratically stable nations with better healthcare infrastructure (pull factors) due to the combined influence of political oppression (push) and better professional opportunities (pull).

To start, the conceptualization provides definitions for the regime types that this paper will focus on and the healthcare worker migration. Then the literature review features existing theories

that explain patterns of migration and how political factors are often overlooked by the economic-centric perspectives. To test the hypothesis, I conducted a comparative case study between Venezuela and Colombia with a difference-in-differences analysis of the regime-type data from the Varieties of Democracy (V-Dem) Institute and the Polity5 Project with the flow of healthcare worker emigration. The result from the in-depth case study are mixed as some detected trends in Colombia suggest that stable democracy promotes emigration yet the effects are not permanent and the evidence from Venezuela show an inconsistent pattern of autocratization and increased emigration. While the statistical analysis did not confirm any effect, the importance of understanding the causes behind migration push factors remains.

2.1 Conceptualization: Defining Regime Types

Political regimes are defined by Gasiorowski (1990) as "a set of rules, procedures, and understandings which govern relations between the state and society in a particular country" (p. 110). There are many ways to categorize regime types. The Political Regimes Project outlines three main types of political regimes; democratic, totalitarian, and authoritarian. Comparatively, Bjornskov and Rode (2019) categorize regimes into two types; democracies and non-democracies each with three subtypes; parliamentary democracies, mixed democracies, and presidential democracies (p. 534). Out of all these different regime types, the concepts included in this research include democracy and autocracy as the data uses these to create measurable indicators.

2.1.2 Democracy

Democracy has many definitions. Tilly (2000) divides the definitions of democracy into three categories: substantive criteria, constitutional criteria, and political-process criteria (p. 4). The substantive criteria emphasize the human experience and social relations which makes it difficult to conclude if any regime qualifies as a democracy and for whom. Constitutional criteria emphasize the legal procedures such as elections and referenda however, there are discrepancies between rules and actual practices. Tilly's (2000) preferred definition falls within political-process category which emphasize the interactions between politically constituted actors and states "a regime is democratic insofar as it maintains broad citizenship, equal citizenship, binding consultation of citizens at large with respect to governmental activities and personnel, as well as protection of citizens from arbitrary action by governmental agents" (p. 4). Similar to Tilly's emphasis on the political processes, Castoriadis (1997) breaks down democracy as a procedure

and as a regime. Yet he argues that the procedural conception of democracy is simply a window dressing that takes away from the ultimate goal of democracy (p. 1). The procedural view of democracy defines democracy by the set of procedures or mechanisms for making decisions however the challenges of this view include the suitability of existing institutions for the democratic processes and that the people should be able to use such procedures to uphold and defend their decisions (p. 10). Delving into the ancient Greek language to understand the origins of democracy, it is "the regime in which the public sphere becomes truly and effectively public- belongs to everyone, is effectively open to the participation of all" (p. 7). The objective of politics should be to achieve freedom and autonomy for individuals to participate in the formation of laws and institutions (p. 6).

The commonly acknowledged definition of democracy originates from Dahl (2005) which is used by the V-Dem Institute electoral democracy index. Large-scale democracy requires seven conditions; elected officials, free, fair, and frequent elections, freedom of expression, alternative sources of information, associational autonomy, and inclusive citizenship which contains the right to vote and run for office (p. 188-189). Schmitter and Karl (1991) argue that democracy is not a single set of institutions and review the procedures that allow democracy to endure and the principles that make democracy work (p. 76). They define democracy as "a system of governance in which rulers are held accountable for their actions in the public realm by citizens, acting indirectly through the competition and cooperation of their elected representatives" (p. 76). Adding to Dahl's common conditions of modern political democracy, Schmitter and Karl (1991) include "popularly elected officials must be able to exercise their constitutional powers without being subjected to overriding (albeit informal) opposition from unelected officials" and "the polity must be self-governing; it must be able to act independently of constraints imposed by some other overarching political system" (p. 81). Although the Polity Project also measures democracy the definition of institutionalized democracy varies from the V-Dem Institute. There are three essential, interdependent elements; institutions and procedures citizens can engage in to express preferences about policies and leaders, institutionalized constraints on the exercise of power by the executive, and the guarantee of civil liberties for citizens' daily lives and in acts of political participation. These factors indirectly include other aspects of democracy such as the rule of law, checks and balances, and freedom of the press.

2.1.3 Autocracy

Lewin and Lippitt (1938) define authoritarianism with four criteria; all policy making power by the regime leader, techniques and steps of achieving a goal are dictated by the leader, authority organizes the activities of each member, and the dominator is separated from group participation (p. 293-294). Glasius (2018) focuses on authoritarianism as certain practices and patterns of action that deliberately damage the accountability of the regime to its subjects through corruption, disinformation, and secrecy (p. 517). The harm of authoritarian practices accounts for threats to democratic processes (p. 517). Authoritarian practices should be defined as patterns of action that sabotage accountability rather than the simple failure of holding elections (p. 525). Anderson, Brownlee and Clarke (2021) also emphasize how the current literature defines autocracy in negative terms instead of substantively (p. 1). They propose that autocracies should be defined as "politically exclusive rule" which better captures the essence of autocracies rather than simply non-democracies (p.1). Two conditions make a regime autocratic; a single group that monopolizes control of the state and no routinized processes that allow other groups to share the power or replace the ruling group (p. 3). Identifying a substantive definition of autocracy allows for its application to democratization and regime change research (p. 3). Leading scholars consider the presence or absence of free and fair elections as the telltale sign of authoritarianism or democracy (Glasius, 2018, p. 520-521). This focus on elections does not properly measure the fundamental idea that elections should provide citizens with the ability to influence policy by holding the accountability of their leaders (p. 523).

This research paper uses data from the Polity Project which defines institutionalized autocracy in terms of the presence of certain political characteristics. Autocracies restrict competitive political participation and chief executives are chosen in a regularized process of selection within the political elite and once they hold office their power is hardly constrained. Although it is common for autocracies to exercise a high level of control over social and economic activity, this is not a defining factor as social democracies can also engage in such directiveness.

2.2 Conceptualization of Migration

Migration is generally considered the relocation of people from one area to another with a temporary or permanent change of residence which health worker migration tends to be permanent (Khalid & Urbanski, 2021, p. 242, Ray, Lowell & Spencer, 2006, p. 181). Internal migration

indicates people moving within the same country, while external migration entails international relocation from one country to another (Khalid & Urbanski, 2021, p. 242). Diallo (2004) agrees with these two categories with the condition that the migrant continues working in the healthcare industry and adds a third category for those migrants who switch from working in the health sector in the home country to a different sector in the destination country (p. 602). Different types of migration can be categorized by the various drivers and motivations that distinguish voluntary and involuntary movement of which healthcare workers have the choice to move and are not forced (p. 602). Another kind of migration, transnationalism recognizes that one-way assimilation into the home country may not always apply. Migrants can maintain connections in their home country while simultaneously engaging in the community of the host country (Schiller, Basch & Blanc-Szanton, 1992). However, this study does not address this relationship and centers around the one-way migration of individual healthcare workers.

There are also two main groups of migrants; people with higher education and higher-level skills and people with lower education (Khalid & Urbanski, 2021, p. 244). Healthcare workers are considered highly skilled professionals due to their expertise in the medical field and extensive training. There are many different types of health workers. Existing research includes doctors, nurses, midwives, dentists, pharmacists, dieticians, and many more health professionals. In this study, healthcare worker migration includes the movement of doctors and nurses as they make up the majority of healthcare worker emigrants (Walton-Roberts et al., 2017). The 1990 United Nations International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families defines an international migrant worker to be "a person who is to be engaged, is engaged or has been engaged in remunerated activity in a State of which he or she is not a national" (Bach, 2013, p. 2). The migration of health workers is distinct from other types of migration due to its connection to regulatory frameworks of national governments that control the training, recruitment, and deployment of health professionals (p. 3). Most healthcare worker migration takes place from poor, developing countries to developed, democratic countries (Beladi et al., 2015, p. 392).

3.1 Literature Review

Wickramasinghe and Wimalaratana (2016) compile migration theories into three categories; micro-level, meso-level, and macro-level (p.18). The micro-level explanations include

push and pull factors and neoclassical micro-migration theory. The meso-level contains social capital theory, network theory and the new economics of labor migration. The macro-level includes the neoclassical macro-migration theory, dual labor market theory, and world system theory. Massey et al. (1993) propose a different way of categorizing these theories as initiators of migration and perpetuators of migration. Most of these existing theories focus on the economic factors that explain international migration. The underlying assumption of the new economics theory is that owners of labor must move to where it is required. People compare their income with those around them and can either gain a sense of satisfaction or deprivation. Those who feel more deprived are expected to have stronger motives than a person who feels more satisfied with their position (Stark & Bloom, 1985, p. 173). The dual labor market theory argues that international migration is caused by the division of the labor market into two sectors; the capital-intensive primary sector and labor-intensive secondary sector (Massey et al., 1993, p. 442). Of these, the dominant theory is macro-neoclassical theory which argues countries with a large endowment of labor as opposed to capital have low market wages and countries with little labor compared to capital have high market wages which results in workers from low-wage countries moving to high-wage countries (Massey et al., 1993, p. 433). At the micro-level neoclassical economic theory transposes the same logic to individual actors who decide to migrate due to economic considerations of financial and psychological benefits and costs (Kurekova, 2011, p. 4).

Of the multitude of existing migration theories, the most popular explanation used for healthcare worker migration is the push-pull factor model (Walton-Roberts et al., 2017; Labonté et al, 2015; Aluttis, Bishaw & Frank, 2014; Sapkota, Teijlingen & Simkhada, 2014). In general, push factors lead migrants to leave their home country and move to a new geographic location while pull factors draw inward migration (Labonté et al., 2015, p. 7). These factors take into consideration economic, social, political, and environmental circumstances (Khalid & Urbanski, 2021, p. 246). Out of these elements, I pay particular attention to the political factors that are ignored in previous economic theories of migration. Political instability and government repression typically associated with autocratic regimes can be influential push factors that lead to out-migration (Khalid & Urbanski, 2021, p. 249). Greater political stability and prosperity correlate to better healthcare worker retention (Aluttis, Bishaw & Frank, 2014).

3.2 Theories on Migration and Regime Type: Focus on Sending Countries

The regime type of both sending and receiving countries influences human migration, specifically democratic regimes accommodate fewer immigrants and promote emigration while autocracies are more open to immigration and prevent exit (Breunig, Cao & Luedtke, 2012, p.826). Democracy tends to attract migrants with an emphasis on political freedoms, human rights, and economic opportunities (Carbone, 2009, p. 128). Azad and Atallah (2019) use a dynamic panel model to find that democracy can increase in-migration by supporting dual citizenship, outgoing remittances, life expectancy, human development, and human capital. Pfutze (2012) states that existing literature on migration and regimes focuses on receiving countries that do not account for the impact of the origin (p. 160). Potential migrants compare their satisfaction with opportunities at the origin and destination countries hence why it is important to address the influence of regime type of the sending country on migration patterns (Sandu & De Jong, 1996, p. 441). My research paper highlights the effects of regime types in the home countries by testing two sending countries with different political systems; one democratic and one autocratic. Sandu and De Jong (1996) go on to showcase how market conditions and political profiles of the home area affect migration decisions as people tend to choose destinations that offer the best economic opportunities and democratic returns (p. 437). Based on their research, migration intentions are defined by the opportunities, resources, and the individual's situation and values (pp. 439-440). Political climate can influence development which is correlated with the availability of resources and opportunities (Sandu & De Jong, 1996, p. 441). If people experience political violence and oppression in their home country this influences migration motivations (Hein, 1993, p. 44). The regime type of the sending countries can influence the political push-pull factors that potential migrants take into consideration.

3.2.1 Democratic Sending Countries on Migration

Democracy in the home country affects migration by promoting openness to emigration and providing reasons for retention of citizens. The political leaders are given power by the regime which dictates their ability to influence migration policy (Breunig, Cao & Luedtke, 2012, p. 827). In democracies, political leaders are more inclined to follow international norms to allow people to exit freely while autocratic leaders are not constrained by such norms and public opinion (p. 827). With more political freedoms and civil liberties people are allowed to mobilize much easier. While Breunig, Cao, and Luedtke (2012) argue that economic concerns are the most important

motivations for individuals' decision-making, Sandu and De Jong (1996) also emphasize the importance of political factors. These economic considerations are not separate from regime type. There is a positive effect of democracy on GDP per capita which suggests that richer countries have less restrictive policies (Breunig, Cao & Luedtke, 2012, p. 849). The more democratic a country is the more migrants are sent out (p. 843).

In contrast, Docquier et al. (2016) found a negative relationship between emigration and the democracy of home countries. A democratic country is less likely to promote emigration because it provides better protections to its citizens which reduces the incentive for individuals to migrate for better political freedom and rights (Docquier et al., 2016). Democracy is often associated with human rights protection and individual freedom (Carbone, 2009, p. 128). When migrating, most people choose destination countries that are developed and democratic since they provide better economic opportunities and political freedoms (Carbone, 2009, p. 131). This minimizes the push factors for potential migrants and increases citizen retention in democratic countries.

3.2.2 Autocratic Sending Countries on Migration

Control of emigration has been a large part of autocratic power (Miller & Peters, 2018). Although democracies are obligated to follow the Universal Declaration of Human Rights (UDHR) and have fewer restrictions on exit, autocracies are less concerned about violating international norms (Breunig, Cao & Luedtke, 2012, p. 829). Political leaders of autocracies are not held accountable to the same standards which can make emigration more difficult. Autocracies make it harder for workers to leave in hopes of monopolizing their skills (p. 832). The goal of autocratic regimes may be to hold onto their population but in The Gambia, many identify the oppressive regime as the cause of emigration because of the living conditions (Hultin et al., 2017). Modern autocracies are considered brutal and repressive (Anderson et al., 2021, p. 2). The suppression of political competition and prevention of human development sustains the autocracy because improved health, education, and economic security would motivate the people to call for political participation which is a threat to the regime but these conditions push people to leave and find places with the opportunity for better healthcare, education, and financial stability. (Burkle, 2020). The UNHCR reports identify migration patterns are related to autocratic challenges and forced displacement due to migration policy and control (UNHCR, 2018). Although autocratic

regimes attempt to shut off emigration channels, the severe policies push migrants to leave in search of more political freedom and a better quality of life.

Based on the existing literature it is difficult to determine if healthcare workers are more or less likely to leave democratic or autocratic countries. Although democratic countries are more open to emigration, they also provide economic and political benefits that work in favor of retention. On the other hand, autocracies are more oppressive and restrictive towards emigration which motivates people to escape such harsh conditions. With this research paper, I would like to compare regime types to find an answer.

4.1 Research Design

This research entails a qualitative comparative study of Venezuela and Colombia with a difference-in-differences model to estimate the causal effect of the regime type by comparing the changes in healthcare worker migration over time. First, there is an in-depth comparative case study following the V-Dem data and healthcare worker out-migration which pinpoint political changes at certain times that could cause movement. Then the statistical regression uses the Polity5 Project data to capture the effect of the stark changes in regime scores. The advantage of the difference-in-differences model is that it accounts for unchanging unobserved factors that could affect the cases differently. This model helps mitigate selection bias by comparing the changes in the outcome over time with the cases. Comparing the same time period between the two cases controls for time trends and isolates the causal effect. The difference-in-differences model allows for the control of unobserved variations that remain constant over time since these cases are not randomized. In this study, I can facilitate causal inference by creating a counterfactual scenario through a control group, in this case, Colombia. Since the data spans over time the temporal variation is accounted for to identify the causal impact of the independent variable.

4.1.2 Case Selection

This research uses Venezuela and Colombia as cases to demonstrate the effect of regime type on the pattern of healthcare worker migration. The neighboring countries in the Latin American region share many similarities at are conducive for comparison. Both countries share similar levels of education and healthcare expenditure which may affect the push-pull factors that migrants consider (World Bank). The main difference between Venezuela and Colombia is the course of their regimes since the beginning of the 21st century. As depicted by the V-Dem data of

Venezuela and Colombia's ratings of electoral democracy, Venezuela undergoes gradual democratic regression while Colombia stays democratic. Then the Polity5 Project also follows the trajectory of the regime transition in Venezuela over time but shows sharp drops in 2009 and 2016. This data is used in the statistical analysis to measure of effects of these changes on the out-migration of healthcare workers. In February 2009, Venezuelan voters of a referendum approved new rules abolishing the limits on the number of terms of an elected official (BBC, 2019). This was a very controversial amendment as the opposition claimed President Chávez's efforts to change the constitution were illegal (CRS, 2009). The timeline between 2000-2018 allows for nine years before and after the effect of the critical juncture that is being tested.

4.2.1 Operationalization of Regime Types

The Polity5 Project provides many different indicators that measure certain dimensions and factors of democracy. This dataset covers political regime characteristics and transitions between 1800-2018 annually across nations. Both the Democracy and Autocracy Index are measured on an eleven-point scale (0-10) that includes the indicators of competitiveness of political participation, openness and competitiveness of executive recruitment, and constraints on the chief executive. The scores delineated to each category of these indicators contribute to either an increased democracy or autocracy level. The competitiveness of political participation indicates the extent to which alternative preferences for policy and leadership are allowed in the political scene. This variable is divided into five categories; not applicable or unregulated, repressed meaning no oppositional activity is permitted, suppressed with only some political competition allowed, factional, and transitional which are changing systems from restricted, suppressed or faction to fully competitive. The competitiveness of executive recruitment is the extent to which existing modes of advancement give subordinates equal opportunity to become executives (Gurr, 1974, p. 1483). This is measured in three categories: selection, dual/transitional, and election. The selection category indicates that executives are chosen through hereditary succession, designation, or both and adds to the autocracy score. The dual/transitional category stipulates out of dual executives one can be chosen by hereditary succession and the other by competitive election which is considered part of the democracy score. Elections signify chief executives are chosen through competitive elections with at least two major parties or candidates and increase the democracy score. The openness of executive recruitment means that all the politically active population are allowed to hold that position. If openness is closed executives are only chosen through hereditary

succession, the dual executive designation is hereditary succession and the selection of another by the executive or court. The dual executive election option includes hereditary succession and electoral selection of another executive. Open executive recruitment means that executives are chosen by elite designation, competitive election, or transitional arrangements. Constraints on the chief executive refer to the extent of institutionalized limits on the decision-making power. These scores vary between unlimited authority, slight to moderate limitation on executive authority, substantial limitations on executive authority, and executive parity or subordination with intermediate categories separating each. The overall Polity score is calculated by subtracting the autocracy score from the democracy which results in scores ranging from +10 (strongly democratic to -10 (strongly autocratic). The Polity2 score modified the Polity variable to allow the use in time-series analyses. This variable modifies the original score by converting instances of interruption, anarchy, and regime transition which are coded as -66, -77, and -88 to fit within the original -10 to +10 scale.

The V-Dem Institute democracy index combines several indicators to give an overall assessment of a country's democratic performance that is slightly different from the Polity5 Project. The V-Dem electoral democracy index (EDI) is a continuous measure of autocracy (0) to democracy (1). It is based on Dahl's institutional prerequisites of polyarchy. This index includes the aggregation of scores from measures of freedom of association, clean elections, freedom of expression, elected officials, and suffrage. The electoral democracy index answers the question of the extent to which the ideal of electoral democracy in its fullest sense is achieved. From this measure, the regimes of the world can be split into four categories: closed autocracy, electoral autocracy, electoral democracy, and liberal democracy. Countries are considered electoral democracies if they score above 0.5 on the electoral democracy index and any lower is considered electoral autocracies.

4.2.2 Operationalization of Healthcare Worker Migrants

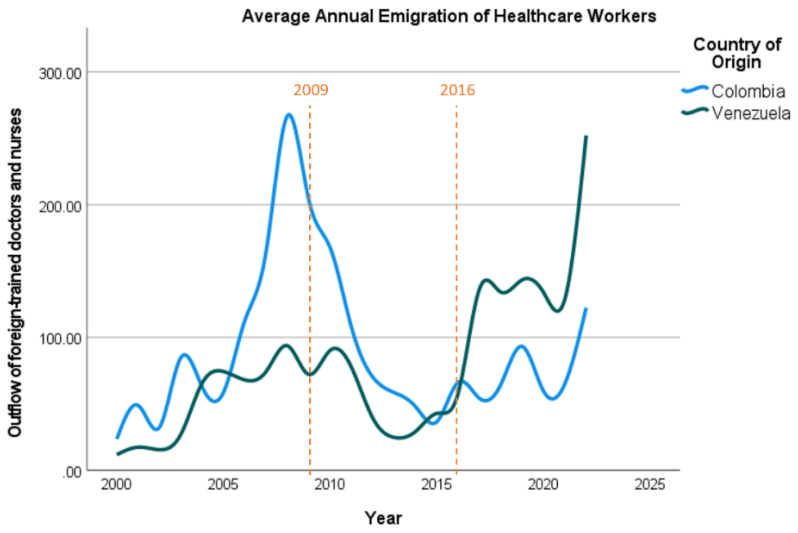
The migration of healthcare workers is measured by the Organization for Economic Cooperation and Development (OECD) as part of their health statistics. The health workforce migration uses foreign-trained doctors and foreign-trained nurses. For this research, the variable included is the annual outflow to see if there is any change in the pattern of the amount of migration. The annual outflow of doctors and nurses is ongoing from Colombia and Venezuela into more

democratic and developed countries. The variable of foreign-trained doctors annual outflow comes from the number of doctors who got their first medical degree in another country and received a new authorization to practice that year in the destination country. This number includes professional registers of foreign-trained doctors coming to the country under all types of registration statuses from full, temporary, limited, provisional, or conditional. Foreign-trained doctors coming to the country with permanent or temporary work permits and medical interns and residents who have a medical degree from another country but are not yet registered to practice in the destination country are also included. The sources of the data come from health ministries, data authorities, and other organizations by country.

5.1 Comparative Case Study

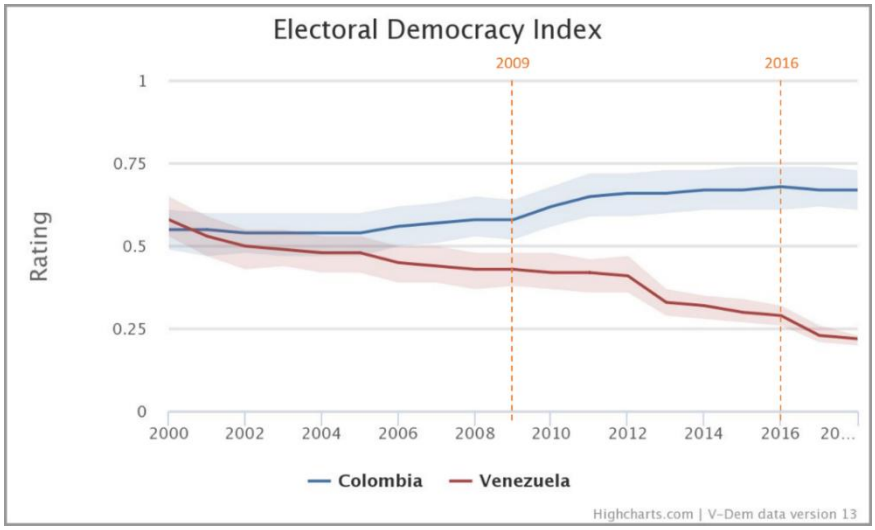
Latin America has been the home to many political changes and ranks the second-leading sending region of emigration in the world (Hiskey, Montalvo, Orcés, 2014, p. 89-90). Venezuela's health system has been struggling due to the loss of operational capacity due to many factors including the emigration of healthcare workers (Page et al., 2019, p. 1255). Figure 1 depicts the average annual outflow of doctors and nurses to other countries from Venezuela and Colombia. Between 2000 and 2007 the emigration levels from Venezuela and Colombia have been increasing and peaked in 2008. 2009 marked a dip in emigration from Venezuela and the continued downward trend from Colombia. After showing a slight increase in 2010, Venezuela showed a downward trend until 2013. Before 2015, Colombia had a consistently higher annual emigration average than Venezuela. However, in 2016 the tide turned as both countries began to see increased levels of emigration and Venezuela's average count of healthcare worker emigrants shoots above Colombia.

Figure 1.



From the OECD Data on Health Workforce.

Figure 2.



From the V-Dem Institute of the EDI between 2000 and 2018.

This case study aims to explain the effects of the changing political regime in Venezuela on the patterns of healthcare worker migration. Figure 2 shows the V-Dem rating of the extent the ideal electoral democracy is achieved over time. This chart includes the confidence intervals. On the electoral democracy index, Venezuela started higher on the rating than Colombia in 2000. Since then, Venezuela's score has gradually declined from 0.58 to 0.21 in 2022 while Colombia has

remained consistently democratic from 0.55 to 0.69. Colombia provides the counterfactual to Venezuela's autocratization. Between 2000 and 2012, the democratic decline of Venezuela was gradual with very little discernable drops. In 2012 and 2016, there were steeper dips in democracy scores. Colombia's democracy score remained stable with minimal change until 2009 when there was a slight noticeable increase.

The patterns between the healthcare worker migration and EDI scores are not consistent. The gradual changes in democracy are not reflective of the dynamic changes in emigration flows. In 2000 and 2001, Venezuela was considered an electoral democracy and became an electoral autocracy starting in 2002 when the rating decreased to 0.5 possibly due to the constitutional amendments enacted by President Chávez which concentrated economic and political power (BBC, 2019). These political changes may have spurred the increased emigration of healthcare workers until 2005. As the EDI score for Venezuela gradually declined between 2002 and 2012, the out-migration data of healthcare workers did not predictably gradually increase during the same time period. Between 2005 and 2010, the annual average number of healthcare worker emigrants remains relatively stable below 100. Between 2012 and 2013, that average falls drastically which coincides with the decrease in democracy rating which is not in accordance with previous patterns. Presidential elections were held in Venezuela in October 2012 which resulted in Chávez's third win (Arriagada & Woldenberg, 2012). However, as the decline continued from 2013 onwards, the emigration levels changed trajectory and began to climb. Significant political changes ensued in 2013 after the death of President Chávez who was replaced by Maduro (The Guardian, 2013). Democracy declines between 2002 and 2012 corresponded with increasing although fluctuating out-migration levels. Yet, while democratic decline continues the pattern of out-migration switches in 2012 with a large decrease. This pattern flipped again in 2016 when the V-Dem data showed another dip below a 0.25 score and healthcare worker out-migration reached above 100 annual average. In 2015, leading opposition politicians were arbitrarily arrested and prevented from running for office which allowed further accumulation of power in the executive branch for President Maduro. Human rights have been eroded due to security force abuses and a lack of judicial independence (Human Rights Watch, 2016). As the EDI score continues to drop, healthcare worker emigration continues to increase.

In Colombia, the increase in democracy score matches the high peak of an annual average of more than 200 healthcare workers out-migration in 2009. This insinuates higher levels of democracy lead to increased emigration due to open policies and political freedoms (Breunig, Cao & Luedtke, 2012). However, the political climate in Colombia in 2008 was more turbulent than shown in such graphs. While the Colombian government was able to partially address the conflict with the Revolutionary Armed Forces of Colombia (FARC) guerrillas, the internal displacement of civilians had been rising and reached its highest level in 2008. Many people were pushed out of their homes due to the internal armed conflict (Human Rights Watch, 2009). Although the democracy score stayed stable, the out-migration averages fell back below 100 soon after 2010.

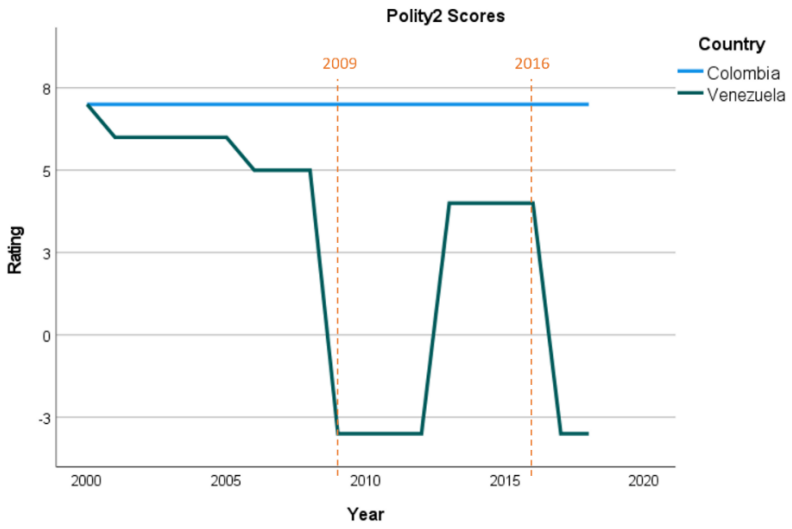
The instances of decreasing democracy scores and increasing out-migration of healthcare workers from Venezuela concur with existing literature that suggests authoritarian regimes create push factors that influence people to leave (Hultin et al., 2017). While Venezuela has continued to autocratize with some fluctuation in out-migration levels, since 2016 out-migration continues to rise while democracy score continues to drop. Between these two periods of increasing emigration, the data presented in 2012 does not agree with the existing theory as future autocratization coincides with fewer healthcare emigrants that year. Interestingly, the evidence for Colombia in 2009 implies that stable democracy scores correspond with increased emigration which follows the theory that state democracies promote emigration through open policies and political freedoms (Breunig, Cao & Luedtke, 2012). However, the trend is not consistent and as Colombia stays democratic out-migration levels fall lower than Venezuela after 2016.

5.2 Difference-in-Differences Model and Regression Results

The V-Dem data less accurately reflects the pattern of healthcare worker emigration in Venezuela when compared with the Polity5 Project data which shows more dynamic changes in certain years that correspond to jumps in emigration. This is possibly due to the different measurement systems of regime by each organization. The V-Dem Institute looks at fewer characteristics than the Polity5 Project. Since Colombia scores similarly between the two organizations, the democracy indexes must measure similar qualities however, Venezuela autocratizes between 2000 and 2018 which makes the democracy index of the V-Dem Institute less accurate of a predictor. The Polity5 Project includes a separate indicator for autocracy rather than the negative approach of V-Dem that only measures democracy values. Therefore, to test for

more specific political shifts at certain times the Polity5 Project data is used in a statistical regression. Comparatively to the V-Dem data, the polity2 score (Figure 3) of Venezuela underwent much starker declines around the time of 2009 and 2017 with a score of -3 (more autocratic). This change may be indicative of the constitutional amendments made in 2009 and political protests in 2016 which match the timing of the increase in healthcare worker emigration. The aim of this statistical regression is to test whether the political changes experienced in 2009 and 2016 affected the out-migration increases after those years.

Figure 3.



From the Polity5 Project polity2 indicator from 2000-2018.

The statistical regression uses the equation: $Y_{it} = \beta_0 + \beta_1 * Treat_i + \beta_2 * Post_t + \beta_3 * (Treat_i * Post_t) + \varepsilon_{it}$

Then the difference-in-differences model can measure the stark contrasts between regime scores and healthcare worker emigration. Y_{it} is the outcome of healthcare worker migration at any time t. $Treat_i$ is an independent variable for the treatment group, in this case, Venezuela as it undergoes political changes and Colombia is the control group which does not experience constitutional changes. This variable is a dummy to measure the difference between Venezuela and Colombia. $Post_i$ is an indicator variable for the post-treatment period which is after 2009. This variable creates two categories, one for 2009 and early and another for 2010 and later. Each of these indicators is made into dummies to compute an interaction term, $Treat_i * Post_t$ that represents the treatment effect of only Venezuela after 2009. This model tests if the constitutional and political

changes in Venezuela in 2009 explain the pattern of healthcare worker emigration. The variables included in this regression come from the Polity5 Project as the dataset tracks the sharper changes in regime score better than the V-Dem Institute.

The output from the regression is shown in Table 1. Venezuela_Post_2009 is the interaction term that signifies the difference in the rate of change between Venezuela and Colombia after 2009. The coefficient for Venezuela_Post_2009 is positive indicating that Venezuela has on average 55.37 ($p = 0.246$) more healthcare worker emigrants than Colombia after 2009. Post_2009 shows that Colombia had 38.47 ($p = 0.232$) fewer emigrants after 2009. Before 2009, Venezuela had on average 54.56 ($p = 0.14$) fewer healthcare worker emigrants than Colombia. However, none of these results are statistically significant ($p < 0.05$). Another interesting finding comes from the remarkably low R^2 value of 0.006, insinuating that the event experienced by Venezuela has very little explanatory power over the variability of the emigration of healthcare workers.

Table 1.

	Model 1
(Constant)	108.53
	(24.76)
Venezuela_Post_2009	55.37
	(47.67)
Post_2009	-38.47
	(32.16)
Country of Origin	-54.56
	(36.86)
R^2	0.006
Adj. R^2	-0.001
N	407

Note: OLS regression coefficients with standard errors in brackets.

****p<0.001, **p<0.01, *p<0.05*

However, 2009 is not the only time polity2 score decreases, between 2016 and 2017 the score changes from 4 (relatively democratic) to -3 (relatively autocratic). In 2016 massive protests and demonstrations were calling for President Maduro's removal after high inflation and crime rates which may have contributed to the second sharp decline in polity score (BBC, 2016). The government in power stifled the opposition's efforts to hold a referendum by not providing adequate machines (The Guardian, 2016). Using the same equation to run another regression of that year it tests the effects of the political changes in 2016 on healthcare worker migration. Y_{it} is

still the average amount of healthcare worker emigration at any time t. $Treat_i$ still divides Venezuela and Colombia into treatment and control groups to test if the political changes in 2016 cause the variability to healthcare worker emigration. $Post_i$ now splits the years into pre and post-2016 to compare the cases before and after the protests. Then the interaction term, $Treat_i * Post_i$ measure the difference in emigration rates between Venezuela and Colombia from 2017 onwards after the political changes.

The results are given in Table 2. The interaction term Venezuela_Post_2016 still measures the different rates of emigration between Venezuela and Colombia. After 2016, Venezuela had 115.51 ($p = 0.074$) more healthcare worker emigrants on average every year than Colombia. The Post_2016 variable shows how Colombia had 31.21 ($p = 0.475$) fewer emigrants after 2016. The standard error is larger than the coefficient which indicates the estimate is not precise and has a larger range of potential values making the confidence interval wider. Before 2016, Venezuela on average had 39.53 ($p = 0.12$) fewer healthcare worker emigrants than Colombia. However, none of these results prove statistically significant ($p < 0.05$). Therefore, it cannot be determined that such political changes in 2016 caused any variability in healthcare worker emigration patterns. Although the R^2 value is a fraction larger than the previous model, the explanatory power of the predicted causal variable is still very low at only 0.011. For the testing of 2016, there is no longer the equivalent amount of time before and after the critical event since the Polity5 Project data does not extend past 2018.

Table 2.

	Model 1
(Constant)	90.53
	(17.13)
Venezuela_Post_2016	115.52
	(64.42)
Post_2016	-31.21
	(43.68)
Country of Origin	-39.53
	(25.36)
R^2	0.011
Adj. R^2	0.004
N	407

Note: OLS regression coefficients with standard errors in brackets.

****p<0.001, **p<0.01, *p<0.05*

6.1 Discussion

Based on the literature, there were competing expectations of how the regime type of the sending countries would affect the flow of healthcare worker out-migration. Democratic countries could either increase emigration by promoting open policies and upholding international standards or potential migrants would stay thanks to adequate living standards (Breunig, Cao & Luedtke, 2012). Then autocratic countries could either increase emigration due to political violence and instability or decrease emigration with harsh border controls (Miller & Peters, 2018). These results would suggest that more authoritarian regimes lead to an increased level of healthcare worker out-migration. Since the results are not statistically significant, the constitutional amendments and drop in polity2 score are not sufficient explanations for differences in healthcare worker emigration. Such political measurements of institutions and rules may not be accurate representations of reality. This study does not address how relevant these regime shifts and events are to the people. There must be other considerations for potential migrants.

The data does not provide enough evidence to suggest that the pattern of out-migration of healthcare workers is due to the political changes in Venezuela in 2009 or 2016. This should not mean that all political shifts and regime changes are insignificant just that in this instance it did not result in statistical significance beyond chance. This research study simply fails to reject the null hypothesis that regime type does not have any effect on the out-migration of healthcare workers. Non-significance does not automatically rule out the importance of a possible relationship between regime type and healthcare worker migration but plainly states that one could be found within this data. Assessing the practical significance includes more in-depth analysis and perhaps different testing methods. Replication studies are necessary in different contexts to establish if such findings are consistently nonsignificant or specific to this case.

Certain aspects of the research could not be addressed in this study due to its design and data. Firstly, although the theory can be brought together there are limits to what can be tested in one regression between two cases. In the future, the application of the theory and concepts should be done on a larger scale to check for significance. Second, as previously mentioned there may be causation however the effects might not be immediate or directly associated which makes it difficult to measure and determine. Migration intentions may change over time or gradually come into existence and even then the movement is not instantaneous. Regime changes usually do not

occur at one point in time but are more gradual processes that can't be tested with a simple binary variable regression. Third, the data included outliers and influential cases due to the large fluctuations between years that possibly skewed the regression results and interpretations. Another model and research design could account for such a range of data. Lastly, the research does not separate economic and political considerations as well as it should. The different economic situations between Venezuela and Colombia are hard to ignore and can be an alternative explanation of the healthcare worker movement. Figure 4 graphs the real GDP of Venezuela and Colombia between 2000 and 2019 and Venezuela has a much lower real GDP than Colombia. While Colombia's GDP has been steadily increasing over time there does not appear to be much fluctuation in Venezuela. However, upon closer inspection in Figure 5 the real GDP of Venezuela begins a steady decline around 2014. The current regression does not control the effects of the economic influences on healthcare workers' migration intentions. In subsequent research, it is imperative to look at the affects of such economic changes on healthcare worker migration.

Figure 4.

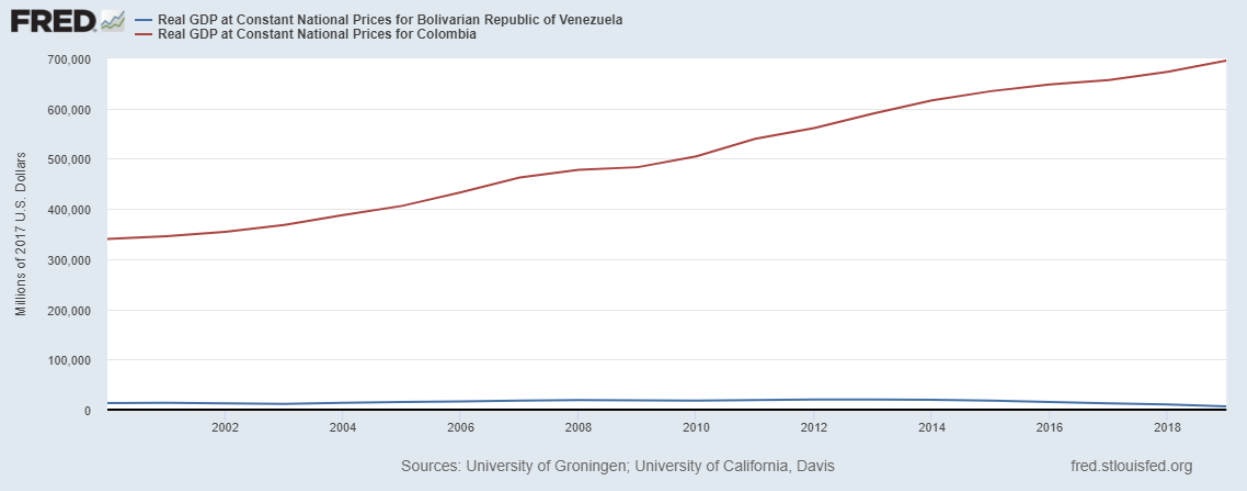
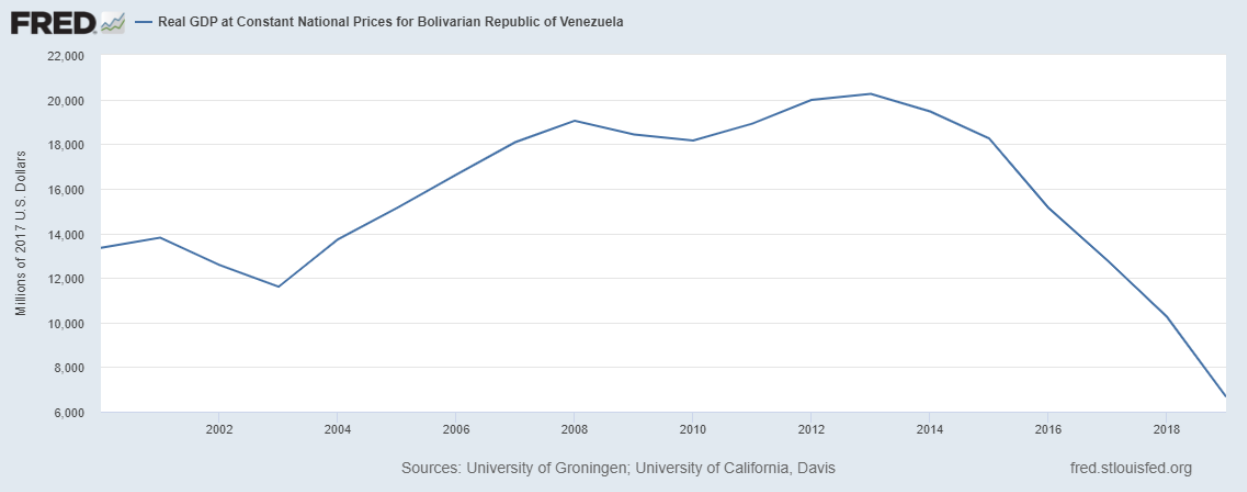


Figure 5.



7.1 Conclusion

This comprehensive examination of the relationship between regime type and healthcare worker migration demonstrates the importance of political influences in the theory of migration. The literature does not come to a consensus on whether democracies or autocracies decrease or increase healthcare worker out-migration. In this paper, the predicted outcome of increased out-migration due to stable democracy and autocratization were both partially supported through a comparative case study of Venezuela and Colombia. However, the statistical analysis cannot confirm such claims. Although the regression results are not statistically significant this does not diminish the necessity of recognizing the interactions between political institutions and healthcare worker migration. This study provides a new focus for the push-pull factor model and an alternative explanation for the global brain drain.

As a catalyst for continued research, these results encourage a deeper discussion surrounding the causes of the migration of healthcare workers. Through different methodologies and perspectives, the complex relationship between regime type and healthcare worker migration may be elaborated upon. The impact of such changes on global healthcare systems calls for a better understanding and policy development to find a solution. Existing policy should recognize the intricacies of political, economic, and social factors. The findings emphasize the different contextual considerations of different individuals and nations which underscores the importance of tailoring policies and programs.

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Appendix:

```
FREQUENCIES VARIABLES=migration_outflow
  /STATISTICS=STDDEV MEAN
  /ORDER=ANALYSIS.
```

Statistics

Annual outflow of foreign-trained d

N	Valid	407
	Missing	562
Mean		75.8649
Std. Deviation		234.73105

```
DESCRIPTIVES VARIABLES=Migration_Outflow
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Annual outflow of foreign-trained doctors and nurses	407	.00	2406.00	75.8649	234.73105
Valid N (listwise)	407				

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Migration_Outflow
  /METHOD=ENTER Venezuela_Post_2009 Post_2009 Origin
  /SAVE ADJPRED COOK RESID ZRESID DFBETA.
```

Descriptive Statistics

	Mean	Std. Deviation	N
Annual inflow of foreign-trained doctors and nurses	75.8649	234.73105	407
Venezuela_Post_2009	.2752	.44716	407
Post_2009	.5971	.49109	407
Country of Origin	.46	.499	407

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.079[a]	.006	-.001	234.87144

a. Predictors: (Constant), Country of Origin, Post_2009, Venezuela_Post_2009

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	138726.719	3	46242.240	.838	.473[b]
	Residual	22231330.85	403	55164.593		
	Total	22370057.57	406			

a. Dependent Variable: Annual inflow of foreign-trained doctors and nurses

b. Predictors: (Constant), Country of Origin, Post_2009, Venezuela_Post_2009

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	108.533	24.758		4.384	<.001	59.863	157.204
	Venezuela_Post_2009	55.365	47.666	.105	1.162	.246	-38.340	149.071
	Post_2009	-38.472	32.157	-.080	-1.196	.232	-101.688	24.743
	Country of Origin	-54.560	36.857	-.116	-1.480	.140	-127.016	17.895

a. Dependent Variable: Annual inflow of foreign-trained doctors and nurses

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.106[a]	.011	.004	234.28787

a. Predictors: (Constant), Country of Origin, Post_2016, Venezuela_Post_2016

Coefficients[a]

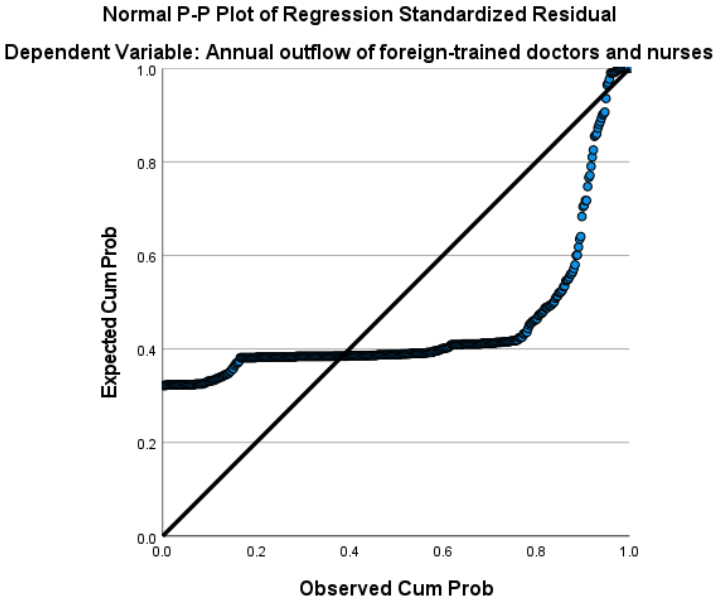
Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	90.529	17.133		5.284	<.001	56.849	124.210		
	Post_2016	-31.206	43.680	-.048	-.714	.475	-117.076	54.664	.540	1.851
	Venezuela_Post_2016	115.516	64.423	.127	1.793	.074	-11.132	242.164	.491	2.036
	Country of Origin	-39.529	25.361	-.084	-1.559	.120	-89.385	10.326	.845	1.183

a. Dependent Variable: Annual outflow of foreign-trained doctors and nurses

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	53.9730	108.5333	75.8649	18.48490	407
Std. Predicted Value	-1.184	1.767	.000	1.000	407
Standard Error of Predicted Value	20.521	27.303	23.151	2.490	407
Adjusted Predicted Value	44.0685	109.7528	75.8649	18.64030	407
Residual	-108.53333	2297.46655	.00000	234.00208	407
Std. Residual	-.462	9.782	.000	.996	407
Stud. Residual	-.465	9.837	.000	1.001	407
Deleted Residual	-109.75281	2323.28101	.00000	236.36785	407
Stud. Deleted Residual	-.464	11.270	.007	1.057	407
Mahal. Distance	2.102	4.489	2.993	.872	407
Cook's Distance	.000	.272	.003	.016	407
Centered Leverage Value	.005	.011	.007	.002	407

a. Dependent Variable: Annual outflow of foreign-trained doctors and nurses



The cases do not follow the plot however there are more than 100 cases and therefore we can assume the distribution is normal.

|Std. Residuals| > 3.29

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	399	41.2	98.0	98.0
	1.00	8	.8	2.0	100.0
	Total	407	42.0	100.0	
Missing	System	562	58.0		
Total		969	100.0		

|Std. Residuals| > 2.58

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	396	40.9	97.3	97.3
	1.00	11	1.1	2.7	100.0
	Total	407	42.0	100.0	
Missing	System	562	58.0		
Total		969	100.0		

|Std. Residuals| > 1.96

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	389	40.1	95.6	95.6
	1.00	18	1.9	4.4	100.0
	Total	407	42.0	100.0	
Missing	System	562	58.0		
Total		969	100.0		

It is concerning if any case has a |standardized residual| > 3.29, more than 1% have a |standardized residual| > 2.58, or if more than 5% have a |standardized residual| > 1.96.

recode COO_1 (sysmis=sysmis) (1 thru highest = 1) (else=0) into cook.

variable labels cook "Cook's Distance > 1?".

execute.

frequencies cook.

Cook's Distance > 1?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	407	42.0	100.0	100.0
Missing	System	562	58.0		
Total		969	100.0		

There are no cases with a Cook’s Distance greater than 1.