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# Remittances – A Tool for Democratization? A Global Study on Protests and Remittance Flows

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**Abstract**: Can remittances function as a tool to overthrow political regimes? This paper aims to answer that question while performing an in-depth analysis of the relation between protests and remittances. Remittances refer to the international money flows from emigrants to their relatives in the country of origin. The paper uses global remittance data in conjunction with protest data the last 30 years to make inferences on this relation. The working hypothesis is that emigrants will support political endeavors such as major protest events by means of their remittance flows, and furthermore that this effect will be the greatest for autocratic regimes. A fixed effects model is utilized in a panel data regression with over 90 countries and 6000 datapoints. In addition, the paper builds upon previous literature on the topic by thoroughly investigating the previously neglected reverse causality issue. What is found is that there is an increase in remittance activity prior to and after a large protest event, therefore a relation between these variables can be confirmed. However, a reverse causality issue is identified and consequently this paper fails to specify a causal direction in the relation between protests and remittances. Furthermore, the paper notes that this increase in remittance activity is not sustained over time.

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# 1. INTRODUCTION

*"Remittances are dollars wrapped with care"*
- Dilip Ratha, Head of KNOMAD, the Global Knowledge Partnership on Migration and
Development at The World Bank

Remittances is a pivotal force in many of the world's economies - playing an especially central role in developing countries (Dridi et al. 2019). These financial flows are directly linked to transnational migration (Ratha et al. 2018). Remittances refer to when emigrants exercise their labor abroad and allocate some of the earnings back to the country of origin. A more formal definition of remittances will follow in the next section.

These investments are often accompanied by intentions. Migration abroad can be driven by a large set of explanations. One possible reason could be the result of either directly objecting how the country is managed, or indirectly expressing displeasure with the living situation that unfolds because of how the nation is governed. Hence, one could assume that some expatriates abroad wish to see change in the country of origin. Are remittances a tool to support such change?

This paper aims to explore how anti-government protest activity influences remittance inflows in the proceeding periods. How do global diasporas react to significant protest events that express displeasure with the current state of government? Looking at the financial decision making measured through remittance flows, the paper aims to understand how emigrants' choices in relation to remittances are affected by events of revolutionary nature. Do they choose to increase the remittance volumes to help stabilize the situation for family members living under turbulent circumstances? Or do the emigrants see benefits in sending money to enhance the momentum of possible revolutions?

Using data on protest events and remittance flows from a large set of countries worldwide, the paper conducts a panel data analysis. Both to explore the causal relationship between anti-government protests and remittance flows, but also to understand how this process may unfold differently in countries of varying levels of democracy.

# 2. BACKGROUND

This section describes the importance of remittances for the world economy in general, and the field of development economics in particular. This is followed by a description of the current understanding of the relation between remittances and protests, where the intuition and importance of this relation and its potential consequences is highlighted. Generally, this section also aims to provide a more detailed and sophisticated understanding of key terms in this essay, such as remittances and protests.

## 2.1. DEFINITION OF REMITTANCES

Remittances can best be described as the streams of wealth which flow from migrants back to their families and relatives in their country of origin (Ratha, n.d.). In contrast to foreign aid, remittances make up more than double the amount of the total worldwide foreign aid budget yearly (Ratha, 2014). Remittances constitutes a big part of the modern-day economy and specifically plays a pivotal role in the economic development of developing nations. For instance, documented remittances make up 35% of GDP in Somalia and 42% of GDP in Tajikistan (Ratha, 2014).

For clarity, we will now examine closer the financial components of remittances as they have been calculated in this paper. The BPM6 is a guideline for the documentation and layout of the Balance of Payments, thereby enabling standardization across nations. We define remittances as "Personal Transfers" from the Balance of Payments. This definition of remittances is in accordance with the IMF's definition of remittances and BPM6 standards (IMF, 2006).

### 2.1.1. IMPACT ON LONG-TERM GROWTH OF REMITTANCES

As is apparent from the discussion on remittances, they are a significant contribution to the economy of a nation - in particular a developing nation. What is less apparent, however, is the effect of remittances in the context of development economics. More specifically, it is interesting to discuss exactly what the relationship is between remittances and the long-term development of a nation. Intuitively, this largely boils down to the many different types of activities which recipients can choose (or are forced to) undertake upon receiving remittances. It has been argued that remittances - not solely in the form of financial remittances, but also intellectual remittances in the form of advice and knowledge from the migrant - strongly influence entrepreneurial and educational activities, which are both in turn beneficial for long-term national GDP. The potential long-term effects of remittances are another aspect which highlights the substantial impact of remittances on modern economies. So, remittances are an influential force. Having concluded this, it becomes only more important and fundamental to examine what influences remittance behavior and drives remittances among migrants. Moreover, having understood the long-term effects of remittances, it remains unclear what the short-term effects of remittances are for countries. These are two questions which this paper touches upon.

## 2.2.   DEFINITION OF PROTESTS

As defined by the Armed Conflict Location and Event Data Project (ACLED): "Protests are non-violent demonstrations, involving typically unorganized action by members of society". These demonstrations can be driven by various causes, arising as symptoms of problems with varied levels of severity, ranging from things like farmer disputes to police brutality. This paper is, however, specifically trying to address such protests that are derived from displeasure with the state of governance, and generally, also intend to overthrow the current governing power. To clarify the specific sort of protests this paper aims to examine, there will initially be an elaboration on what typifies these protests, and how they are exemplified in history.

### 2.2.1.   DEFINITION OF ANTI-GOVERNMENT PROTESTS

In the paper "Anti-Government Protests in Democracies: A Test of Institutional Explanations" (Su, 2015), the author takes on a definition of "Anti-Government Protests", to construct the dependent variable in the analysis:

> The dependent variable in this study is the frequency of "Anti-Government Protest," operationalized as the annual number of protest events that were initiated by domestic actors against their domestic government in a country.

To reach the essence of these events, it is therefore imperative to distinguish whether the discontent is directed towards the governing power of the country in specific, or other institutions that may be somewhat disconnected. Henceforth, this paper takes on a method where protester demands urge for the "removal of politician" lay the foundation of what is defined as an "Anti-Government Protest", which will be elaborated on later.

Protest events, independent of motive, tend to vary in size as measured by participants. Consequently, the paper takes in participant numbers as a central part of how anti-government protests are measured. What also varies is the longevity of anti-government protests, where bigger events sometimes appear as recurring clusters of protests in a row. One such event that has occurred in history, and in a way fulfills the essence of the protest nature this paper aims to examine, is the Arab Spring of 2011.

### 2.2.2.   EXAMPLE OF PROTEST: ARAB SPRING

In December of 2010, Tunisian fruit merchant Mohamed Bouazizi set himself on fire following a conflict with a police-officer (Safi et al., 2021). The footage was spread quickly throughout the country over the internet, building tension in the country and unrest over the political situation in the country where an event like this was able to occur. The instability quickly transitioned into emerging intensive protests over the country. The unrest gains traction in neighboring countries, and the following months are marked by continuous, large scale protests urging for political change in several Arab countries, especially in North Africa.

This period resulted in a cluster of events that to a large extent resembles the type of events which this paper intends to examine. Protests with a significant number of participants,

gathering with the intention to see political change. However, despite that the Arab Spring holds a remarkable intensity in the occurrence of such events, it is not the exclusive time and place in history where such a phenomenon has taken place. Therefore, this paper takes on a transnational approach including both an extended timeframe and an extended set of countries.

## 2.3.  RELEVANCE OF REMITTANCES IN RELATION TO PROTESTS

Next, the relationship between remittances and protests is examined to underline the relevance of these topics in combination. It has been uncovered that remittances have substantial effects on modern economies. Consequently, it is extremely interesting to understand what factors influence the amount of remittances that is sent and received. This directly brings the topic of examining the effect of protests on remittances into relevance. This paper works with and examines the possibility that protests and demonstrations relate to remittances. Protests and demonstrations can be costly; remittances can finance and help encourage those protests. More importantly, protests and demonstrations can give a glimpse of a different, post-protest future; thereby instilling hope and positivity. This, in turn, could spur investments, i.e., in the form of remittances to relatives in the home country. These are both hypotheses that speak in favor of the suggestion that there is a relationship between remittances and protests; protests could spur an increase in remittances. In essence, this is what makes the topic relevant.

# 3. LITERATURE REVIEW

## 3.1. CURRENT STATE OF KNOWLEDGE

In this section, the current state of knowledge in terms of the relationship between protests and remittances is presented as well as the current gaps in knowledge. Models and findings from previous studies and research papers are utilized for this purpose. First, the findings from a paper which studies the effects of remittances on protests (i.e., the inverse causal relationship from this paper) are presented, along with the key takeaways for our purposes. Secondly, the findings of a second paper which examines the effects of protests and revolutions on remittances - but specifically in Tunisia - are described.

### 3.1.1. PAPER 1: REMITTANCES AND PROTESTS IN DICTATORSHIPS

In the paper *Remittances and Protests in Dictatorships* (Escribá-Folch et al., 2018), an empiric method is developed to take on an analysis of the relationship between remittances and protests. Here, the relation between protests, often in the context of an autocracy, and the remitting behavior of its migrated diaspora is discussed thoroughly. The authors are looking at how remittance inflows into a country in each period affect anti-government protest waves in the following periods. This is an attempt to build an intuition for the question whether financial stimulation from diasporas abroad could act as a catalysator for surges in demands for political change. Essentially, it is another contribution to the academic literature in terms of the importance of remittances and their effects on democratic processes and protest activity.

The authors are essentially using empirical data to validate one of two major theories on the relationship between remittances and protests within previous research. First, the theory that increased flows of remittances into a country reduce the likeliness of revolutions erupting in the following periods since increased financial stability usually means a more pleased population, who is then less likely to complain about how the country is managed. Second, the opposing view that inflows of remittances into autocracies can financially empower an opposition that is oppressed by the government both politically and financially. A financially empowered opposition, then, is thought to become less dependent on the government's "clientelistic links" - exchange of goods in turn for political support. Thereby, this second view proposes that remittances yield a momentum in moving towards revolutionary protest events (Escribá-Folch et al., 2018).

The cited paper aims to examine the relationship further and put into clarity the causal relationship between remittances and protests through an empirical study where the following regression is tested (Escribá-Folch et al., 2018):

$$Protest_{i,t} = \alpha_0 + \beta_1 Remit_{i;t-1;t-2} + \beta_2 X_{i,;t-1} + \eta_t + \xi_i + \varepsilon_{i,t}$$

Put into words, the above regression examines the effect of remittances on protest activity. The regression uses several control variables such as GDP per capita, population, net migration, election periods and autocracy. The regression above has inspired the modeling of the

regression for this paper, although with the inverse causal direction between remittances and protest activity. Indeed, control variables and the statistical instruments have been reworked, which will be described further under Section 5: Methodology.

Resulting from this analysis, the authors find that there indeed is a significant relation between remittances and protests where remittances increase protests. The effect is especially notable and significant in autocracies. The authors also show that when looking at data from eight African non-democracies, remittance inflows increase protests in opposition areas but not in pro-government areas (Escribá-Folch et al., 2018).

### 3.1.2. PAPER 2: DO REMITTANCES RESPOND TO REVOLUTIONS?

Turning around the direction of the causal relationship and looking in the economic literature at how protests affect remittance flows generates new insights. In the paper *Do remittances respond to revolutions? The evidence from Tunisia* (Edelbloude et al., 2017), the authors use a time-series analysis with data from 2000 to 2016, introducing a dummy for the Arab Spring in 2011 and looking at how the remittance flows into Tunisia respond in the following months. An investigation that aims to sort out how the Tunisian diaspora reacts with their financial decision making towards the country of origin after such a pivotal event in Tunisian history. Questions the authors state that they intend to examine include whether people want to send more money to encourage and speed up the democratic transition? Or if more remittances are sent to contribute with financial stability in a period of political turmoil?

The authors find that there indeed is a positive and significant inflow of remittances derived from the revolution, and that this effect seems to be stable and lasting over time. Migrants can relieve the applied pressure from increased unemployment in the wake of turbulence through remittance flows. What is worth noting here, is that Tunisia is the only country among the nations affected by the Arab Spring where the government completely has been deposed and replaced by a constitutional democracy. It can be argued that the findings of this paper, therefore, are not directly applicable to other countries.

The paper also proves that remittances are affected by depreciation in exchange rate. The depreciation of the Tunisian Dinar encourages the diaspora to come and visit the country of origin as well as send more remittances given how the value of the domestic currency in relation to the Tunisian Dinar increases. Finally, the authors also lift the aspect of how migrant behavior in relation to the country of origin can yield development not only as cause of increased financial assets. Knowledge and technological transfers are spread through involvement in communication through e.g., social media. Thus, as stated by the authors, the influence from the diaspora transcends mere monetary transfers (Edelbloude et al., 2017).

# 4. RESEARCH FOCUS

## 4.1. RELEVANCE OF TOPIC

As mentioned in Section 3: Literature Review, there is research on the subject to suggest that remittances can spur protests in the receiving country. This is the opposite relation than the one that is examined in this paper, but nonetheless supports the idea that there is some relationship between these variables.

The second cited research paper confirms the causal relationship that protests can spur remittances, but that only has empirical support from Tunisia. In other words, the observation count is limited to one revolution. While the magnitude of the Arab Spring should not be discounted, it should be remembered that results with higher statistical significance can be achieved with a larger set of observations. This paper rectifies that by looking at the same causal direction but with more observations, while also accounting for the potential reverse causality issue.

A more fundamental critique of the cited research paper is the fact that the Tunisian Arab Spring is unique in comparison to other revolutions. Following the Arab Spring and calls for democracy, Tunisia was the only country which was successfully converted into a democracy. This could have had profound consequences for the relevance of the paper's findings. The paper found that the revolution led to a significant increase in the amount of remittances to Tunisia, which was sustained following the event. A question that remains is if the results are similar in other countries in the area, where there was not a successful democratization. In many cases, large protest events of revolutionary nature may occur, that nevertheless never result in any real democratic change. It is plausible that the democratization of Tunisia was an aspect which raised hope and positivity in foreign Tunisians in terms of their view on Tunisia, and consequently increased the amount and persistence of remittances sent back to relatives and family.

Evidently, there is a gap of knowledge in this topic. This paper aims to fill this gap and contribute to the academic literature by examining the relationship between political events in the home country and remittances, but with empirical support from across the world. The aim is to make inferences on the relationship as well as find differences derived from underlying factors like state of government.

The relationship between protests and remittances may also be related to autocracy and democracy. Autocracies tend to have political leadership which is not necessarily in alignment with the interest/desire of the underlying population. For instance, it may be a dictator who acts in self-interest and who, therefore, is not popular among the population. Such a resentment could have been addressed through free elections in a democracy. However, in an autocracy (given the lack of free elections) it may lead to protests and demonstrations to a higher extent than in a democracy. There is no other way of toppling the political leadership.

## 4.2.   HYPOTHESIS

The working hypothesis, then, is that protests will cause remittances to increase. Emigrants will increase their remitting behavior to support the political endeavor. Moreover, this effect will be even stronger in autocracies than in democracies, primarily because protests are more instrumental to achieve a political change in autocracies compared to democracies.

## 4.3.   THE CONTRIBUTION OF THIS PAPER

As a specification of the gap this paper aims to fill in the literature, it is examined in previous literature that:

1. An increased inflow of remittances increases the likelihood of a surge in protest events aimed at the governing body, applied to a global sample of data.
2. The protest event aimed to overthrow the government during the Arab Spring in Tunisia implied increased and sustained inflows of remittances in the following periods.

This paper addresses the question of whether this increased and sustained inflow of remittances still holds valid when applying a global dataset, and hence, also including protest events that are not necessarily converted into a new, democratic state of governance. Moreover, given that the two previous papers yield conflicting results in terms of the direction of the causal relation, this paper aims to control for this neglected reverse causality issue and ideally identify the true causal direction of the relation.

The relevance of the relationship that is studied in this paper is substantial. This field of research could have major consequences for global remittance policies as well as development economics and the political decisions of major remittance receiving nations, and perhaps, even for the spread and development of democracy worldwide.

# 5. METHODOLOGY & DATA

## 5.1. DATA

In this following section, a coverage of all the used data sources for the paper will be covered. Additionally, eventual deficiencies in the used datasets that require awareness will also be discussed.

### 5.1.1. REMITTANCE DATA

#### 5.1.1.1. THE MAIN DATASET

For the remittance variable, data is gathered from the IMF Balance of Payments Presentation. This has been used for gathering remittance data across all countries on a quarterly basis from 2020 going back to 1960. This data is gathered for all countries to constitute what the paper uses as the remittance variable. As per the BPM6 standards which are upheld by the IMF, it holds that an accepted definition of remittances is that it is equal to the "Personal Transfers" post in each country's Balance of Payments. This paper will stick to this definition of remittances. Moving forward, this paper will therefore use the terms "remittances" and "personal transfers" interchangeably. Personal transfers chosen as the listed data being the most suitable definition of remittances because it is deemed to be most comparable over time and across countries. In the data collection process, it has been noted that the other components that are also included in the definition of remittances, such as the "compensation of employees" post, are not as uniformly adopted by all countries or consistently used over time as the "personal transfers" post.

#### 5.1.1.2. THE HIGH FREQUENCY DATASET

There is a concern that the remittance data that has been used is not sufficiently high frequency. The highest frequency on remittance data that is available extensively is quarterly data, so it is the sum of three months' worth of remittances at a time, which is what this paper uses. In contrast, the protest data is based on daily estimates. There is a risk that this paper may be overlooking some relation between protests and remittances by using the remittance data that is quarterly. Imagine, for example, that the greatest effect of protests on remittances occurs only the same week as the protest event.

This paper aims to control for this risk through a robustness check where another, more high frequency dataset is introduced. The data is reported in monthly intervals and is therefore referred to as the "monthly dataset" in this paper moving forward. The use of this dataset is further described under methodology. In this dataset, similarly to the main dataset, remittances have been defined as the personal transfers post in the balance of payments of each country. The dataset has been collected from the World Bank's Migration and Remittances Data and covers 22 countries between 2003 to 2012. The full list of countries that are covered can be found in the Appendix.

### 5.1.2. PROTEST DATA

To construct the x-variable, a method to measure protests is addressed. To do this, in relation to this study, some factors must be considered carefully. The causality that is studied is aiming to isolate the effects on remittances from protest events that are of revolutionary nature, and therefore, usually are driven by the desire to replace the current state of governance. To get a hold of this information, two aspects must be considered:

a. What are the motives leading to the uprising of the respective protest?
b. Is the event of sufficient scale to make an impact?

Therefore, merely relying on protest data in terms of absolute volumes will not be sufficient to generate relevant findings.

The x-variable is built using data from the dataset *Mass Mobilization Protest Data* (Clark & Regan, 2020). This dataset lists and describes protest events occurring in countries globally from 1990 until Q2 2020. Information includes protester participant numbers, protester demands and state responses. In this paper, the variable of "protester demand" is directly used as a tool to distinguish the independent variable. This variable contains seven different categories of protester demands:

1. Labor Wage Dispute
2. Land Farm Issue
3. Police Brutality
4. Political Behavior, Process
5. Price Increases, Tax Policy
6. Removal of Politician
7. Social Restrictions

The participant variable is in its turn listed in a manner that mixes different formats, like listing data in everything from absolute numbers like "1000" to using inequalities like ">1000", or even putting it in words "thousands". This issue has been addressed to be able to measure the participant variable in the construction of the independent variable, which will be covered in detail in 5.2. METHOD.

### 5.1.3. DEMOCRACY DATA

To measure whether a certain country that receives remittances in a given period is under an autocratic state of governance, democracy indexing is used to allow for an introduction of such a control. To do this, the Polity V dataset (Center for Systemic Peace, 2018) is used which scores countries from -10 to 10 based on the level of autocracy and democracy. If a country scores between 10 and 6, it is considered a democracy. If a country scores between 5 and -5, it is considered an anocracy. Lastly, if a country scores between -6 and -10, it is considered a fully-fledged autocracy. This data is then reported on a yearly basis, so a country may take on different values for different time periods within the timeframe of this study. There are some

countries in this dataset that are assigned values outside of this range. These are exceptions (e.g. polity = -66: cases of foreign interruption). In this paper, all values outside of the range of -10 to 10 are treated as missing values. Moreover, this paper creates a new variable called "non-democracy" which combines autocracies and anocracies. It is, thus, a collective variable for all the countries that are not considered fully democratic by the database.

### 5.1.4. EXCHANGE RATE DATA

Data on exchange rates is extensively available through the International Monetary Fund (International Financial Statistics (IFS), 2021). The exchange rate is denoted in national currency per dollar. A 1% increase in the exchange rate means that the national currency has become 1% more expensive in relation to the dollar – in other words, the same dollar yields 1% less of the national currency.

## 5.2. METHOD

### 5.2.1. PREPARATION OF DATA

This study is built on complex datasets that require specific formatting and refinement to be usable for the purpose of the study. This section aims to thoroughly examine the executed alterations, and why those changes had to be made.

#### 5.2.1.1. MEASURING NUMBER OF PROTEST PARTICIPANTS

As mentioned in the presentation of datasets, the participant variable was inconsistently reported, and therefore, many observations required preparation before being able to measure. To do this, a method in two steps was used:

The first step was making ambiguous participant numbers into comparable measures. In most cases, the information on participants is presented in numbers. However, in some cases, the same information is presented in words, for example "thousands". In this first step, all information is converted into numbers, to the extent that it is possible to do so. For observations listed as "dozens", the converted measure is 12. Finally, observations that are indistinguishable in terms of converting into numbers, like for example "a few", "many" etc. are treated as missing values since those are not interpretable.

The next step is to turn the participant information into one, standardized variable. The original dataset contained two columns that were mostly overlapping – "Participants" and "Participant Category". In general, the "Participants" column presented information on number of participants in absolute numbers, while the "Participant Category" column contained information on participants in terms of intervals, for example 50-100. To create a standardized variable, the two columns are merged into one. The new variable will take on the highest value of the two, previous variables' lowest values for every data point. Thereby, a defensive stance is taken in terms of participants.

### 5.2.1.2.  EXPANSION OF PROTEST DATA

The Clark & Regan dataset is designed in a way that all its data points represent certain protest events. Hence, no information is provided regarding time and places where there is an absence of protest events. However, what is implicit is that the quarters that do not have any reported cases of protest events, consequently, should be treated as measurable data as well, only that this data does not contain protests. That is, for quarters where there is remittance data on the output, but no data in the protest dataset, the method needs to adjust this flaw and replace those missing x-values in these quarters with zeros. It is assumed that missing protest data means that there were no protests.

In practice, this is done after merging the two datasets with remittance and protest data. To do this, two sets of data must be excluded. Firstly, all the data in the remittance dataset that covers time periods before 1990 has been excluded. Secondly, countries that were completely absent in the Clark & Regan data (I.e. had no observations) were excluded. These excluded countries are as follows; Bahamas, Belize, China P.R.: Hong Kong, Curaçao and Sint Marteen, Israel, Trinidad and Tobago and West Bank and Gaza.

After excluding this stated data on time and places where there is not an overlap in the two datasets, the expansion of the data is conducted. These unmatched observations in the remittance data, that still fall under the Clark & Regan dataset's scope in terms of time and place, are listed as observations of 0 under the coverage of significant protest events. Consequently, the data points available for regression analysis expand dramatically, and the paper works with more accurate data also including measurements of periods completely without protest events.

### 5.2.2.  BUILDING THE VARIABLES

After cleaning the dataset to make it interpretable, the independent and dependent variables tested in the regression require work to become usable variables that can be tested, aligning with the purpose of the study. For the independent protest variable, this implies method work to construct the variable, and for the dependent remittance variable, refinement to make it interpretable within the context of the study.

### 5.2.2.1.  CREATING THE SIGNIFICANT PROTEST VARIABLE

As previously discussed, the independent variable representing protest measurements must include information that displays the nature of the events to fully align with the study's purpose. Consequently, the properties of measuring participant numbers and protester demands should fulfill certain requirements to ensure that a protest which is measured in the regression indeed is of such nature that the paper addresses, and not of any other irrelevant nature.

To do this, the paper takes on a method where a set of "significant protests" are defined. These significant protests must fulfill certain requirements to take on a dummy value of 1, and therefore be observed as a period-country combination where a significant protest event has occurred. On the protester demand measurement, among the seven listed demands that are part

of the Clark & Regan dataset, the main demand when constructing the dummy is the demand of: "Removal of Politician". This demand quite clearly aligns exactly with the type of protester demand that the paper tries to address, events of revolutionary and governance changing nature.

In addition to this parameter, participant measures are also included to stratify the magnitude of these reported events. A building assumption is that events that have too few participants may usually not be of enough magnitude to enforce shifting global remittance trends. Therefore, the method lists five different categories of participant numbers to be able to control for effects derived from different sizes of the reported events:

1. Participants < 1000
2. Participants >= 1000
3. Participants >= 10 000
4. Participants >= 100 000
5. Participants >= 1 000 000

Given the stated assumptions that the protester demand "Removal of Politician" is the one that to the highest extent aligns with the purpose and focus of the study, and that protests with a limited size should not pose a considerable effect, this paper will define a "significant protest" as one with "Removal of Politician" as the protester demand and ">= 10 000 participants" as the protest size. This is fundamental for the results section of the study.

### 5.2.2.2.    MAKING THE REMITTANCE DATA AN INTERPRETABLE MEASURE

Firstly, the remittance variable must be built in a format that makes intuitive sense as a baseline for the interpretation of the results. Without modification, the dataset just displays remittance data in absolute numbers. However, running regressions based on amount of dollars in increase or decrease as output is not the most intuitive format for interpretation, and hence, this variable is            instead            built            as            a            growth            rate.

That is, the remittance variable takes on a format where it is expressed as a year-on-year growth rate shown as a percentage change in remittances compared to the same quarter or month in the previous year. The reason behind adopting a year-on-year approach is to take seasonal effects on remittances into account (for example, it is possible that remittances increase around specific holidays). Thereby, taking on an approach that controls for this should give a more precise measure. If instead, opting for a quarter-on-quarter or month-on-month approach, the results would be distorted by unproportioned changes derived from some parts of the year by default            being            intense            in            remittance            flows.

Secondly, in addition to presenting the remittance variable in an intuitive way, tweaks to its setup are also required to make the data interpretable. The remittance variable relies on raw data on received remittances covering the same time and places as the protest dataset. However, despite that the data is original in the sense that it just mirrors the remittance flows without any ambiguous modifications, it still holds some flaws that need to be considered and adjusted before            proceeding            with            the            empirical            work.

The remittance dataset is generally uniform and coherent. However, for some data points, it holds extreme outliers. This is likely derived from inconsequential reporting of remittances from a handful of different countries in certain given time periods.

This inconsistency is likely mainly derived from two factors. First, some countries switch the reporting standards for how they measure remittances over time, therefore resulting in incorrect fluctuations in the growth rate. Secondly, some countries report extremely low, and likely incorrect remittance data, (e.g. consequently jumping between numbers 1 and 0), resulting in extreme, often around 100% changes in every period. This is likely also some sort of measurement or reporting error but is nonetheless problematic when analyzing the data to answer                                the                                research                                question.

A good example of a country in the dataset that encapsulates both issues is Romania. As displayed in the tables found in the Appendix,[1] in the first time period when remittances are reported, the values are only reported as integers ranging from 0 to 6. Then, Romania ceases their reporting for a couple of years, and then once again starts reporting their remittances, but now the reported values look completely different. In the second period, the remittances become much bigger, more coherent, and are reported to the decimal. Consequently, the growth rate derived from this data becomes significantly less dramatic, and hence does not distort the empirical                study                with                extreme                outliers.

The interpretation of this is that these extreme outliers in the growth rate of the remittance variable are a consequence of a few given countries' reporting in certain time periods. To get a true result that relies only on real and consequent remittance data, a strategy has to be formed within the method to approach that issue. Preferably, excluding all the periods for certain countries within the dataset that hold inconsequent reporting of remittances would be the ideal scenario. However, there is no data to support whether a part of the panel data is dense in outliers due to this assumed issue, or because of real natural reasons that have to be considered and included in the empirical study. Hence, trying to home in on given periods to exclude would be very ambiguous, and is therefore not an option. Consequently, this paper takes on a method that scales away the extreme 5% of both the left and right tail of the remittance growth rate variable. A visual representation of how this yields a bell curved distribution rather than one distorted by outliers is found in the two histograms representing the unmodified and scaled histograms                        in                        the                        appendix.[2]

Scaling away these outliers on both the left and right tail is an approach that likely will exclude most of the outliers derived from inconsequent reporting, but will, however, also likely take away some extreme observations that are in fact derived from real data. Consequently, this must be taken into consideration when interpreting the results but is the method this paper takes on to be able to handle the outliers in the most transparent and consistent manner.

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[1] Refer to Table 4 & 5 in Appendix
[2] Refer to Figure 4 & 5 in Appendix

### 5.2.3. METHODS FOR THE EMPIRICAL TESTS

To present the results of the study, two approaches are used to get a nuanced understanding of how the tested data can be interpreted. Partly, a method is built to do a panel data regression analysis, as well as an event study of the tested causal relationship.

#### 5.2.3.1. PANEL DATA REGRESSION

To present the results of the study, firstly, a panel data regression is conducted. Significant protest events are regressed on remittance flows. The specified linear regression includes country and time fixed effects covering the timeframe of the whole dataset, going back to year 1990:

$$GrowthRemittances_{i,t} = \sum_{n=0}^{4} \beta_{n+1} SignificantEvent_{i,t-n} + \beta_6 GrowthExchangeRate_{i,t} + \eta_t + \zeta_i + \varepsilon_{i,t}$$

Where $GrowthRemittances_{i,t}$ is the received amount of remittances in dollars expressed as a year-on-year growth rate in percentages, representing the dependent variable. $SignificantEvent_{i,t-n}$ refers to a protest event that fulfills the previously discussed requirements to be defined as a "significant event", which in its turn constitutes the central independent variable. A lag consisting of four quarters is included in the panel data to understand how remittance flows develop in the year leading up to the protest event – i.e. to see there is any statistical difference between previous remittance flows and the remittance flow in the same quarter as the protest event. The significant event occurs at *n = 0*. $GrowthExchangeRate_{i,t-n}$ is the control for the local currency's exchange rate in relation to the US Dollar, expressed as a year-on-year growth rate. Then, $\eta_t$ represents time fixed effects, and $\zeta_i$ country fixed effects. Finally, $\varepsilon_{i,t}$ is the residual error term.

The data sample used represents a total of 90 countries and 6765 observations, among those, 49 countries are defined as non-democracies in accordance with the polity index. Given how the panel data regression presented in the results section only includes four lags in time (one year), those observations are slightly less. However, this presented total number of observations is the amount when including all the empirical work, including event studies.

#### 5.2.3.2. EVENT STUDY

To get a visual representation of the effects on remittances over time from significant protests events, and approach eventual reverse causality issues, an event study approach is used. This event study is calibrated through looping 21 separate fixed effect regressions, isolating the significant event and all of its 10 time lags back and forward in time covered in the complete dataset. This, where in addition to the fixed effects, the exchange rate also always is controlled for, just as in the panel data regression. This, showing the effects on the dependent variable of remittances when a significant event happened *n* periods before. But also, through a placebo

test, the effect on remittances derived from significant events occurring *n* periods forward in time, a complete visual representation is provided.

### 5.2.3.3.    ROBUSTNESS CHECK

To control for the risk that the remittance data may be too low frequency in order for this paper to identify the true effect of protests on remittances, this paper introduces a higher frequency (monthly) dataset. This robustness check is further described below.

The higher frequency dataset is used to make similar regressions as the main dataset. First, a panel data regression is conducted – also using the same fixed effects model. The dependent variable is the year-on-year growth of monthly remittances (thereby accounting for seasonality in remittances), while the independent variables is the protest data. Year-on-year change in exchange rate is still used as a control variable.

Secondly, the higher frequency (monthly) dataset is also used to make an event study. This is also a part of the robustness check of the model and paper with the intention to see if reverse causality can be identified using this, higher frequency data.

## 5.3.    ENDOGENEITY METHODS

### 5.3.1.  REVERSE CAUSALITY

This paper is particularly concerned with the reverse causality issue because previous research in this field has been inconclusive and conflicting in terms of the direction of the causal relationship. While one previous paper concludes that remittances cause an increase in protest activity, another paper - although based on only one protest event - concludes that the opposite causal direction holds true. Neither paper considers a reverse causality issue. This concern has been covered in more detail under Section 3: Literature Review and Section 4: Research Focus - where the contribution of this paper is also explained in relation to the reverse causality issue.

This paper utilizes the usage of an event study as a method to cope with the reverse causality issue. Distributing the remittance flows both before and after the significant protest event enables the paper to approach the issue statistically and conclude whether there is a potential reverse causality issue.

### 5.3.2.  CONTROL VARIABLES

Given the complexity of the research question and its scope, several omitted variables may distort the findings. Below is a presentation of the one controlled for in this paper, and the important factors that had to be considered.

One factor which affects the size of remittance streams is the exchange rate. Even if there are two periods where migrants send the same amount of money (in terms of the respective currency in each host country) to their home countries, the actual size of the remittances as denoted in the remittance database (where it is measured in USD) may still change significantly

because of a change in the exchange rate. Therefore, the exchange rate is used as a control variable in this paper.

Admittedly, including the variables which affect remittance streams would lead to statistical findings which are closer to the true effect of protests on remittances while discerning what is attributable to other factors.

However, controlling for all the factors which could affect the output and input variables would be difficult. After all, many factors - both big and very small - are the causes of differences between countries and the amount of remittances that they receive. For example, other than exchange rate, this paper also considered the use of internet usage data as a control variable (among other variables). A recent study which examined this topic did conclude that there is a relationship between these variables - namely, "an increase in mobile broadband internet access reduces government approval" (Guriev et al., 2019). There was a bigger issue, though, which is why this control variable was not pursued and published in the final paper.

The bigger issue is that there is a fundamental trade-off between controlling for these control variables and running a fixed effects model-type regression. The trade-off essentially comes down to the fact that some of these control variables, for example the variable containing information on internet usage, will restrain the existing dataset in terms of number of observations. The data for these variables does not exist in a way where it fully and perfectly covers the existing data on remittances and protests. The drop in data that results from including these variables leads to the larger issue of not being able to fully leverage the existing data and make potentially statistically significant conclusions. In light of this issue, this paper relies on a fixed effects model to solve these statistical issues which have been identified, while also making use of the data on remittances and protests to uncover the relationship between these variables which is the main purpose of this paper. To be clear, if the purpose was to uncover a relationship with these other variables; then it would be more important to include them in the regression and potentially conclude their effect - but since this is not the purpose of this essay, using the fixed effects model while leaving out those control variables which restrict the dataset has been deemed to be the most appropriate method moving forward because of the aforementioned limitations in data.

Specifically, this paper will only use exchange rate data as a control variable thanks to its extensive coverage and importance.

## 5.4. FIXED EFFECTS

Notably, this paper aims to examine the relationship between protests and remittances and does so based on a dataset of protests and remittances from across the world. Running regressions with data from a wide range of different countries and over a longer period of time entails a few statistical difficulties which require addressing. There are many other factors which vary over time and across countries which, when running regressions, will cause endogeneity, distorting the results. For example, remittance flows - as per the remittance data from IMF - in

general increase over time. This is true, in general, for all countries. If not adjusting for this time variation in the data, a significant event earlier in history would impose less effect on the dependent variable given how remittance levels should be lower. This is an example of a time fixed effect which causes variation in the regression. Moreover, as mentioned, there may be differences between countries which are explained by a variety of factors. The size of the country in population, the GDP per capita, level of emigration etc. are all such possible factors.

The country differences also include variations in matters like the previously discussed internet access, factors that could pose an impact on the results being omitted variables. By adding country fixed effects to the regression, the proportionality of the data is adjusted so that a significant event in a very small country yields a correspondingly sized effect on the dependent variable's remittances, like it would for a much larger country with larger flows of remittances. By using these strategies, a large part of the endogeneity issues derived from the country and time differences are eliminated. However, a shortcoming of the fixed effects model is that it does not allow for distinguishing what the actual effect is from variables that could be isolated within, say the country fixed effects. Nevertheless, the aim of the study remains trying to distinguish the causal effect from significant protest events on remittance flows. Hence, the aforementioned shortcoming is not a major issue in this paper. For these reasons, this paper deploys a fixed effects model.

# 6. RESULTS

In this section, the findings of this paper are presented and interpreted. Following this section is the discussion section, where these same findings are elaborated and their contributions to the economic literature are examined.

## 6.1. PANEL DATA REGRESSION

### 6.1.1. MAIN DATASET FINDINGS

The main question that this paper is concerned with is the effect of protests on remittances. As described under methodology, the primary method to understand this relationship is a panel data regression. Table 1 describes the results of that regression, relying on a sample using events with >=10 000 participants and the protester demand of "Removal of Politician" as the criteria for the independent variable.

| VARIABLES | (1) Whole Sample | (2) Non-Democracies | (3) Democracies |
|---|---|---|---|
| Significant protest | 3.843** | 12.95*** | 0.338 |
| | (1.896) | (4.594) | (1.980) |
| One Quarter after significant protest | 3.333* | 5.795 | 2.941 |
| | (1.893) | (4.585) | (1.971) |
| Two Quarters after significant protest | -1.306 | 2.038 | -1.959 |
| | (1.936) | (4.681) | (2.016) |
| Three Quarters after significant protest | 2.316 | 8.532* | -0.234 |
| | (1.969) | (4.710) | (2.052) |
| Four Quarters after significant protest | 0.479 | -0.854 | 1.267 |
| | (1.948) | (4.754) | (2.012) |
| YoY Change in Exchange Rate | 5.79e-06 | -0.0547 | 2.04e-06 |
| | (9.03e-06) | (0.0576) | (8.21e-06) |
| | | | |
| Observations | 5,360 | 1,633 | 3,727 |
| R-squared | 0.192 | 0.232 | 0.255 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

*Table 1 - Panel Data Regression with Quarterly Data*

*Source: Authors' Rendering*

This paper's interpretation of the table is as follows. The first variable in the regression is the significant protest event dummy. Firstly, the significant protest variable is statistically significant in two of the three regressions. It is significant at the 5% confidence level for the whole sample (including both democracies and non-democracies), at the 1% confidence level

for the sample of countries that are non-democratic, and not statistically significant for the sample of democracies. In other words, the data indicates that there is likely an effect of a significant protest event on the amount of remittances that same country will receive that same quarter of the year compared to the same quarter of the previous year. More specifically, the regression says that when there is a significant protest event in a randomly chosen country, the amount of remittances received increase by about 3.8% for that given country compared to the same quarter of the previous year. That same effect is estimated to be roughly 13% for countries that are not considered fully democratic – more than three times as much as for the whole sample. The effect for countries that are purely democratic is estimated to be a lower 0.3% but is not statistically discerned from 0 – in other words, the statistical confidence in the positive effect of a significant protest on the remittance flows is low for democratic countries.

Moving beyond the significant protest event variable, the table continues to list the effect on remittances up to four quarters after the event. The general trend across the three regressions – apart from the general lack of statistical confidence in these coefficients – is a decrease in the growth of the remittance flows compared to the same quarter as the event. In the regression based on the whole sample, the effect on remittances one quarter after the protest event is significant at the 10% level and at 3.3% it is comparable with the effect on remittances at the same quarter as the significant event. Another statistically significant coefficient appears three quarters after the significant protest in the regression using non-democracies as the sample. Not only is this coefficient statistically significant under the 10% confidence level, but it also describes a spike in the remittances with an increase of 8.5% in remittances compared to the same quarter of the previous year.

The exchange rate variable is used as a control, decreasing the residual and enhancing the precision of the coefficient tied to the significant protest variable. It is worth noting that in this regression, the exchange rate variable does not show significance. However, the same regression is also conducted where exchange rates in absolute numbers are used instead of the year-on-year growth rate of exchange rates – this table can be found in the Appendix.[3] Here, the exchange rate control is significant with $p<0.01$, while the other coefficients for significant event and their lags in the regression hold close to constant. But given how the dependent variable is constructed as a year-on-year growth rate of remittances, the most coherent method is to use a similar setup for the exchange rate control, and thus, that is the one included in the table.

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[3] Refer to Table 6 in Appendix

### 6.1.2. MONTHLY DATASET FINDINGS

As described under methodology, this paper also performs a regression using higher frequency data due to the concern that some causal relationship between protests and remittances might be overlooked by the low frequency of the quarterly dataset. Table 2 describes the results of this regression which also relies on a sample using protest events with 10 000 or more participants and the protester demand of "Removal of Politician" as the criteria for the significant protest dummy variable to take the value of 1.

| VARIABLES | (1)<br>Whole Sample (Monthly) |
|---|---|
| significant protest | 39.72* |
| | (20.60) |
| One Month after significant protest | 20.63 |
| | (21.39) |
| Two Month after significant protest | 10.59 |
| | (23.01) |
| Three Month after significant protest | 9.916 |
| | (20.22) |
| Four Month after significant protest | -21.42 |
| | (23.06) |
| YoY Change in Exchange Rate | 1.864*** |
| | (0.538) |
| | |
| Observations | 165 |
| R-squared | 0.704 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

*Table 2 - Panel Data Regression with Monthly Data*

*Source: Authors' Rendering*

With a confidence level of 10%, the regression says that a significant protest will cause an increase in remittances by an estimated 39.7% in that same month compared to the same month of the previous year. The regression table continues to illustrate that, in the following months, the remittances are still greater than the same month of the previous year, however this difference decreases for every month after the protest event. Notably, these following variables are not statistically significant under the 10% confidence level

A notable difference between the regression of the monthly dataset and the quarterly dataset is that the regression is not divided into different samples based on forms of government. It is not statistically possible to run regressions of the monthly dataset using similar splits of the sample as the main dataset due to the small number of observations in the monthly dataset. However,

since the purpose of the monthly regression is to act as a robustness check for the main dataset in terms of frequency of data, this is not a major concern for this paper.

## 6.2.    EVENT STUDY

### 6.2.1.  MAIN DATASET FINDINGS

Recognizing the concern that there may be a reverse causality issue, one of the methods this paper deploys to examine this issue is the use of event studies. In this section, the results of these event studies are examined. 10 quarters prior to and after the significant event are mapped in the graphs with the confidence intervals and estimated coefficients. The red horizontal bar goes along y=0 to distinguish lags where the remittance growth is significantly positive.
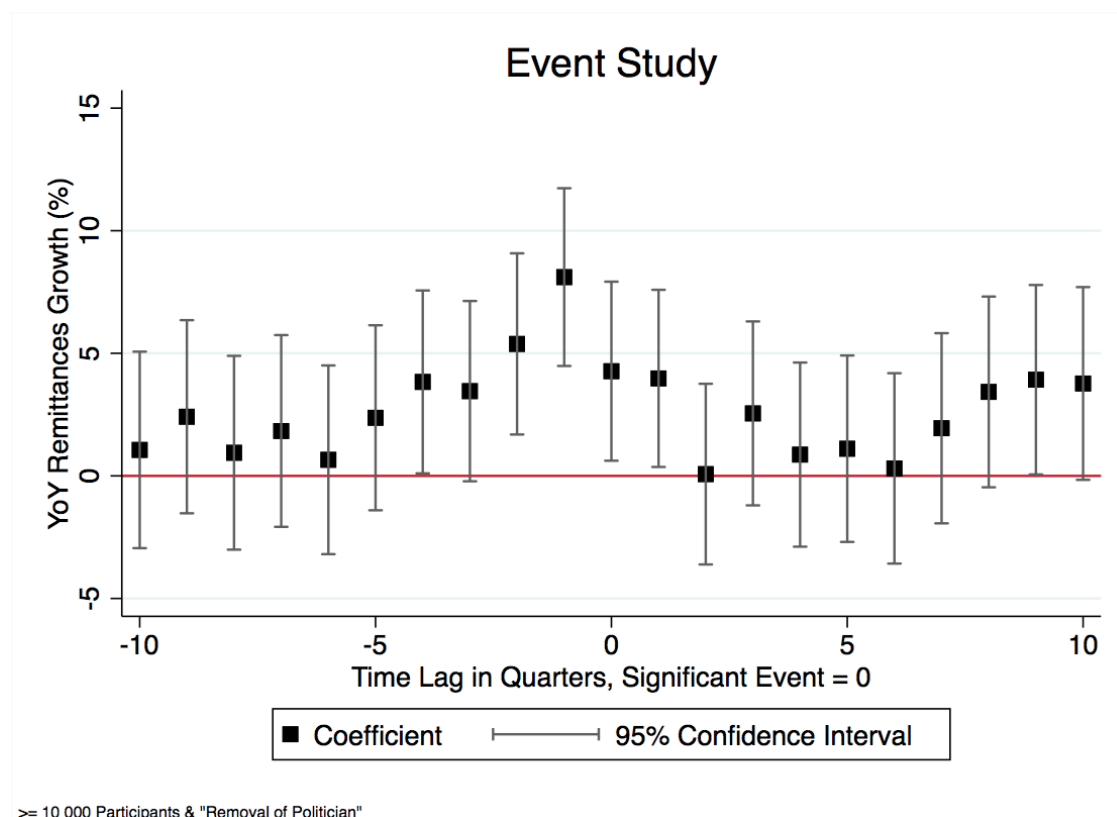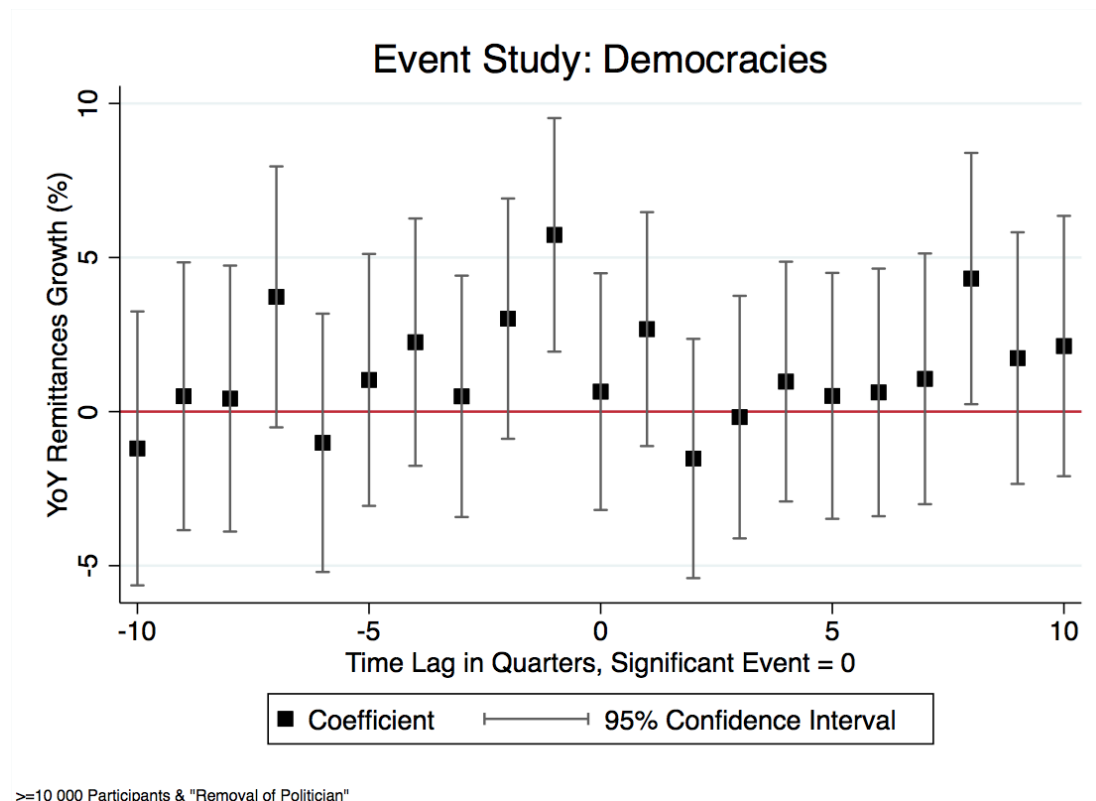


>= 10 000 Participants & "Removal of Politician"

Figure 1 - Event Study (Whole Sample)

*Source:* Authors' Rendering

Examine the event study for the whole sample. A trend break can be noted five quarters prior to the significant event as the estimated coefficient increases. This increase continues and the coefficients becomes statistically significant two quarters prior to the event, where they continue to be significantly positive until one period after the event. Although the entire period from minus three periods to plus 1 period (before, respectively after the event) is distinct and marks a statistically significant increase in remittance growth compared to the same quarters of the previous year, it is notable that the largest spike in growth of remittances occurs one

quarter prior to the protest event. The event study also shows a gradual increase in the coefficients of the last three quarters of the period.



Figure 2 - Event Study (Democracies)

*Source:* Authors' Rendering

Examine the event study for the sample of democracies. Compared to the event study for the whole sample, the quarters surrounding the significant event is not as distinct from the rest of the quarters. This event study displays more variation in the distribution of the coefficients, and less of a distinguishable pattern. The greatest peak in the event study occurs one quarter prior to the significant protest event, similarly to the previous event study.

Event Study: Non-Democracies
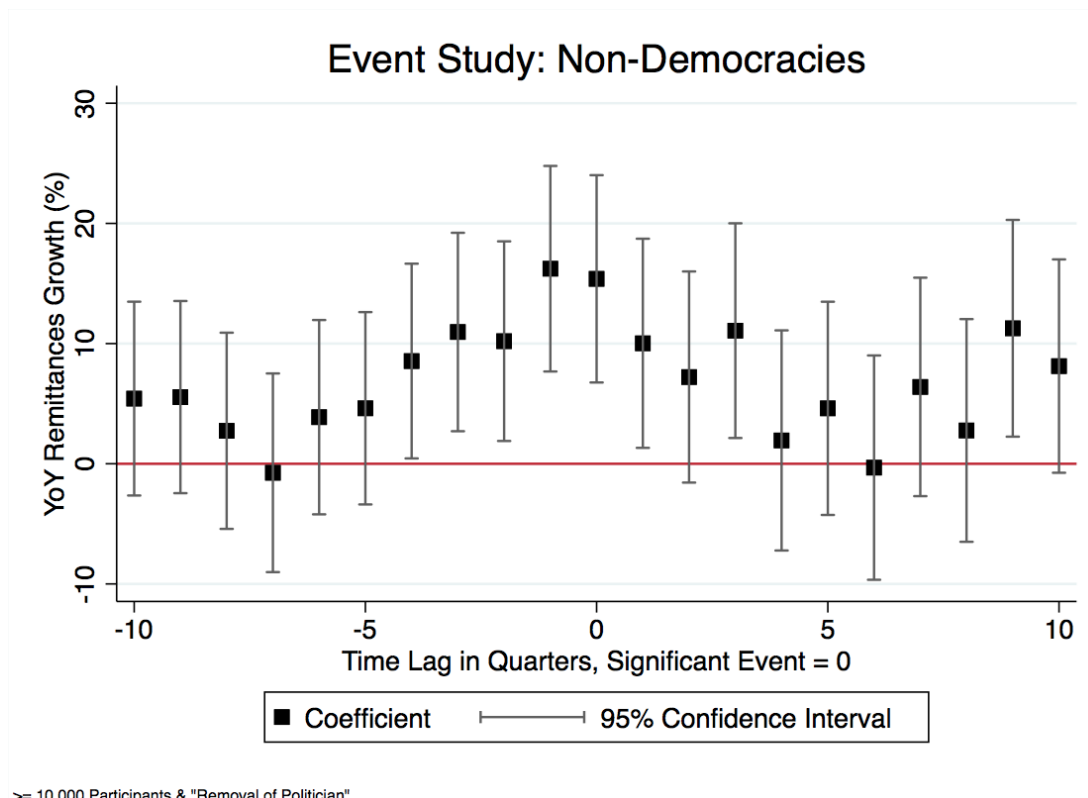
>= 10 000 Participants & "Removal of Politician"

Figure 3 - Event Study (Non-Democracies*)*

*Source:* Authors' Rendering

Examine the event study for the sample of non-democracies. The pattern is similar to the event study for the whole sample; the quarters around the significant protest event are distinct from the rest of the quarters in the graph. A statistically significant increase in remittances growth occurs four quarters prior to the protest event. Once again, the quarter prior to the significant protest event coincides the largest increase in remittances growth. The coefficients are significantly positive until three quarters after the significant event, with an exception for the second quarter after the event. The event study also shows an increase in the coefficients of the last two quarters of the period: with the coefficient nine quarters after the event being significantly positive.

The fact that all three of the event studies on the main dataset show a spike in remittances in the quarter preceding the significant protest event, indicates that there may be a potential reverse causality issue. In other words, it is possible that remittances are in fact causing protests to a larger extent than the other way around. This is the inversed causal relation than what was hypothesized in this paper. However, this is a highly important finding. The event studies were used with the specific purpose of uncovering this potential issue. Its implications are further discussed under Section 7: Discussion.

### 6.2.2. MONTHLY DATASET FINDINGS

The event study was also conducted using the monthly dataset with the intention to identify potential reverse causality issues in the relation between remittances and protests at a higher frequency.

## Event Study (Monthly)
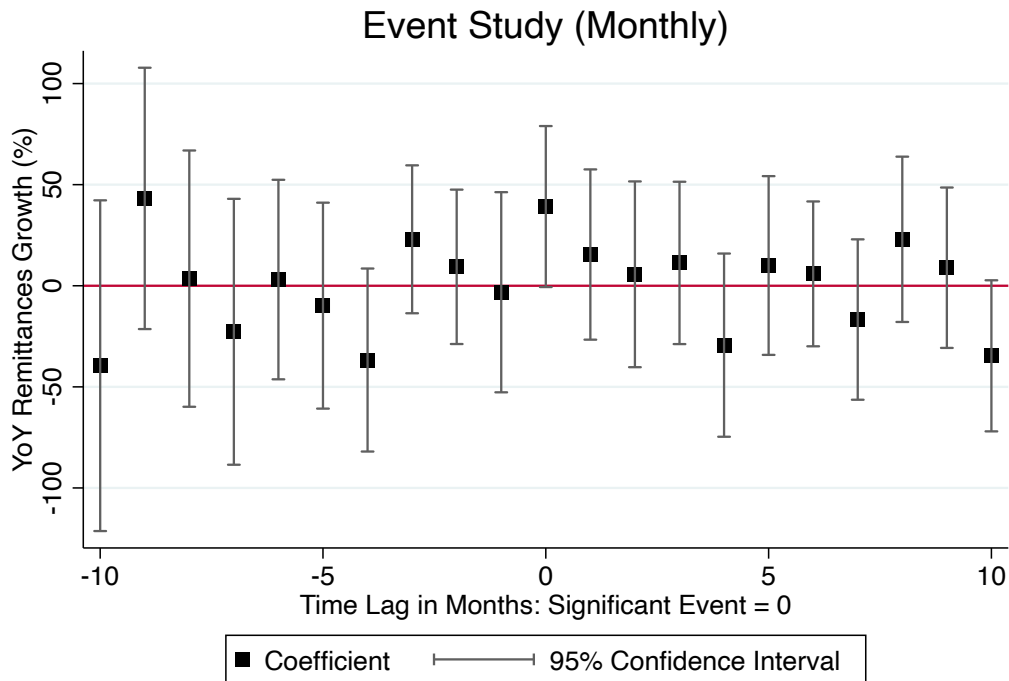


>10 000 Participants & "Removal of Politician"

Figure 4 - Event Study (Monthly Data)

*Source:* Authors' Rendering

Examine the event study for the monthly dataset. It is immediately apparent that there is no clear distinction between the period around the significant event and the rest of the quarters in the event study. However, the most notable deviation in the graph occurs in the same quarter as the significant protest event, where there is a peak in remittances growth. The reverse causality issue is not as clear. What also is important noting in this visual representation is the extreme deviations on the y-axis, implying less precise results.

# 7. DISCUSSION

## 7.1. INTERPRETING AND CONTEXTUALIZING RESULTS

Initially, this discussion will home in on the results, how they can be interpreted and what the takeaways from those interpretations are. The results have been built on empirical testing of regressions with a certain x-variable as the driver. For this paper, that has been the combination of protesters having "Removal of Politician" as the protest demand, and the protest having at least the size of 10 000 participants. Worth noting is that other protester demands could possibly also hold relevant. However, to isolate the study as close to the core purpose as possible, settling for this demand as the driver was found to be the most applicable. On the selection of the participant number criteria, the decision comes down to a tradeoff between sample size and protest size. As previously discussed, one building assumption is that the smaller a protest is in terms of participation, the less likely it is to help spur transnational remittance flows. Nevertheless, at the same time, the number of measurable protests with extremely large number of participants are very few, and hence, reduces the possibility to test for reliable results. Settling on the participant number of 10 000 hence boils down to opting for the biggest participant number, that still allows for a sufficiently big sample size.

Having that independent variable defined, what does it show in the results, and how could that be interpreted? As shown in the panel data regression, the growth in remittances during the same quarter, as well as the quarter following a significant event, aligns with the hypothesis of the thesis that the diaspora likely reacts to such events with increasing the inflow of money to support their relatives. However, this effect, as shown in the results, is not sustained. One plausible explanation to be discussed could be derived from the intuition behind seeing a surge in remittances after a protest because the diaspora wants to support a democratic transition, which is what Edelbloude et. al. also discuss in their examination of this effect in Tunisia. However, many protest events that were defined as significant protest events in this study, do not per definition convert into any real political change. For that reason, the interest from the diaspora to keep on investing in the country of origin may vanish.

One other interesting observation from the panel data is the recoil in remittance growth at quarter $n+3$, going back to a positive increase before continuing the decline. One plausible explanation which is interesting to discuss further could be that the second wave of surging remittances in $n+3$ is explained by the financial support of families in the aftermath of the turbulence from the protests. However, there is no support for that in this study, and would be a valuable question for future research.

Furthermore, as assumed by the build of the study, and as supported by Escribá-Folch et al., there is a difference between how these remittance flows react to protests in democracies and non-democracies. This should boil down to two main drivers: Partly that the discussed motive of driving democratic change only is applicable to non-democracies, and non-democracies often to a larger extent being developing countries, more dependent on remittances and hence, inflating the remittance growth coefficients. A coefficient of 13% growth in remittances at

p<0.01 during the quarter of a significant event is a remarkable, high effect, which should be considered as one of the main takeaways from this study.

Looking at the panel data regression on the monthly data, it faces problems with sample size, hence the dramatic standard errors, but also an inflated R-squared value. Moreover, due to the limited sample size isolating non-democracies in the regression is not an option. Nevertheless, looking at the results, they are despite large distortion and inaccuracy in line with results from the quarterly data – strongly positive coefficients for the first three months, which is the same quarter as the event. This zoomed in approach indicates that the significant increase in remittances shown in the quarterly regression is driven by a direct effect in the same month, diminishing over time within the same quarter. This, highlighting the assumed immediate effect that requires high frequency reporting to be distinguished. This paper only held access to monthly data on remittances at its extreme. However, if possible, to in the future gather weekly or even daily data that does not compromise the sample size in terms of country and time coverage, that could be another valuable dimension to add to the study.

Diving into interpreting and discussion the findings in the event study graphs, these show deeper insight on the timespan leading up to the protest event. In line with the previous study homing in on the reversed causal relationship, the placebo test in this paper again supports that there is an increased inflow of remittances before a significant protest event. The event study graphs, as in the panel data regression, also show that this effect remains positive not only before the events, but also during the same quarter as well as during the next one. This makes the reverse causality issue clear, where there, as shown in this study not only is a surge in remittances before a significant protest event, but also afterwards. Thus, distinguishing what the causal direction is becomes complicated. However, what is worth nothing is that for all three graphs, the largest spike takes place in the quarter before the protest, possibly indicating that the still positive remittance growth after the significant event could be part of a diminishing effect from this particular pre-event spike.

This representation of the data in the event study goes further in time compared to the regression. Here, showing how after the previously known diminishing growth of remittances, it looks to start surging slightly again around two years after the event. However, given increased distortion for every time lag, it is hard to discuss this in relation to the core of the study, and could possibly be derived by natural causes like cyclical fluctuations in the macroeconomic state of the market.

Just as in the panel data regression, the event study pattern is clearer and more apparent for non-democracies than the whole sample, in line with previous literature and the building assumption. For democracies, however, it is hard to visually distinguish a trend, as compared to how the event study looks like for non-democracies. The event study for the monthly data is similarly hard to draw any distinctions from, especially considering how extreme deviations it holds on the y-axis which imply statistical insecurities.

## 7.2. IMPLICATIONS OF METHODOLOGY

In this paper, the remittances data was transformed into a year-on-year growth rate and was then used as the dependent variable for the studies.

There are, however, some noteworthy implications of transforming the remittance data into a year-on-year growth rate. The first has to do with outliers and has been covered in depth under the methodology section. In short, the creation of a growth variable means that unreasonably large or small growth rates are generated between periods where there are big differences in remittance flows for the same country. The second issue has not been as thoroughly covered in this paper yet. Essentially, the year-on-year growth rate was chosen as the most suitable version of the remittance data because there is seasonality in remittances. The data shows that remittances increase during specific months, for example due to holidays (The World Bank, 2006). However, using a year-on-year growth rate as opposed to a quarter-on-quarter (or month-on-month) is not entirely free of problems. It must be considered that the same quarter one year ago is a long time ago, and that there are many macroeconomic factors which can affect the remittance flows in this period while this paper only investigates one potential factor. In fact, it can be argued that a quarter-on-quarter growth might have given a clearer and more isolated effect of protests on remittances. Once again, though, that would mean missing the seasonality issue of remittances which would cause an endogeneity issue in the form of an omitted variable bias.

Next, it is important to discuss the implications of cutting off 5% on both tails of the distribution of the remittance growth variable in the main dataset. On the one hand, it has been a necessary method in terms of using the dataset to produce results that are interpretable. Essentially, the dataset on remittances that was downloaded is based on the balance of payments of all countries around the world. As discussed in the methodology section, due to inconsistencies in how countries report their financial information, the remittance data has not always been comparable or trustworthy. Leaving the variable untreated would result in overwhelming noise in the statistics and lead to results that would not be comprehensible or meaningful. However, it cannot be left unsaid that there are problems with treating the data in this way. One should be very careful when cutting off data, as it can be easy to find significance when manipulating the data into looking in a certain way. This paper has been very careful with avoiding any type of p-hacking or significance chasing. Cut-offs have only been made when necessary and have been made in such ways that they are both reproducible and based on generalized rules – no arbitrary eliminations have been made. A concrete example of this ties into a previous topic of discussion, namely, the construction of the significant event dummy variable. In this paper, the significant event definition that was chosen has been in line with the hypothesis and purpose of the paper as defined from the beginning.

Another related point of discussion is the treatment of the Clark & Regan dataset in terms of participants. As explained under the methodology section, the participant numbers were treated in order to generate a standardized and comparable variable. In this treatment process, a defensive stance was taken in terms of defining the participant numbers. This ties into the academic principle that this paper should not reach a statistically significant conclusion based on data which is not true or manipulated. However, the defensive stance also has implications. Essentially, by adjusting the numbers downwards when there are uncertainties, protest events which in reality might be defined as significant protest events as per the criteria in this paper,

might be overlooked. Of course, this also has implications for the results. It can lead to a lack of statistically significant findings, or – in the worst case – allow for statistically significant findings even if they are not really true and in fact based on outlier data.

A big consideration in this paper has been the selection of countries and years. Depending on which countries or years that are used for the study, the results can vary significantly. In general, this paper has used the largest possible dataset and not made any elimination in these aspects. However, the protest database mostly covers developing countries. This does create some skewness in the data which is worth noting. The universality of the study on all countries, then, is worth discussing. However, it should also be noted that remittances as a phenomenon is mostly relevant for developing countries. No doubt, the application of this study is mostly related to developing countries, and in that light, this is not a major concern.

Lastly, this paper uses the Polity V dataset to categorize countries into different levels of democracy. Polity is a recognized source and well-cited in academia. As has been noted time and again, no index of democracy is perfect as measuring democracy involves taking many factors into consideration and a lot of information which may be difficult to obtain. This paper uses the Polity V dataset as the democracy index of choice but recognizes the issues with measuring democracy.

## 7.3.    CONNECTIONS TO PREVIOUS LITTERATURE

From the previous studied literature covering the causal relationship between protests with the intention to overthrow a governing body and remittances, two main takeaways are prominent:

1. Testing the causal relationship on whether remittances affect the likeliness of revolutionary protest events emerging in the coming period shows that the independent variable of remittances has a positive and significant effect on coming protests. This applies to a sample including global coverage.

2. When reversing the causal relationship from the previous study, and instead looking at how revolutionary protests affect the inflow of remittances in coming periods, a positive causality is also identified. This is, however, limited to an isolated case study of the Arab Spring protests in Tunisia in 2010/2011. Here, it is shown that the increased inflow of remittances is sustained over time.

In relationship to these two previous findings from earlier research, this paper brings two additional insights building on the given takeaways;

Firstly, when testing the reversed causal relationship from the first study, similarly being applied to a global sample, a distortion in the study's results derived from reverse causality is highlighted. When running a placebo test, producing the event study graphs shown in the result section, it is shown how there is a significantly positive effect on remittances both in periods preceding and coming after significant protest events. Hence, it is difficult to be certain about the causal relationship given how it seems to be distorted by reverse causality issues.

Secondly, the second cited paper indicated that revolutionary protests events spur increased remittance flows sustained over time. However, this is limited to a case study of Tunisia – the only country in the Arab Spring revolution that actually transformed into becoming a democracy. In reality, not all revolutionary protest events convert into real change, and many movements vanish, quickly putting the population in a position where they are returning to the old reality. In this study, it is shown that there is a significantly positive growth in remittances in the same quarters as the significant protest event as well as in the following quarter. However, in this paper's larger and global sample, the data does not show a sustained positive effect, where the percentage change in remittances instead returns to previous levels (or at least statistically unconfident levels) two quarters following a significant event.

# 8. CONCLUSION

This paper examines the causal relationship between protests with the aim or intention to remove the ruling governing body and how they affect the inflow of remittances to that given country in the coming periods. It finds that there is a significantly positive increase in the remittance inflow during the quarter of a significant protest and the following quarter. This effect is even stronger for countries listed as non-democracies. However, this effect is not sustained and diminishes over time. It is also found that this increase in remittance flows is prevalent both before and after a significant protest, and hence, the reverse causality issue cripples this paper from specifying a causal direction in the relation.

In relationship to previous literature, these findings add two new valuable dimensions. Firstly, regressing revolutionary protest events on remittance inflows (at least on a global sample) needs to be done carefully given the shown reverse causality issue. In other words, when working with remittances and protests in future research, one should be careful with the implicit assumptions that are made. Secondly, the assumption that a revolutionary protest yields an inflow of remittances that is sustained over time must be questioned given that this paper was not able to reproduce this effect when testing on a global sample.

Based on the findings derived from this paper, in relation to previous literature; suggestions on further research can be boiled down to three main areas:

1. Refining the study of the causal relationship between protests and remittances. As previously discussed, endogeneity issues remain omnipresent in studies addressing this causal relationship. More innovative ways or other econometric methods to approach this endogeneity issue in addition to what already has been tested in previous studies could help isolate a less distorted understanding of the causal relationship – possibly closing in on the reverse causality issue highlighted in this paper.

2. Building on the finding of differences between temporary and sustained inflows of remittances. As discussed above, this paper contradicts to the previous study on the same causal relationship only relying on data from Tunisia. This dataset brings together a general sample where the same sustained inflows of remittances do not hold. Hence, an intuitive question to research in extension to this paper is testing whether there is a significant difference in remittance flows following a significant protest event depending on whether the particular protest event is successful.

3. Investigating the behavioral factors behind decision making which drives the increased remittance flows following significant protest events. This paper, as well as the two previously cited ones, all rely on macroeconomic data to study this causal relationship. However, another aspect that would enrichen the literature would be to take on a strategy approaching micro data to investigate the issue. E.g., studying people in the diasporas that send money, and survey them on what drives their decision making in sending remittances, and how that differs during and after democratic change in the country of origin. This gives a behavioral economic

dimension to the study, which could help answer some of the questions raised in the discussion, e.g. if one wave of the surge in remittances is driven by one intention, such as stimulating political change, what, then, drives the second wave?

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| Country List (Quarterly dataset) | Country List (Monthly dataset) |
|---|---|
| Afghanistan | Bangladesh |
| Albania | Colombia |
| Algeria | Dominican Republic |
| Angola | El Salvador |
| Argentina | Guatemala |
| Armenia | Honduras |
| Azerbaijan | Jamaica |
| Bangladesh | Kenya |
| Belarus | Mexico |
| Belgium | Morocco |
| Bolivia | Nepal |
| Bosnia | Nicaragua |
| Brazil | Pakistan |
| Bulgaria | Philippines |
| Cambodia | Cape Verde |
| Cameroon | Ethiopia |
| China | Guinea-Bissau |
| Colombia | Liberia |
| Congo Kinshasa | Nigeria |
| Costa Rica | Sudan |
| Croatia | Uganda |
| Cyprus | Latvia |
| Czech Republic | |
| Dominican Republic | |
| Ecuador | |
| Egypt | |
| El Salvador | |
| Estonia | |
| Ethiopia | |
| Finland | |
| France | |
| Gambia | |
| Georgia | |
| Germany | |
| Ghana | |
| Greece | |
| Guatemala | |
| Guinea | |
| Guyana | |
| Haiti | |
| Honduras | |
| Hungary | |
| India | |
| Indonesia | |
| Iraq | |
| Ireland | |

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|---|---|
| Italy | |
| Jamaica | |
| Japan | |
| Jordan | |
| Kazakhstan | |
| Kosovo | |
| Kyrgyzstan | |
| Lebanon | |
| Liberia | |
| Macedonia | |
| Madagascar | |
| Mauritius | |
| Mexico | |
| Moldova | |
| Mongolia | |
| Montenegro | |
| Morocco | |
| Mozambique | |
| Myanmar | |
| Nepal | |
| Nicaragua | |
| Nigeria | |
| Pakistan | |
| Panama | |
| Paraguay | |
| Peru | |
| Philippines | |
| Romania | |
| Russia | |
| Serbia | |
| Sri Lanka | |
| Sudan | |
| Suriname | |
| Tajikistan | |
| Tanzania | |
| Thailand | |
| Turkey | |
| Uganda | |
| Ukraine | |
| Uruguay | |
| Uzbekistan | |
| Venezuela | |
| Yemen | |
| Zambia | |

*Table 3 - Country Coverage*

*Source:*                                   Authors'                                   Rendering

| Remittances | Quarter, Year and Country |
|---|---|
| 1 | Q1,1995, Romania |
| 0 | Q2,1995, Romania |
| 1 | Q3,1995, Romania |
| 2 | Q4,1995, Romania |
| 6 | Q1,1996, Romania |
| 3 | Q2,1996, Romania |
| 1 | Q3,1996, Romania |
| 0 | Q4,1996, Romania |
| 0 | Q1,1997, Romania |
| 1 | Q2,1997, Romania |
| 0 | Q3,1997, Romania |
| 1 | Q4,1997, Romania |
| 1 | Q1,1998, Romania |
| 0 | Q2,1998, Romania |
| 1 | Q3,1998, Romania |
| 2 | Q4,1998, Romania |
| 1 | Q1,1999, Romania |
| 1 | Q2,1999, Romania |
| 1 | Q3,1999, Romania |
| 1 | Q4,1999, Romania |
| 1 | Q1,2000, Romania |
| 0 | Q2,2000, Romania |
| 1 | Q3,2000, Romania |
| 0 | Q4,2000, Romania |
| 1 | Q1,2001, Romania |
| 1 | Q2,2001, Romania |
| 1 | Q3,2001, Romania |

*Table 4 - Remittance Data, Romania 1995-2001*

*Source:* IMF. Balance of Payments Analytic Presentation by Indicator.

| Remittances | Quarter, Year and Country |
|---|---|
| 668.5 | Q1,2014, Romania |
| 680.9 | Q2,2014, Romania |
| 678.7 | Q3,2014, Romania |
| 630.3 | Q4,2014, Romania |
| 505.5 | Q1,2015, Romania |
| 667.3 | Q2,2015, Romania |
| 595.4 | Q3,2015, Romania |
| 644.5 | Q4,2015, Romania |
| 590.2 | Q1,2016, Romania |
| 667.5 | Q2,2016, Romania |
| 800.7 | Q3,2016, Romania |
| 653.5 | Q4,2016, Romania |
| 551.4 | Q1,2017, Romania |
| 876.4 | Q2,2017, Romania |
| 835.3 | Q3,2017, Romania |
| 935.5 | Q4,2017, Romania |
| 794 | Q1,2018, Romania |
| 977.2 | Q2,2018, Romania |
| 917.2 | Q3,2018, Romania |
| 825.3 | Q4,2018, Romania |
| 874 | Q1,2019, Romania |
| 1028.2 | Q2,2019, Romania |
| 1042.1 | Q3,2019, Romania |
| 1173.6 | Q4,2019, Romania |
| 803.9 | Q1,2020, Romania |
| 804 | Q2,2020, Romania |
| 1120.9 | Q3,2020, Romania |

*Table 5 - Remittance Data, Romania 2014-2020*

*Source:* IMF. Balance of Payments Analytic Presentation by Indicator
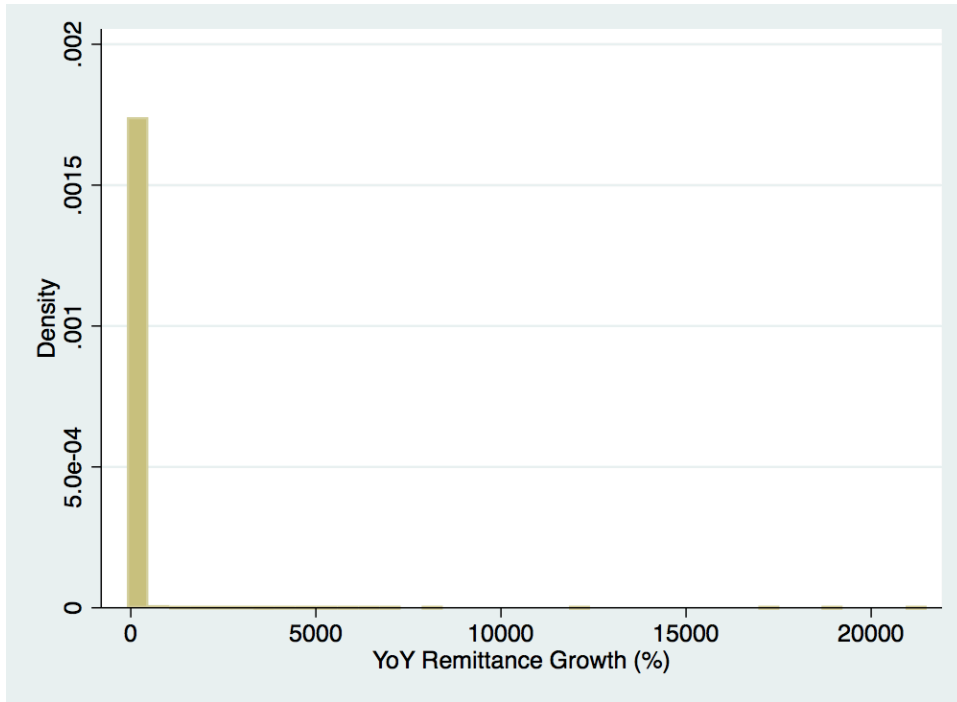
Figure 4 - Histogram, unmodified year-on-year remittance growth variable

*Source:* IMF. Balance of Payments Analytic Presentation by Indicator
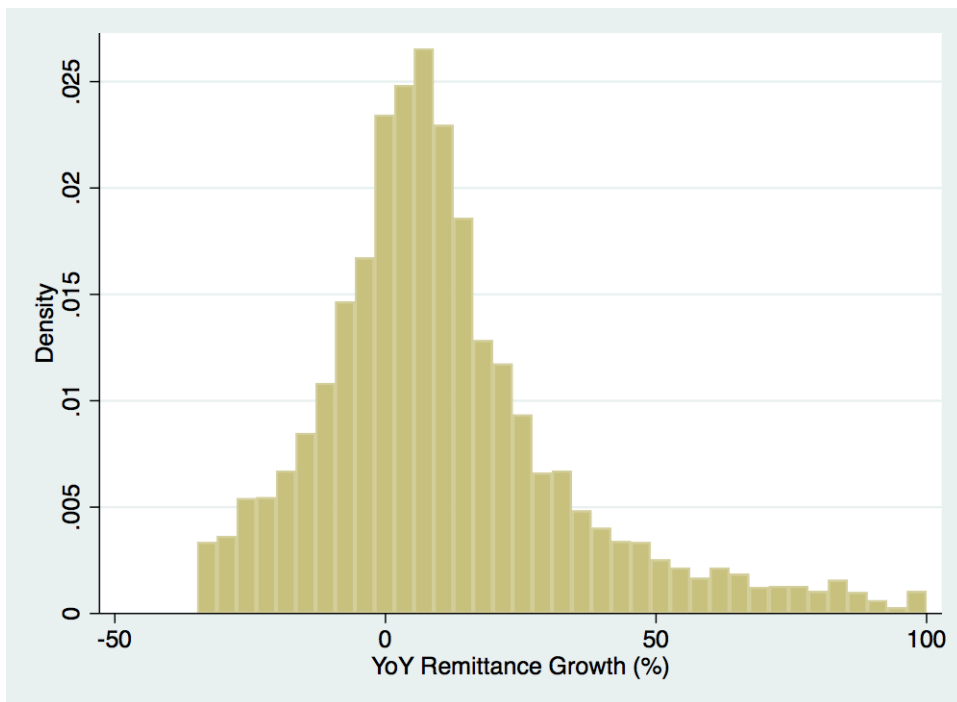


Figure 5 - Histogram, year-on-year remittance growth variable with extreme 5% of both sides' observations cut off

*Source:* IMF. Balance of Payments Analytic Presentation by Indicator

| VARIABLES | (1) Whole Sample | (2) Non-Democracies | (3) Democracies |
|---|---|---|---|
| significant protest | 3.838** | 12.72*** | 0.409 |
| | (1.894) | (4.594) | (1.975) |
| One Quarter after significant protest | 3.318* | 5.029 | 2.988 |
| | (1.890) | (4.601) | (1.967) |
| Two Quarters after significant protest | -1.332 | 1.744 | -1.988 |
| | (1.934) | (4.681) | (2.012) |
| Three Quarters after significant protest | 2.431 | 8.810* | 0.0161 |
| | (1.967) | (4.708) | (2.048) |
| Four Quarters after significant protest | 0.541 | -0.457 | 1.377 |
| | (1.946) | (4.746) | (2.008) |
| Exchange Rate | 0.0113*** | 0.0561* | 0.0121*** |
| | (0.00317) | (0.0331) | (0.00295) |
| | | | |
| Observations | 5,360 | 1,633 | 3,727 |
| R-squared | 0.194 | 0.233 | 0.259 |

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

*Table 6 - Panel data regression, quarterly data, exchange rate in absolute numbers*

*Source:* Authors' Rendering