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Disentangling the Relationship Between Remittances and Peace

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Abstract

This study explores the relationship between remittances and peacebuilding. My hypothesis is that there is a statistically significant relationship between remittances and peace levels. I employ four multivariate regression models which control for social, economic, and political factors for countries over a given period. The results indicate that remittances have a statistically significant relationship with peacebuilding. I find that higher remittances as a percentage of GDP are linked to lower peace levels. Additionally, lower average transaction costs for migrants remitting back to their nations of origin are linked to lower levels of peace. The study also finds that the highest remittance receiving nations have a strong correlation with the lowest levels of peace. I identify the possible mechanisms for this relationship as being a combination of migrants having greater propensity to sustain the livelihoods of their families in areas of conflict and the lack of regulation leading to lower transaction fees in nations of conflict.

Introduction

Remittances are evolving into a key component of the global economy. From a development context, remittances have surpassed foreign direct investment (FDI) and official development aid as the largest source of external financing for lower and middle-income nations (excluding China) (Barne & Pirlea, 2019). Although remittances have been recognised as a key source of development capital, their entanglement in conflict is often overlooked (Lindley, 2009). Regions of recent conflict such as Bosnia and Herzegovina, El Salvador, Haiti, and Lebanon owe 10% or more of their GDP to remittances (Lindley, 2009). Despite the underlying importance of migrant income in these regions, their impact on conflict is still contentious. This study aims to explore the relationship between remittances and peacebuilding in recent years and provide a springboard for future research. Our hypothesis is that there is a statistically significant relationship between remittances and peace levels in a nation.

Hypothesis: There is a statistically significant relationship between remittances and peace levels.

I will explore this topic through a quantitative analysis of the correlation between remittances and two differing peace indicators (the Global Peace Index and the Fragile States Index) within the last twelve years. I will begin by providing an overview on remittance and conflict literature

thus far. I will then explain my research methodology. I will continue by outlining the findings of my research. I will then discuss the implications of my findings. Finally, I will provide closing remarks.

Literature Review

Economic Theories of Remittances

Remittance behaviour was not the focus of neoclassical economic theory, with authors choosing to instead study wage differentials and perspectives on extending capitalist production to global peripheries (Lindley, 2009). However, in the 1980s the 'New Economics of Labour Migration' (NELM) theory (Lucas & Stark, 1985) put an emphasis on remittances within the theories of migration. Under NELM, migration is formulated as a strategy to diversify household income sources in response to risk, local credit market constraints, or insurance.

However, this framework runs into a major limitation when looking at conflict settings as migrants are assumed to be in a state of temporary migration. It is theorised that the longer they stay away, the weaker their bonds to their nation of origin will become. Furthermore, there may be greater claims on their income from the host nation (Stark/Lucas, 1985). Clearly this is incompatible with conflict settings as migrants who look to escape dire situations in their host nations may not have a sense of when the conflict will end. Simultaneously, it cannot be assumed that their bonds with the origin country will weaken as due to the notion of tempered altruism, they may start deriving more utility from helping their household which is now in greater danger. As per Arango, this means that the theory has limited versatility in 'less established migration contexts' especially those with 'social disorganisation and life-threatening circumstances' (2000). Empirical research of Mexican and Dominican diaspora in the US supports this hypothesis (Sana and Massey, 2005). NELM explained the patterns of remittance among rural Mexican communities where the male generally seeks temporary employment to supplement the livelihoods of their family back home with the intention to eventually return but in the Dominican case a poorer economic and political situation meant that migration was '…a more dramatic, less carefully planned move, with the purpose of ensuring family subsistence…' Additionally, more Dominicans who ended up becoming permanent US residents continued to

send money back home to a wider network; contrary to NELM's predictions. Since the 1980s further conceptual developments have expanded our understanding of migrant social networks and remittance but few have tackled how they interact with conflict until recently.

Remittance Under Conflict

Modern pieces on the role of remittances under conflict focus on the economic factors at play. These results have highlighted both potentially positive (Batu, 2019; Regan and Frank, 2014; Fagan et. al., 2005; Zunzer, 2004; Van Hear, 2002; Lindley, 2009) and negative roles (Anderson, 1998; Collier et. al., 2003; Collier and Hoeffler, 2004; Price, 2012) of remittances in conflict.

On the positive end of the spectrum, Batu (2019) argues that remittances may increase the opportunity costs of participating in a conflict by giving potential recruits an alternative to fighting. This raises the costs of recruitment for combatant forces. The paper finds that this reduces both the participation rates in a conflict as well as the amount of force used by the government. Another mechanism, highlighted in Regan and Frank (2014), states that the peacebuilding nature of migrant remittances revolves around the ability of a government to 'buy off' or dissuade rebellion through social welfare payment which builds stability. Remittances in this sense function as a smoothing mechanism to reduce the incentive to rebel. Their results suggest that a sizeable increase in migrant remittances can lower the risk of civil war breaking out. Similarly, Fagan et. al. (2005) notes that in nearly all nations in conflict, war-to-peace transitions are highly dependent on remittances and that migrant remittances may help to avoid further forced displacement from conflict. Zunzer (2004) finds that some instances of migrant engagement might increase the number of survivors and promote peace. Furthermore, those sending back money are characterised by subtly different motivations than economic migrants in non-conflict settings. While the latter can focus on investing in the future of their relatives, migrants sending money to conflict zones do so with the greater aim of *sustaining* the lives of their family members (Van Hear, 2002). Lindley (2009) notes that this function of remittances may help civilians cope by making conflict more liveable and can ultimately shape the way authorities develop extractive and redistributive functions.

On the negative side, some literature suggests that remittances can prolong conflict. Anderson (1998) and Collier et al. (2003) both characterise diaspora as 'long distance nationalists.' They look to use their engagement to assert their identification with their origin country which leads them to support military or political factions that may lead to the longevity of conflict. Additionally, a study by Collier and Hoeffler (2004) finds a tendency of diaspora to fund rebel groups that increase the risk of a nation relapsing into conflict (2004). Similarly, Elu and Price (2012) find that in Sub-Saharan Africa remittances are a source of terrorism finance that function as a destabilising factor in the region. As per their study, approximately one terrorism incident is financed in the region for remittance inflows ranging from $250,000 to $1,000,000.

In her case study of Somalia, Lindley (2010) posits that remittances can play various roles in conflict settings. While generally remittances go in support of a household, the importance of extended kin in Somalian family dynamics mean that remittances are a) spread far afield and b) engaged in the development of the transnational space through which identity is defined. Through an ethnographic analysis of diaspora in Nairobi and London, Lindley engages with how distance from home affects monetary transfers. Somali remittance practices challenge "…international models of conflict resolution and development…[and] illustrate the highly transnational dimensions of economic activity in the shadow of conflict…" Lindley's work emphasizes that while diasporic communities may be described as dangerous or belligerent actors who harbour radicals and support conflict investment, their remittance practices are dynamic and shift in response to a) the changing nature of conflict and b) the role that locals and diaspora members play. While these inflows do go to militia groups, they more often support family expenses such as schooling and building businesses. Relatedly, Horst and Gaas (2008), in a study of Somalian immigrants in Norway, find that widespread outrage about the Ethiopian invasion of Somalian territory led to an increase in the financial support for main actors such as the ICU and the TFG. This support did not go directly to the organisations but instead migrants gave the largest share of financial support at the sub-clan level. Lindley posits that such support is more likely to be felt by family members than that which was given to main actors, which once again supports the hypothesis of tempered altruism.

Beyene (2015) studied the impact of diasporas in Ethiopia, Kenya, and Nigeria between 1995 and 2013 on peace building. The paper finds that the Kenyan diaspora is well organised across the globe and avidly participates in conflict resolution and peace building efforts. Nigerian diaspora meanwhile is generally found to be inactive in peacebuilding efforts. The Ethiopian diaspora, on the other hand, play the opposite role and tend to escalate conflict. This study highlights the high level of cross-country variation in the engagement of diaspora groups and peacebuilding efforts.

Given the wide-ranging impact of remittances in different contexts, it is important to identify which mitigating factors impact the potential for remittances to build peace. Some studies have tackled this issue already. Smith and Stares (2007) find that different ages, genders, and economic classes of diaspora engage with their home nations in different ways. Sana and Massey find that the level of need of the remaining family in conflict zones may impact the remittance dynamics (2005). Institutional strength has also been explored as a factor. De Haas (2008) notes that the fragile institutional contexts which incentivise migration might 'hinder the ability of migrants to perform wider institutional change'. While remittances can improve the welfare of their recipients, wider broad-based change (such as ending conflict) may require the development of political and economic infrastructure. Similarly, Fagan (2005) notes that international institutions for money transfer impact the effectiveness of remittances in mitigating conflict. Anti-terror, anti-crime, and restrictive immigration policies from both developed and developing nations can make it difficult for remittance to be earnt and then delivered to those in conflict settings.

Other Factors of Conflict

The role of remittances is necessarily entangled in other factors of conflict.

One such economic factor is the wealth of individuals in a nation. Several empirical studies have shown that poorer nations tend to suffer civil conflicts (Sambanis, 2006; Sambanis, 2004; Ward et al., 2010). There are three main reasons for this advanced by literature. The first is that higher poverty leads to greater grievances among the populace which in turn leads to the poor institutions associated with poverty being resisted (Jakobsen et. al, 2013). The second is related

to how low income raises the opportunity cost of not joining the conflict as individuals will be marginally better off fighting than they would be entering a labour market with limited opportunities (Collier & Hoeffler, 2004). The third reason relates to how income acts as a proxy for state capacity. Rebel labour will increase as the chance of a successful rebellion increases due to the lack of counterinsurgency forces (Fearon, 2005; Fearon and Laitin, 2003). Vestby et. al (2020) find that there is still a large amount of heterogeneity in conflict risk among low-income nations. The authors found that poor nations with relatively productive modern sectors tend to be less prone to conflict than countries with similar income levels but less productive modern sectors (2020). However, this analysis still does not yield decisive evidence in favour of any mechanism. Overall, we expect average income to have a positive relation with peace levels based on the existing literature.

A second factor relates to the demographics of a nation. Demographic forces are often complex and not easily comparable across nations (e.g., ethnic structure), however, one such social factor that is applicable across nations is population. A study by Acemoglu and Ferguson (2019) finds that post-1940, nations with higher exogenous increases in population faced greater social conflict. Accounting for alternative definitions of conflict, they also found that changes in population had a significant and positive impact on measures of civil war and violent conflict. They attribute this link to the Malthusian argument where an increase in population without a simultaneous improvement in productivity and economic opportunity results in intensified conflict over scarce resources. Sub-country analyses also support the claim that population and demographic shifts are important in the proliferation of conflict. A sub-national study of 27 Indian states from 1965 to 2002 found that increased population pressures and rapid increases in youth population are associated with higher risk of political violence (Urdal, 2006). Similar studies have also found a positive correlation between population and conflict especially under weak state capacity and resource scarcity (e.g., Diehl and Gleditsch 2001, Goldstone 1991, 2002, Goldstone et al. 2012, Hauge and Ellingsen 1998, Homer-Dixon, 1991, 1999, Tir and Diehl 1998, Urdal, 2005). However, despite these studies, the link between population and conflict is still regarded as complex. High populations may be pushed into conflict via resource scarcity but if the technological capability to exploit these resources does not exist then this escalation may not occur (Choucri, 1986). Richards (1996) pushes back against this positive correlation using

the example of conflict in Sierra Leone which is not driven by population or resource-based pressures. Therefore, we would expect population to have a negative relation to peace levels however it should be noted that specific country characteristics play a large role.

A third variable is the freedom afforded to citizens in a nation. Rummel (1983) finds a strong positive association between international conflict and a lack of 'freedom', in the form of political, civil, and economic rights, afforded to citizens. Similarly, Carey et. al (2021) find that state violence tends to escalate in response to increasing violent threats to the state when media freedom is curtailed. Freedom can also be associated with political systems. The long-standing 'Democratic Peace Theory' for instance posits that democracies tend to be more peaceful in their foreign relations (Reiter, 2012). Consensus largely agrees that 'absence of war between democratic states comes as close as anything we have to an empirical law in international relations' (Levy, 1989) and scholars have since argued that an increase in democracies is likely to promote world peace (Bhagwati, 1995). On an internal level, studies have highlighted an 'inverted-U' shaped relationship between level of democracy and the onset of conflict (Hegre, 2014). Studies highlight that semi-democratic regimes tend to have a greater risk of internal conflict than consistent autocracies or democracies (Boswell & Dixon, 1990; Muller & Weede, 1990; Hegre et al., 2001; Fearon & Laitin, 2003). When it comes to the continuation of conflict, several studies have highlighted that democratic regimes tend to have less lethal wars (Lacina, 2006; Gleditsch, Hegre & Strand, 2009). Further studies also indicate that in post-conflict societies, democracies tend to have a lower chance of conflict reoccurrence (Mukherjee, 2006). Based on this research, we would expect political, civic, and institutional freedoms to have a positive correlation with peace levels overall.

Remarks

This literature has highlighted that much is unknown about the *nuance* of remittances in a peacebuilding context. Several studies have highlighted possible mechanisms which may lead to peacebuilding through remittances, but few have empirically tested the strength of this relationship. Furthermore, there are limited studies on the impact of remittances on peace over recent years. Seeing that remittances have only become the largest source of external financing for the Global South in recent years, it is worthwhile to evaluate their impact on conflict in the

modern day. Lastly, it is important to situate the impact of remittances relative to social, economic, and political factors which, as mentioned, have already been empirically linked to conflict.

This study aims to a) empirically prove that remittances are linked to peace levels, b) test the strength of this relationship specifically in recent years and, c) evaluate the impact of remittances alongside social, economic, and political factors in conflict.

Definitions

Defining Peacebuilding

Peacebuilding has taken several definitions over the course of history. The definition depends largely on the organisation or group defining it. The word has been most often used as an 'umbrella term' to combine similar terms such as conflict resolution, management, mitigation, prevention, or transformation (Schirich, 2008). In 2007, the UN Secretary General's policy committee defined it as "…a range of measures targeted to reduce the risk of lapsing and relapsing into conflict by strengthening national capacities at all levels for conflict management, and to lay the foundations for sustainable peace and sustainable development" (UN, 2010). Previous definitions of peacebuilding, such as that of the UN, have primarily focused on the response of the international community (Tschirgi, 1992). There is also, however, a micro-level element to peace which takes place within a nation. Cohrs et. al (2013) visualised peace as "…not only the absence or minimization of violence but also the presence or development of harmonious relationships and social justice." Galtung (1990) developed the concept of positive and negative peace. As per the Institute for Economics and Peace (IEP), negative peace refers to the 'absence of violence or fear of violence' whilst positive peace looks at the '…attitudes, institutions and structures that create and sustain peaceful societies.' (Vision For Humanity, n.d.). From the NGO perspective, the *Institute for Multi-Track Diplomacy* splits peacebuilding into three categories (Mcdonald, n.d.; Schirich, 2008):

- Political Peacebuilding: the processes of agreement and legal issues which includes formal negotiations and diplomacy.

- Structural Peacebuilding: The building of infrastructure which includes strengthening economic, military, and social systems that support a culture of peace. This includes voter education, disarmament of warring factions, police training and building schools.
- Social Peacebuilding: The building of relationships which includes dealing with attitudes, beliefs, and values through dialogue and community-building activities.

It must be noted that peacebuilding appears to have a structural and a societal level element. The structural element is targeted at institutions which may facilitate ongoing violence. Structural violence can be referred to as the disparities and deaths that result when systems, institutions, or policies meet some people's needs and rights at the expense of others' (Schirich, 2008). On the societal level, peacebuilding involves the reconciliation of groups involved in conflict and maintaining a level of community-based stability.

This paper seeks to understand peacebuilding by isolating political, social, and economic factors present within a nation. This definition includes the impact of ongoing international and domestic conflicts which affect the harmony of society in a nation. For our purposes, the wide net cast by the term peacebuilding is advantageous. Our study does not look to differentiate between pre-conflict, conflict, or post-conflict societies as other research might. Instead, we are looking to normalise a score of peacefulness across our recent period and visualise trends regardless of individual country-level circumstances. Our definition combines the social and structural elements of peace through our composite indicators which evaluate not only the strength of institutions in a nation or involvement in international conflict but also measure communal harmony. It should also be noted that at times we will use the term 'instability' and 'stability' in reference to low and high levels of peace respectively.

Operationalising Peacebuilding

Since peacebuilding is a multifaceted term with a large amount of ambiguity, this study takes the approach of utilising two different aggregate measures of peacebuilding: the Global Peace Index (GPI) and the Fragile States Index (FSI).

The Global Peace Index is a measure of the relative position of a nation's peacefulness created by the Institute for Economics and Peace (IEP) (Vision for Humanity, n.d.). This metric accounts for 163 nations and 99.7% of the world's population. It measures peace using 23 qualitative and

quantitative indicators. The IEP has collected this data from 2008 to 2021. Level of peace is measured based on three categories:

- The level of societal safety
- The extent of ongoing domestic and international conflict
- The degree of militarisation

The GPI is scored on a continuous scale from 1 to 5 with a lower score indicating a more peaceful country(n.d.).

The Fragile States Index (FSI) was created by the Fund for Peace (FFP) as a tool to highlight the normal pressures that all states experience and to identify when these pressures outweigh a state's ability to manage them (FFP, n.d.). The FFP has collected this data from 2006 to 2021.The indicator covers 178 nations and analyses states' capacity based on the conflict assessment framework 'CAST' which measures vulnerability based on twelve qualitative and quantitative indicators and four categories:

- Cohesion indicators
- Economic indicators
- Political indicators
- Social and cross cutting indicators

Each indicator is scored on a continuous scale of 1 to 10 with a higher score corresponding to lower stability. The indicators are combined to create a scale from 0 to 120 with a high score indicating lower stability(n.d.).

By including both indicators in the forthcoming regression analysis this study achieves several aims. Firstly, the diversity of country-level peace is better captured by these two varying approaches. As mentioned previously, peacebuilding involves several stakeholders and structural factors. These metrics consider elements such as rule of law, perceived criminality, and political terror in their conceptualisation to create a broad measure of peace in a nation. The GPI can be seen to look at peace from a standpoint closer to UN definitions. Their focus on international conflict, militarisation and safety is more akin to the goal of highlighting lasting factors that may prevent lapse and relapse into conflict. The FSI meanwhile looks at peace from a state capacity perspective. This is a more structuralist perspective on what constitutes peace in the long run. Hence, including both metrics allows us to capture several factors when it comes to peace.

Secondly, whilst being diverse, the indicators maintain a level of comparability with each other. Both employ qualitative and quantitative measures to determine the level of peace in a nation. Additionally, both indicators have been produced from a large sample of nations over a similar period, with the FSI spanning from 2006 to 2021 and the GPI spanning from 2008 to 2021. This allows us to have continuous annual data from 2008 to 2020 for both variables. One limitation, however, is that the indicators do not overlap completely in their coverage of nations. Despite this, the insights gained from this analysis are still valuable given that these are two foremost indicators for conflict available today.

Defining Remittances

Migrant inflows may arrive through several different channels which complicates the process of definition. Formal conceptions of remittances are limited by the quality and coverage of existing data. Using Balance of Payments statistics may not capture the entire scope of remittance flows (World Bank, 2006). There is not a single agreed upon definition of remittances. Some argue that they should include current transfers by migrants that are employed and resident in another country, however, others believe that it should also encompass compensation of employees (current transfers by non-resident workers) (Acosta et. al., 2006). Similarly, there is disagreement on the treatment of migrants' transfers (expenses from migration from one economy to another). Given this the accepted practice has been to include all three facets (workers' remittances, compensation, and personal transfers). Practically, remittance data is also difficult to capture due to informal channels and weaknesses in data collection (2006).

Despite these difficulties, this study will utilise Balance of Payment statistics and data collected by the *World Bank* which defines personal remittances as the sum of worker's remittances, compensation of employees, and migrant transfers (World Bank, n.d.).

Operationalising Remittances

This study will employ two separate measures of remittance in its analysis.

The first outcome variable is remittance as a percentage of GDP (REM henceforth). This data has been collected by the *World Bank* since 1960 (n.d.). The World Bank describes 'personal

remittances' as personal transfers and compensation of employees. Personal transfers consist of all current transfers made or received by resident households to or from non-resident households or individuals. Compensation of employees meanwhile refers to the income of seasonal and other short-term workers who are employed in an economy where they are not residents (World Bank, n.d.).

The second measure is the Average Transaction Cost of sending remittances to a specific country (as a percentage) (ATC henceforth). This variable captures the percentage fee a migrant is charged for sending a remittance transfer to a nation inclusive of the fees charged to the sender and the exchange rate margin (World Bank, 2021). The variable is recorded as the amount charged by each single Remittance Service Provider (RSP) for sending $200 to a specific nation (World Bank, n.d.) and has been recorded by the World Bank since 2011.

We have included two different remittance measures to increase the applicability of results. Remittance as a percentage of GDP can be seen as a widely accepted metric of remittances that can be standardised and is therefore comparable for all states across the time horizon. This metric however does not capture the *ease* of sending remittances to a nation which is an important determining factor in the impact of remittances on an economy. ATC provides a more nuanced outlook of how difficult it is for diaspora to send money back home which may impact the choice of amount and the effect these inflows have on peacebuilding in the recipient economy. By using both metrics we can capture not only the number of remittances sent back but the barriers faced by migrants when sending back money and whether this impacts the effectiveness of peace in different contexts. The data of course has its limitations. REM for instance, as mentioned, may be unable to capture informal channels of remittance and individual countries may have different definitions of what counts as migrant transfers. As for ATC, there is a more limited dataset with fewer countries possessing transaction cost data and the period limited to 2011 onwards. This is evident in the forthcoming study as ATC models will have fewer observations than REM. However, despite these challenges, it is still valuable to include both metrics as they provide the widest and most consensus-based definitions of migrant remittances available.

Control Variables

Alongside the two variables of interest, our model includes three control variables which broadly capture economic, social, and political factors that underpin peacebuilding based on the themes identified in the *Literature Review*.

From an economic perspective, previous studies have shown per capita income to be an important predictor of civil war (Colaresi & Mahmood, 2017; Hegre & Sambanis, 2006; Muchlinski et al., 2016). Hence, I have included Gross Domestic Product Per Capita (current US$) (GDPPC) from *World Bank* data as a control variable. GDP is defined as 'the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.' This value is divided by a nation's midyear population. The data is adjusted to current US dollars (*World Bank,* n.d.).

From a social perspective, studies have shown demographics to be a determinant in the intensity of conflict (Acemoglu & Ferguson, 2019; Urdal, 2006). To make this feature as generalisable as possible across our diverse dataset, I have included average population in this model. I have used total population estimates from World Bank data to capture this effect. The World Bank data counts all citizens regardless of legal status or citizenship and all values are midyear estimates (World Bank, n.d.).

The political sphere is captured by political freedom rankings. Rummel's (1983) study on conflict used *Freedom House's* Freedom in the World (FIW) ratings of civil and political rights. This study will use the same scale to assess the level of political freedom in a nation over our time periods of interest. Nations are scored on a categorical scale of 1 to 7 with a higher number corresponding to less freedom (*Freedom House,* n.d.*)*. Ratings are produced for 195 countries. The criteria involved in producing the rating includes electoral process, political pluralism and participation, the functioning of the government, freedom of expression and of belief, associational and organizational rights, the rule of law, and personal autonomy and individual rights.

Methodology

Approach

The data for this study comes from the *World Bank*, *Fund for Peace*, *Freedom House*, and *Institute for Economics and Peace* databases. I have used the data processing software *Stata* for this analysis. I collected annual cross-country data for the GPI (2008-2020), FSI (2008-2020), GDPPC (2008-2020), population (2008-2020), FIW (2008-2020), and Average Transaction Costs of sending remittances to a specific country (%) (2011-2020). For each model, I have chosen to omit countries with missing values for any variable in any given year so to populate the sample with only complete data during the limited time horizons. I then took the mean of each variable for the two-time horizons, 2008-2020 and 2011-2020.

I ran diagnostic tests to check that my OLS model was in line with assumptions. To test for collinearity between variables, I used the Variable Inflation Factor (VIF) for each model which returned a VIF of below 2.5, indicating limited evidence of collinearity. I then ran a Breusch Pagan test for heteroskedasticity. The results indicated high heteroskedasticity for the raw mean values and therefore I transformed the independent and dependent variables into their natural logarithmic values to reduce the effect of non-constant variance. Furthermore, to increase the reliability of results, I have run each model as a regression with robust standard errors to reduce the possible biases created by heteroskedasticity.

This study will employ four multivariate regression models which capture the mean of each respective outcome variable over their time horizon. Since we are using logarithmic functions, our β coefficients represent the percentage change in γ for every 1% increase in the predictor variable.

The models can be split into two groups with the first two using GPI as the outcome variable and the second two using FSI. Within these groups, two different measures of remittance are employed: REM and ATC. The models are as follows:

Model 1: $\ln(\gamma_g) = \beta_0 + ln(\beta_r x_r) + ln(\beta_1 x_1) + ln(\beta_2 x_2) + ln(\beta_2 x_2) + ln(\beta_3 x_3) + \mu$

Model 2: $ln(\gamma_g) = \beta_0 + ln(\beta_a x_a) + ln(\beta_1 x_1) + ln(\beta_2 x_2) + ln(\beta_2 x_2) + ln(\beta_3 x_3) + \mu$

Model 3: $ln(\gamma_f) = \beta_0 + ln(\beta_r x_r) + ln(\beta_1 x_1) + ln(\beta_2 x_2) + ln(\beta_2 x_2) + ln(\beta_3 x_3) + \mu$

Model 4: $ln(\gamma_f) = \beta_0 + ln(\beta_a x_a) + ln(\beta_1 x_1) + ln(\beta_2 x_2) + ln(\beta_2 x_2) + ln(\beta_3 x_3) + \mu$

In models 1 and 2, γ_g represents the outcome variable of *mean GPI* score while in models 3 and 4, γ_f represents the outcome variable *mean FSI* score.

β_0 represents the intercept or constant of the models where the functions will cross the y-axis. The term $\beta_r x_r$ denotes the slope coefficient and explanatory variable for mean REM, which is our variable of interest in models 1 and 3. $\beta_a x_a$ meanwhile denotes the slope coefficient for the explanatory variable ATC. The major difference between the x_r models (1 and 3) and the x_a models (2 and 4) relate to the time horizons. Models 1 and 3 capture the period from 2008 to 2020 while models 2 and 4 capture the period from 2011 to 2020.

The terms $\beta_1 x_1, \beta_2 x_2,$ and $\beta_3 x_3$ represent our 3 control variables: mean population, mean GDPPC, and mean FIW score.

μ is the error term and signifies the potentially omitted or unobserved variables which are not captured in our model but also contribute to the value of γ.

In each model a part b) is included with the dichotomous variable *high REM/ATC*. This variable returns a value of 1 for a nation if the mean REM/ATC over this period was higher than the 50th percentile for all nations and 0 otherwise. This variable is intended to isolate the effect of high remittance receiving nations on peacebuilding.

Results

Our main hypothesis was that there is a statistically significant relationship between remittances and peace levels over our period.

Hypothesis: There is a statistically significant relationship between remittances and peace levels.

We tested this hypothesis using four multivariate regression analysis models. Remittances in our model were captured by the outcome variables REM and ATC as well as the dichotomous variables high REM and high ATC which capture the top 50% of observations. Our model included three control variables: mean population, mean GDPPC, and mean FIW score.

Model	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Log(mean GPI)	Log(mean GPI)	Log(mean GPI)	Log(mean GPI)	Log(mean FSI)	Log(mean FSI)	Log(mean FSI)	Log(mean FSI)
Log(mean REM)	0.0186*				0.0112			
	(-0.0087)				(-0.0104)			
Log(mean ATC)			-0.0513*				0.00574	
			(-0.0228)				(-0.0195)	
Log(mean POP)	0.0377***	0.0362***	0.0345**	0.0321**	-0.00336	-0.00192	0.0206**	0.0210**
	(-0.00886)	(-0.00848)	(-0.0102)	(-0.0104)	(-0.00752)	(-0.00702)	(-0.00686)	(-0.00697)
Log(mean GDPPC)	-0.0423***	-0.0451***	-0.0404*	-0.0386*	-0.223***	-0.219***	-0.140***	-0.140***
	(-0.0115)	(-0.00983)	(-0.0177)	(-0.0168)	(-0.0172)	(-0.0148)	(-0.0137)	(-0.0129)
Log(mean FIW)	-0.142***	-0.138***	-0.0767*	-0.0852**	-0.150***	-0.155***	-0.0749***	-0.0741***
	(-0.0281)	(-0.0266)	(-0.033)	(-0.0306)	(-0.0376)	(-0.0336)	(-0.0152)	(-0.0148)
High REM		0.0641*				0.0746*		
		(-0.025)				(-0.0302)		
High ATC				-0.0495				0.00948
				(-0.0287)				(-0.0226)
_cons	0.987***	0.999***	0.893***	0.873**	6.717***	6.642***	5.392***	5.388***
	(-0.182)	(-0.177)	(-0.257)	(-0.257)	(-0.22)	(-0.191)	(-0.178)	(-0.168)
N	136	136	87	87	162	167	101	101
R^2	0.536	0.541	0.369	0.366	0.777	0.789	0.718	0.718
adj. R^2	0.522	0.527	0.339	0.335	0.771	0.783	0.706	0.707

Standard errors in parentheses

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

The multiple linear regression 1a) was used to test if mean REM, mean GDPPC, mean population, and mean FIW score significantly predicted mean GPI score over the 2008 to 2020 period. The overall regression was statistically significant (R^2 = 0.536, F(4, 131) = 29.77, p=0.0000). It was found that mean REM significantly predicted mean GPI (β_r=0.0186, p-value=0.034). Mean population significantly predicted mean GPI score (β_1=0.0377, p-value<0.000). Mean GDPPC significantly predicted mean GPI score (β_2=-0.0423, p-value<0.000). Mean FIW score significantly predicted mean GPI score (β_3=-0.142, p-value<0.000). This result supports our hypothesis that there is a statistically significant relationship between mean REM and mean GPI in this period.

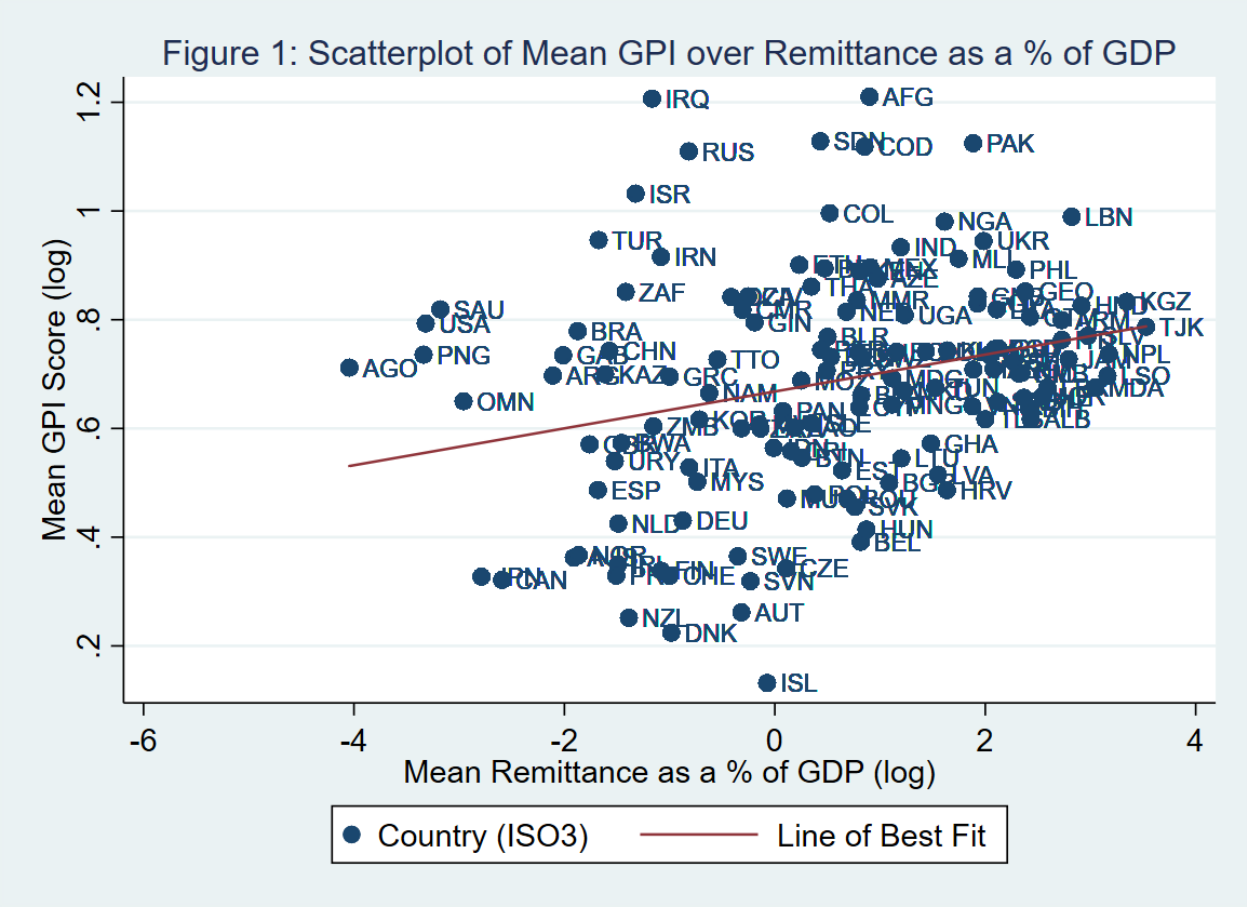


Figure 1 depicts a scatter plot of mean GPI scores over REM over the period. As highlighted by the line of best fit, there is a weak positive correlation between the two values (correlation coefficient= 0.2699).

The multiple linear regression 1b) uses the dummy variable *high REM* which captures the top 50 percentile of nations in terms of REM. The model is statistically significant (R^2 = 0.541, F(4, 131) = 31.19, p<0.0000). It was found that high REM significantly predicted mean GPI

(β_r=0.0641, p-value=0.011). Mean population significantly predicted mean GPI score (β_1=-0.0362, p-value<0.000). Mean GDPPC significantly predicted mean GPI score (β_2=-0.0451, p-value<0.000). Mean FIW score significantly predicted Mean GPI score (β_3=-0.138, p-value<0.000). This model supports our hypothesis that there is a statistically significant correlation between remittances and peace levels in terms of high remittance receiving nations and GPI score.

The multiple linear regression 2a) was used to test if mean ATC, mean GDPPC, mean population, and mean FIW score significantly predicted mean GPI score over the 2011 to 2020 period. The overall regression was statistically significant (R^2 = 0.369, F(4, 82) = 11.27, p=0.0000). It was found that mean ATC significantly predicted mean GPI score (β_a=-0.0513, p-value=0.027). Mean population significantly predicted mean GPI score (β_1=0.0345, p-value=0.001). Mean GDPPC significantly predicted mean GPI score (β_2=-0.0404, p-value=0.025). Mean FIW score significantly predicted mean GPI score (β_3=-0.0767, p-value=0.001). This model supports our hypothesis that there is a statistically significant correlation between remittances and peace levels in terms of ATC and GPI score.

In model 2b) we use high ATC as an independent variable which captures the top 50 percentile of nations in terms of ATC. Our overall model is statistically significant (R^2 = 0.3655, F (4, 82) = 11.16, p<0.0000). It was found that high ATC did not significantly predict mean GPI (β_a=-0.0495, p-value=0.088). Mean population significantly predicted mean GPI score (β_1=0.0345, p-value=0.003). Mean GDPPC significantly predicted mean GPI score (β_2=-0.0386, p-value=0.024). Mean FIW score significantly predicted mean GPI score (β_3=-0.0852, p-value=0.007). This result does not support our main hypothesis that remittances have a statistically significant relationship with peace levels in terms of high ATC and GPI score.

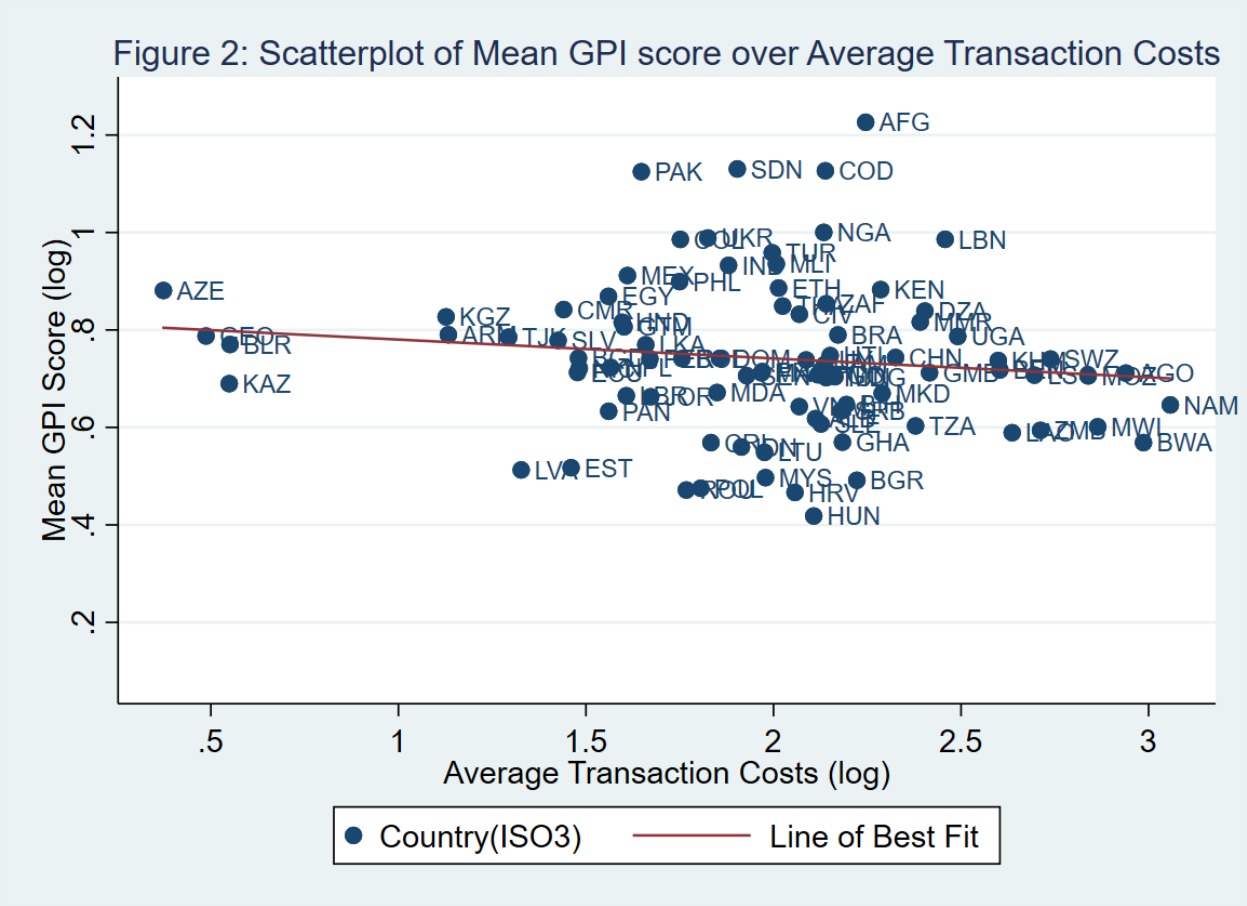


Figure 2 depicts mean GPI scores over Average Transaction Cost (%) over the period 2011-2020. As highlighted by the line of best fit, there is a weak negative correlation between the two values (correlation coefficient=-0.1288).

The multiple linear regression 3a) was used to test if mean REM, mean GDPPC, mean population, and mean FIW score significantly predicted mean FSI score over the 2008 to 2020 period. The overall regression was statistically significant (R^2 = 0.7767, F (4, 157) = 74.41, p=0.0000). It was found that REM did not significantly predict mean FSI (β_r=0.0112, p-value=0.283). Mean population also did not significantly predict mean FSI score (β_1=-0.00336, p-value=0.665). Mean GDPPC significantly predicted mean FSI score (β_2=-0.223, p-value<0.000). Mean FIW score significantly predicted mean FSI score (β_3=-0.150, p-value<0.000). This model does not support our main hypothesis that there is a statistically significant correlation between remittances and peace levels since mean REM is not significantly related to mean FSI in this period.

In model 3b) we use *high* REM as our independent variable. The overall regression remains statistically significant (R^2 = 0.789, F (4, 166) = 85.81, p=0.0000). It was found that high REM significantly predicted mean FSI (β_r=0.0746, p-value=0.025). Mean population did not significantly predict mean FSI score (β_1=-0.00192, p-value=0.610). Mean GDPPC significantly predicted mean FSI score (β_2=-0.219, p-value<0.000). Mean FIW score significantly predicted mean FSI score (β_3=-0.155, p-value<0.000). This supports our main hypothesis since high REM is significantly correlated with mean FSI score.

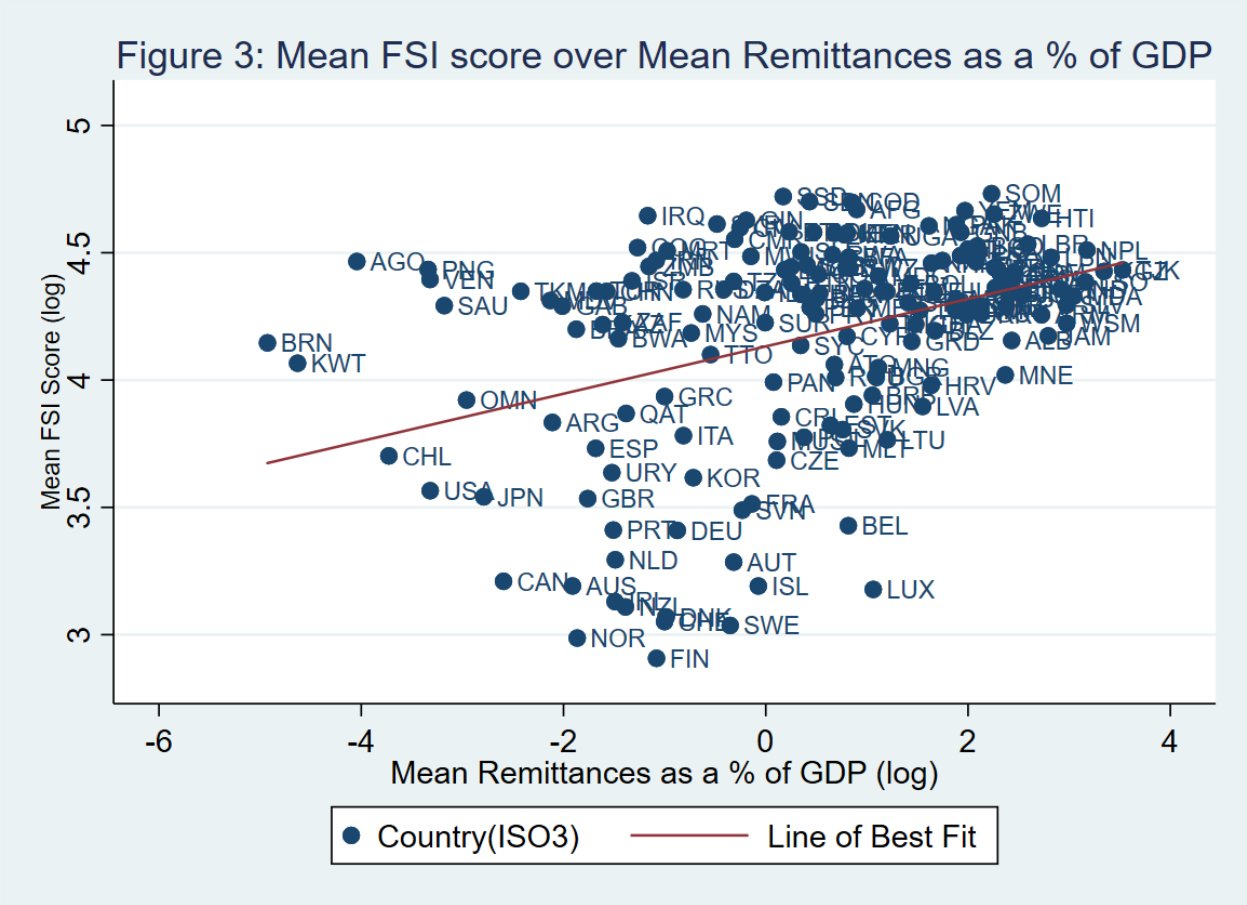


Figure 3 shows mean FSI score over mean REM from 2008 to 2020. As highlighted by the line of best fit, there is a positive correlation between the two values (correlation coefficient= 0.3846).

The multiple linear regression 4a) was used to test if mean ATC, mean GDPPC, mean population, and mean FIW score significantly predicted mean FSI score over the 2011 to 2020 period. The overall regression was statistically significant (R^2 = 0.718, F (4, 96) = 44.77, p=0.0000). It was found that mean ATC did not significantly predict mean FSI (β_a=0.0574, p-value=0.769). Mean population significantly predicted mean FSI score (β_1=0.0206, p-value=0.003). Mean GDPPC significantly predicted mean FSI score (β_2=-0.140, p-value<0.000). Mean FIW score significantly predicted mean FSI score (β_3=-0.0749, p-value<0.000). This model does not support our main hypothesis since ATC was not significantly correlated to mean FSI score over this period.

In model 4b) we use *high ATC* as our independent variable, the overall regression is statistically significant (R^2 = 0.718, F (4, 96) = 47.00, p=0.0000. It was found that high ATC did not significantly predict mean FSI (β_a=0.00948, p-value=0.675). Mean population significantly predicted mean FSI score (β_1=0.0210, p-value=0.003). Mean GDPPC significantly predicted mean FSI score (β_2=-0.140, p-value<0.000). Mean FIW score significantly predicted mean FSI score (β_3=-0.0741, p-value<0.000). This does not support our main hypothesis that remittances are significantly correlated with peace levels since high ATC is not significantly related to mean FSI score.

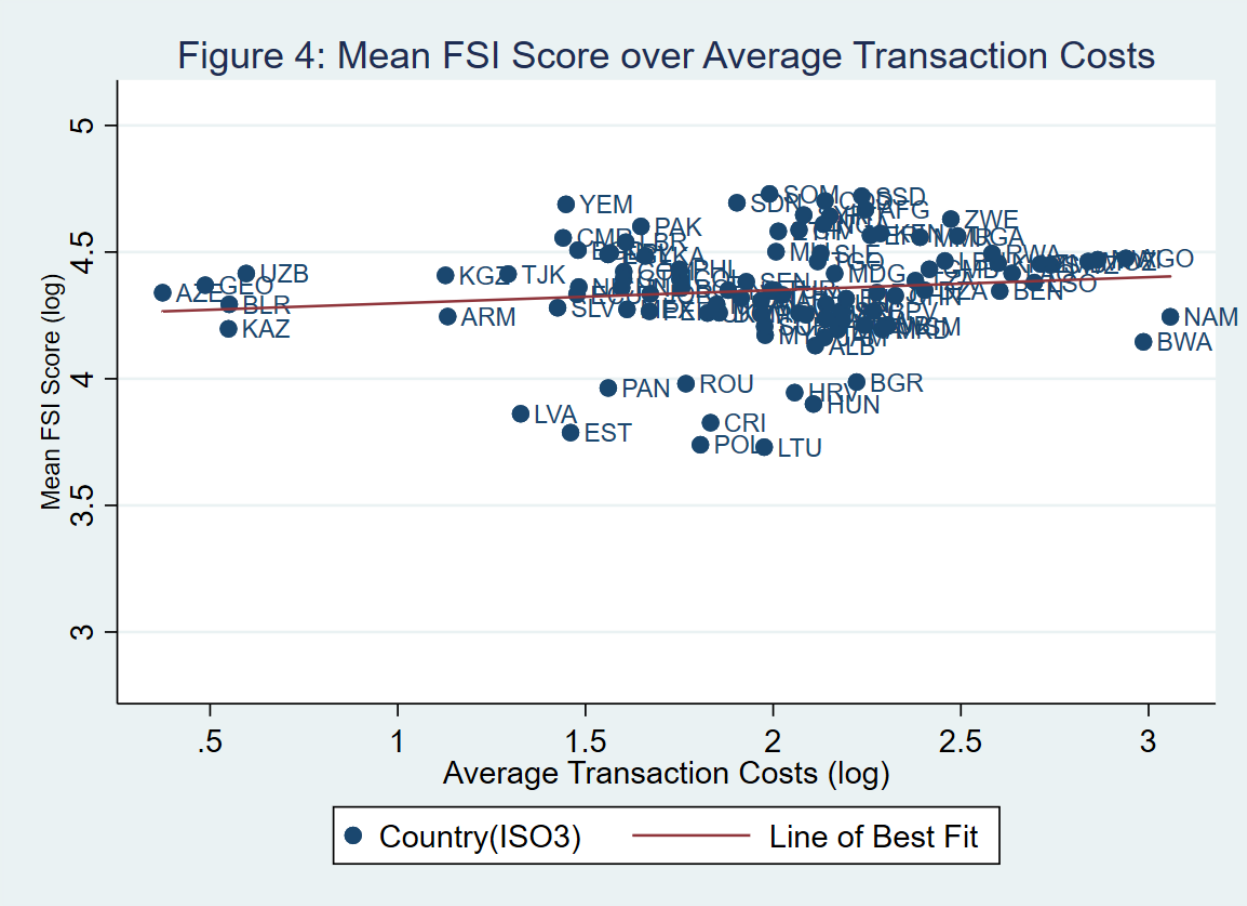


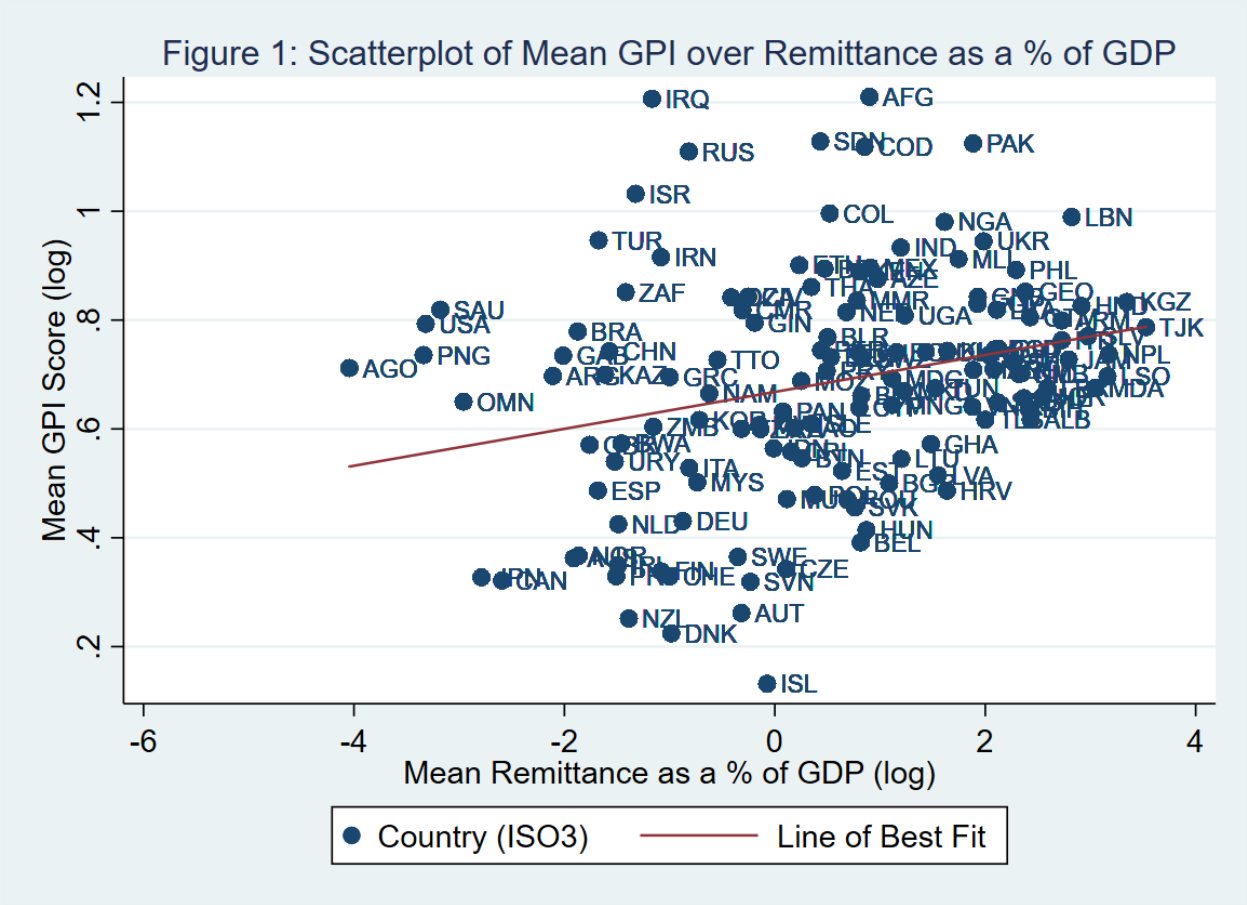
Figure 4 shows the relationship between Mean FSI score and mean ATC from 2011-2020. As highlighted by the line of best fit, there is a weak positive correlation between the two values (correlation coefficient= 0.1263).

Discussion

The main hypothesis of this study was that there is a statistically significant correlation between remittances and peace levels across nations over our given periods. Our study also aims to assess the strength and nature of this relationship in the modern era and evaluate the impact of remittances alongside three economic, social, and political factors in conflict.

Remittance as a Percentage of GDP

Our study found remittances as a proportion of GDP to be a strong predictor of GPI score over the 2008 to 2020 period. Our model indicates that a 1% increase in REM was associated with a 0.0186% rise in GPI score at a 95% confidence level. This indicates that countries with higher proportions of remittances tend to experience greater instability or lower levels of peace. The plot in figure 1 highlights this trend visually. As shown, there is a weak positive correlation between GPI and REM.

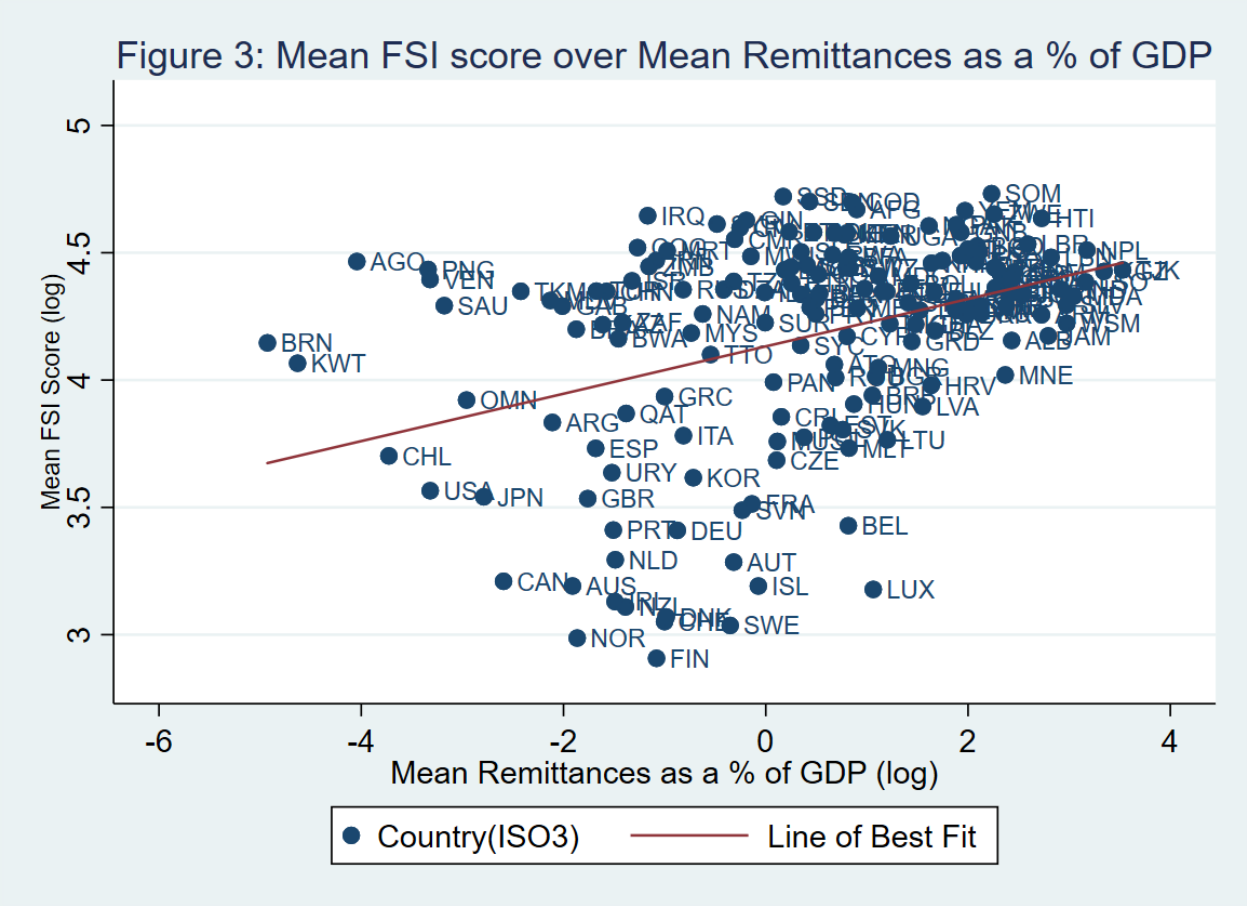


Another interesting finding is that observations are more clustered together on the top right of the plot. Simultaneously, there is a distinct lack of observations on the bottom right quadrant of the scatterplot. This indicates a strong homogeneity between the highest remittance receiving nations. It also shows that at the highest level of REM, there is a much lower chance of low GPI

scores or greater degrees of stability. We test this idea empirically with the dichotomous variable high REM which captures the top 50 percentile of remittance earning nations. As expected from the visual trends, high remittance earners exhibit a similar weak positive correlation, associated with a 0.06% rise in GPI score, however, have a confidence level of nearly 98%.

As for our control variables, *Model 1* appears to support the extant literature. Our models 1a) and 1b) explain over 50% of the variation in GPI indicating that the three control variables alongside REM are important in explaining the disparity in conflict between nations. Furthermore, all three control variables are significant at a 99.9% confidence level in both models. Population has a significant positive correlation with GPI score, supporting the hypothesises advanced by several authors that higher population leads to greater competition over resources and hence higher degrees of conflict (Diehl and Gleditsch 2001, Goldstone 1991, 2002, Goldstone et al. 2012, Hauge and Ellingsen 1998, Homer-Dixon, 1991, 1999, Tir and Diehl 1998, Urdal, 2005). GDPPC meanwhile also exhibits the expected negative correlation with GPI score, indicating that as average incomes rise, stability levels rise in a nation. This is once again in line with consensus in the literature (Colaresi & Mahmood, 2017; Hegre & Sambanis, 2006; Muchlinski et al., 2016). Finally, FIW score also supports prior evidence (Rummel, 1983; Carey et. al, 2021; Reiter, 2012; Levy, 1989; Bhagwati, 1995) as an increase in FIW score is associated with lower GPI scores or higher degrees of stability. In terms of relative importance in *Model 1,* remittances still have the lowest explanatory power compared to our other predictive variables. From a significance perspective, REM was the only factor not significant at the 99.9% confidence level. Furthermore, the beta coefficient has the weakest correlation of all four factors. The strongest association is FIW score which is correlated with a 0.14% decrease in GPI score. This result indicates that remittances in the modern era still do not have the same significance as social, political, and economic factors.

REM does not exhibit the same significance when FSI is our dependent variable. Model 3 finds REM to be statistically insignificant.



However, Figure 3 shows a similar relationship to that which was highlighted in figure 1. Again, we see higher variation in the left-hand side of the plot, where nations tend to have lower proportions of remittance to GDP. But for FSI we see a visually stronger cluster of datapoints in the top right-hand quadrant of the plot where the highest remittance recipients meet the highest levels of conflict. Model (3b) confirms this as high REM is now statistically significant at the 95% confidence level and correlates with a 0.0749% rise in FSI.

In terms of control variables, the higher explanatory power (R^2 =0.777) of the FSI model 3a) does not translate evenly across all variables. In both 3a) and 3b), FIW and GDPPC are statistically significant at the 99.9% level and have a similar correlation coefficient. In both however, the effect of population is statistically insignificant.

Comparing results between models 1 and 3 leads us to some conclusions. The models do not lead us to common consensus on the effect of REM. One can interpret this result as being in line with

lessons from the literature. Authors highlighted both positive (Batu, 2019; Regan and Frank, 2014; Fagan et. al., 2005; Zunzer, 2004; Van Hear, 2002; Lindley, 2009) and negative functions of remittances in conflict settings (Anderson, 1998; Collier et. al., 2003; Collier and Hoeffler, 2004; Price, 2012). As Lindley (2010) pointed out, remittance is context dependent and different diaspora networks interact differently with their home nations. The two models however do provide us with consensus on one subject: the highest remittance earning nations are strongly correlated with the lowest levels of stability. In both models 1b) and 3b) high REM is statistically significant at the 95% confidence level and has a similar beta coefficient.

I argue that this strong link is a result of the importance of remittances in sustaining livelihoods during and after conflict. Fagan and Bump (2005) state that '…Nearly all the countries in the conflict, war-to-peace transition, and crisis categories are highly dependent on remittances.' Furthermore, the slow recovery of livelihoods and persistent violence in these societies indicates that remittances are needed for these nations several years after conflict has ended. The authors also indicate that 'migrants transfer funds and invest in their countries of origin at times when international investment has all but disappeared.' This evidence explains why we find such a strong incidence of high remittance to GDP ratios in the nations with high instability levels. Migrants are more incentivised to send greater amounts of money back to their countries of origin when there is a greater level of conflict due to the lack of alternatives for the nation. The primary mechanism at work here is the lack of foreign and domestic investment in the economy during this time. Areas of conflict tend to become less attractive to FDI since investors are uncertain of the stability of government and the potential to attain high returns from unstable areas. Domestically meanwhile, evidence indicates that greater violence leads to more capital flight, and more capital flight also predicts higher levels of violence (Feilding, 2004). This lack of investment overall creates the conditions which incentivise remittance transfers. Remittance transfers can be noted as a form of investment, but the key differentiator is that migrants are less interested in 'return on investment'. Shimada (2011) finds that a migrant will send a larger amount of money home when they feel more altruistic towards household members. This is likely to be the case in conflict settings as hardships back home create a greater sense of duty for migrants abroad to support their families. This can also be linked back to Anderson (1998) and Collier et al. (2003) who characterise migrants as 'long distance nationalists.' In times of conflict, sense of affinity with the struggles of one's home nation may spur greater involvement,

in this case higher remittances. The sustained need for remittances to support the daily lives of family members, even years after the conflict has finished, increases their share of GDP. Simultaneously, since investment has declined over this period, their share of the consumption function (GDP= consumption + investment + government spending + net exports) will necessarily fall. Treating remittances as an exogenous factor, these forces will naturally result in the ratio of remittances to GDP in conflict settings increasing and hence we see areas of higher instability having greater remittance to GDP ratios.

Average Transaction Costs

Model 2 indicates that average transaction costs have a significant correlation to GPI score. Model 2a) shows that ATC is a significant predictor of GPI score at a 95% confidence level. A 1% increase in ATC is associated with a 0.05% fall in GPI score over the 2011 to 2020 period. This indicates that nations with higher barriers (fees) for migrants wishing to remit back home tend to have higher degrees of peace or alternatively that countries with lower transaction costs tend to have higher incidences of conflict.

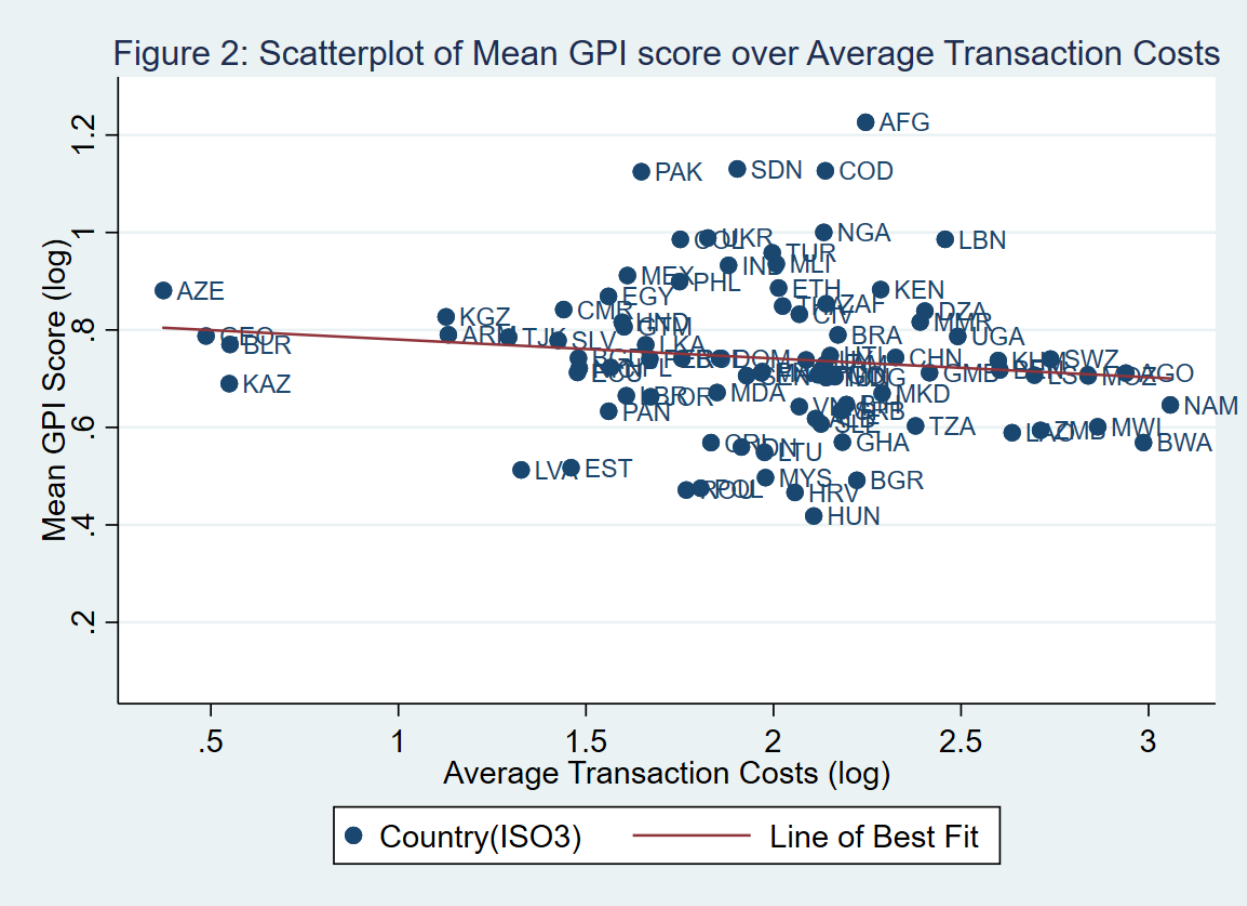


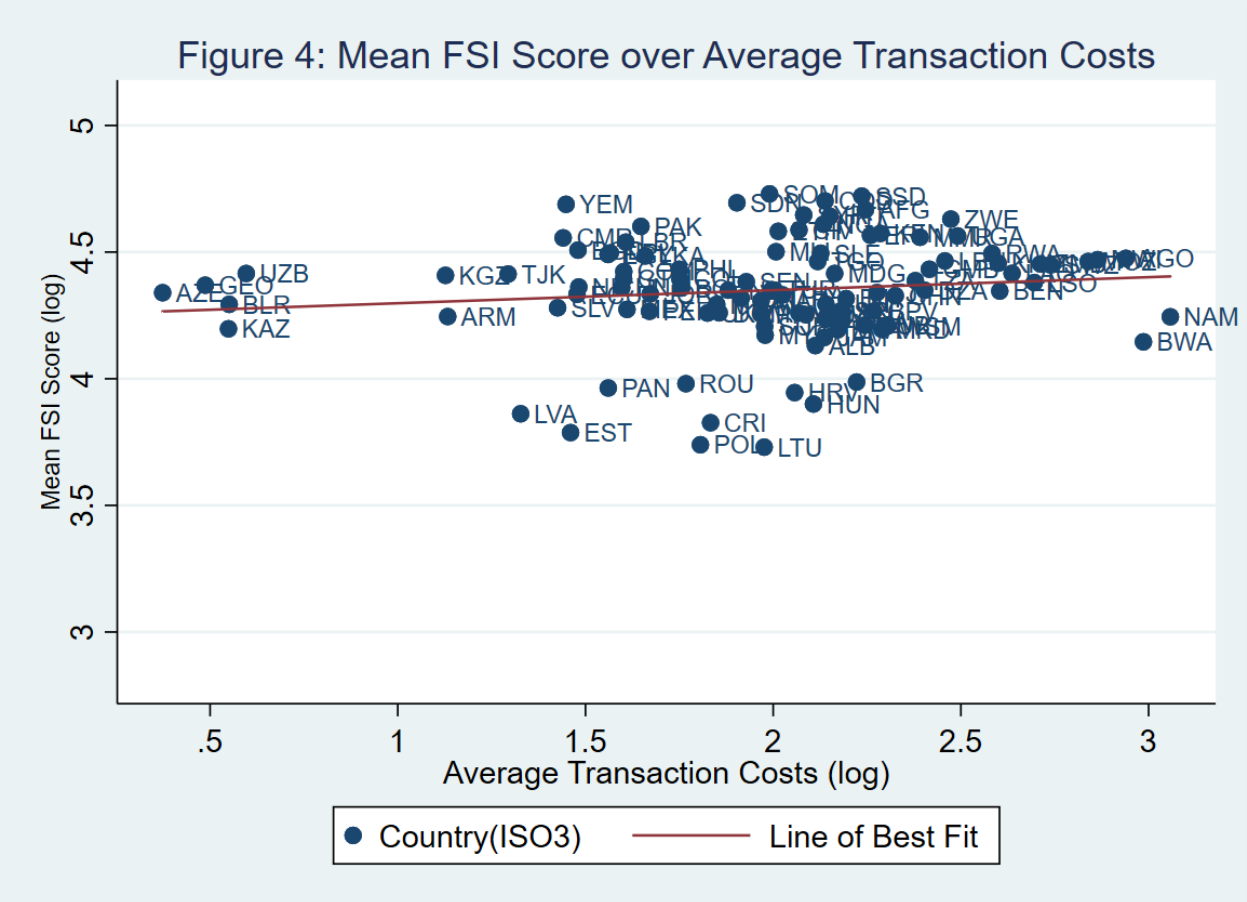
Figure 2 shows us that there is indeed a weak negative correlation between these two variables. However, compared to REM, the clustering effect of datapoints at the right-hand side of the scatterplot is less clear in this figure. However, we still perceive a slight increase in the number of data points further along the line of best fit. To test this, we once again use a dichotomous variable, high ATC, which captures the top 50% of nations in terms of higher fees for migrants remitting back home. In this case, we find that high ATC is not statistically significant in its association with GPI score.

Turning to our control variables in model 2, all three are statistically significant in each model. Population is statistically significant at the 99% level in both and exhibits a similar weak positive correlation. It should also be noted that in both models 1 and 2, population is statistically significant and has a similar beta coefficient. This supports extant literature that increases in population are associated with reduced levels of stability. GDPPC is significant at a 95% confidence in model 2a) and 2b). Like population, it also has a similar beta coefficient across models 1 and 2. FIW score is where we find some variation. Whilst the beta coefficient is similar

in both models 2a) and 2b), the confidence interval is higher in the latter model. Furthermore, the beta coefficients in model 1 were approximately twice as low as those in model 2, indicating that freedom levels are less important in model 2.

In terms of the relative importance of each variable in model 2, there is a much more even distribution of explanatory power among our predictor variables. In model 2a) ATC has the second highest correlation coefficient in absolute terms after FIW. This indicates that transaction costs may be a better correlate to peace levels that REM however it should be noted that this model is overall less equipped to explain variation in GPI score as compared to model 1 (with the overall R^2 value being lower in both models). Additionally, model 2 has 36% less observations than model 1.

Turning to our FSI variable in model 4, ATC does not exhibit a statistically significant association in 4a) or 4b).



A glance at Figure 4 confirms the inconsistency of this finding compared to the rest of our results. ATC in this scatterplot shows a very weak positive association with FSI score, however, the line of best fit appears to be nearly horizontal indicating that ATC does not have an impact on FSI score in this case. We see a similar feature to figure 3 in terms of high variation in the middle of the scatter plot and an increase in observations at the right-hand side. However, as confirmed by the regression in model 4b), there is no significant correlation between FSI and high ATC.

The control variables do exhibit more uniformity than those in model 3. In both 4a) and 4b) all three control variables are statistically significant. Population is statistically significant at the 99% level and has a similar positive association with FSI in 4a) and 4b). GDPPC meanwhile has an identical negative beta coefficient and 99.9% confidence interval in both models. FIW also exhibits an almost identical negative correlation coefficient at the 99.9% confidence level for both models. Similarly to the FSI model 3, GDPPC is the strongest correlate to FSI, with its association nearly twice as strong as its second closest competitor FIW.

Comparing the results in models 2 and 4, we find limited consensus once more. ATC whist significant in model 2a) is insignificant in 4a). High ATC meanwhile is insignificant in both models. This leads us to question the significance of ATC as a reliable correlate to peace levels overall. Clearly, there is a great degree of variation between nations when it comes to the cost of sending money to the country of origin.

The link between lower transaction costs at higher levels of conflict highlighted in model 2a) might be indicative of lower levels of state capacity. As mentioned by several authors (Fearon, 2005; Fearon and Laitin, 2003), lower level of state capacity means that the chance of successful rebellion increases due to the lack of counter insurgent forces. As a result, there will be greater enlistment in rebel forces and an increase in domestic conflict. This is linked to transaction as we could envision these fees as an indicator of regulation. States with higher capacity will be better able to regulate remittance through formal channels and therefore will be in a better position to impose costs such as taxation or regulate companies involved in the servicing of remittance fees. However, in more conflict prone environments the state will be less able to impose costs and

regulate companies. As a result, providers will be less able to enforce higher fees as the rule of law is weaker. Additionally, this effect may be a function of trust. In states with high instability, migrants may be less trusting of 'formal channels' of remittance. They may instead turn to informal methods of income repatriation. One study of migrants in the Netherlands found that use of informal channels was strongly driven by cost considerations and country specific characteristics (Kosse &Vermuelen, 2014). This may also be driven by the interaction effect with per capita income. Regions of conflict tend to suffer from higher levels of poverty and therefore migrants will be less able to afford formal channels and instead choose informal networks such as transfers through family members (as has been documented in many parts of Africa and the Middle East (Sander, 2004)). In this situation, higher amounts of informal remittance may force formal service providers to lower their transaction fees to compete which explains the decrease in average transaction costs.

Outliers

While an in-depth evaluation of outliers is outside the scope of this study, I will briefly outline the outliers found in this study as a springboard for future research.

In *Figure 1* we see that Iceland (ISL) had the lowest mean GPI score over this period (1.14) but also a far lower remittance proportion than the regression trend (0.92%), finding itself in the bottom 50th percentile. On the top of the scatterplot, we find nations such as Iraq (IRQ) and Afghanistan (AFG) have GPI scores above the 99th percentile. Nations such as Russia (RUS), Sudan (SDN), Democratic Republic of Congo (COD), and Pakistan (PAK) also find themselves as outliers in the upper region with GPI scores in the 95th to 99th percentiles.

In *Figure 2*, the largest outliers are in the top quadrant of the plot. Afghanistan once again finds itself in the 99th percentile of GPI scores while Sudan, Pakistan and the Democratic Republic of Congo find themselves in the 95th to 99th percentile of GPI scores.

In *Figure 3*, there is a lack of outliers at the top of the scatterplot. Still, nations such as Iraq and the Democratic Republic of Congo find themselves in this region. There is greater variation in

the lower portion of the scatterplot where we find Finland in the bottom 1st percentile for FSI score and Luxembourg in the 1st to 5th percentile range.

In *Figure 4* there are yet again few outliers in the top portion of the plot but nations such as Yemen, Sudan and Somalia find themselves with the highest FSI scores. At the bottom of the plot, Latvia, Estonia, and Poland have the lowest FSI scores in the 10th to 25th percentiles.

Limitations

The primary limitation of this dataset is that many of the indicators have only been produced recently and therefore this analysis is limited to recent years. The GPI has only been collected from 2008 to 2020 whilst the FSI has been recorded from 2006 to 2020. However, the advantage of using these two qualitative and quantitative indicators is their ability to capture the nuances of peace in a variety of contexts on both a quantitative and qualitative level. Furthermore, since our goal is to analyse the effect on recent conflicts in particular, this time horizon allows us to pinpoint the effect of remittances on conflict in the modern age.

The second limitation pertains to omitted variable bias. As with any data analysis involving complex mechanisms, our model will not be able to completely capture all the variance in the outcome variables, even after adding our three control measures. It may be possible to increase the value of predictive statistics, such as the R^2 value, by including a multitude of additional explanatory variables in our model, however, evidence shows that including long lists of explanatory variables may render models more inaccurate (Achen, 2005). Our model instead chooses to focus on three variables that broadly capture economic, social, and political spheres of conflict.

The results of our FSI models reveal some drawbacks about the nature of our research. Our FSI models compared to their GPI counterparts have a greater breadth in terms of sample size. Comparing models 1 and 3 for instance, the FSI model has 19% more observations for REM. Similarly for ATC (Models 2 and 4), FSI has 16% more observations than its GPI counterpart. Additionally, our FSI models have a greater explanatory power overall in terms of R^2 value. For REM, our FSI model has a 44% higher R^2 value overall whilst for ATC it has a 95% higher value. This indicates that our FSI model should yield stronger results in favour of our hypothesis,

all else being equal. Instead, the opposite is true. Both REM and ATC are statistically insignificant in our FSI models. The reason for this may be the methodological differences in the collection of our two composite indicators (GPI and FSI). Different weightage of certain characteristics or factors leads to the relative importance of remittances for peacebuilding differing between our FSI and GPI groups. This is evident when we compare the significance and correlation of our control variables between the models. In model 1a) versus 3a), we find that population has become statistically insignificant in the latter model. Both population and FIW are significant at the 99.9% confidence level in both models. FIW remains relatively similar in terms of beta coefficient in both models (-0.142 in 1(a) and -0.150 in 3(a)), however, GDPPC sees an increase in correlation strength of 427% (-0.0423 in GPI to -0.223 in FSI). This indicates that between the two models, 3a) places less value on REM and population, retains the value of FIW and drastically increases the significance and value of GDPPC as an explanatory factor. The two ATC models also exhibit a similar trend. Once again, our outcome variable of interest (ATC) is statistically insignificant in the FSI model (4a) but significant in GPI (2a). Population remains significant in FSI this time, however, its significance level is again reduced. Yet again, FIW remains relatively similar in terms of beta value in both models (-0.0767 in (2a) and -0.0749 in (4a)) albeit with a difference in significance level (99.9% confidence in (4a) and 95% in (2a)). However, yet again we see an increase in the significance (95% to 99.9%) and correlation coefficient between the GPI and FSI models for GDPPC, with the beta value this time rising by 246% (-0.0404 in (2a) to -0.140 in (4a)). Clearly, the biggest difference between the two models lies in the valuation of GDPPC, which has increased in explanatory power at the expense of the other three variables. This discrepancy may be reason to question the validity of our FSI models relative to their GPI counterparts. Firstly, the increase in explanatory power between the two groups indicates that there may be greater collinearity in the results of our FSI model. This high inflation of the R^2 value may indicate that one or more of our explanatory variables are linked in the FSI model. From this analysis, this variable appears to be GDPPC, given its large increase in significance between the two groups relative to the other factors. Hence, we can posit that GDPPC may be a significant component of FSI; at least partially. This limitation is expected with composite indicators, especially those as complex as the GPI or FSI. It is very likely that a measure used to come to the overall score is linked to a control variable at least to some extent. This does not however mean that the results from our FSI model should be disregarded. The

variable still fits with the assumptions of OLS modelling as per our diagnostic tests. Researchers must simply acknowledge that there is a degree of bias in the model towards GDPPC and examine the results in the context of our other models, as has been done in this study.

Additionally, our analysis of correlation should not be confused with that of causation. Our results do not imply that higher instances of remittances lead to a greater degree of conflict or vice versa. Instead, our results simply show us that countries in a higher state of instability tend to have a greater amount of remittance inflows and that countries where the barriers to remit are lower there tends to be a higher incidence of conflict. To determine the causality of this mechanism, a time-series regression, such as that conducted by Batu (2019) could shed more light on the specific mechanisms at work. This study has identified possible mechanisms which influence the relationships between remittances and peace levels. The causal mechanisms for such theories should be explored in further empirical analyses or country specific case studies.

Further Study

The results of this paper necessitate two main streams of further study.

Firstly, more facts must be ascertained about the relationship between the highest remittance recipients and the homogeneity they experience in high degrees of conflict and instability. Further study on the nature of this relationship may explore the causality of this result. This paper has taken the opinion that higher levels of remittance as a proportion to GDP in areas of higher instability are a result of a) decreased foreign and domestic investment and b) the altruism and greater affinity of migrants to their families in their countries of origin during and after times of conflict. Further study in this area might assess the psychological reasons for remitting in greater depth, drawing upon survey data from different diaspora groups to see how their affinity evolves as conflict progresses through its various stages. Secondly, our paper has linked the tendencies of more unstable nations to have lower average transaction costs due to a reduced state capacity and overall weaker regulatory environment. This mechanism would benefit from a more in-depth analytical study. Further research in this area might look at different proxy variables for average transaction costs and combine them with metrics of government stability. It would also be interesting to investigate the link between corruption and average transaction costs during conflict. How would greater corruption impact the trust migrants have in remitting

through formal channels? Overall, there is great potential to investigate the theoretical ideas elucidated from this study.

Secondly, greater research on outliers would enhance the power of our results. As shown, several nations appear as outliers in multiple models. The cases of nations such as Afghanistan, Iraq, and Sudan whose instability levels are far higher than the trend line warrant further exploration. It may also be worth exploring the characteristics of nations below the trend line in several models such as Finland or Latvia. It is clear from the literature that country specific factors are vital in the mechanisms that translate remittances into peace (Lindley, 2019). Our study further supports this claim. As shown, there is a high degree of variation in peace outcomes at the lower levels of remittance. Research should focus on these areas and their experience over the last decade or so to understand how remittance has evolved and the channels through which it has led to such outcomes. Hence, specific case study analysis of these nations would improve our knowledge on the specific characteristics that lead to the remittance-peace correlation.

General Remarks

Our results find support for our main hypothesis. Remittance as a percentage of GDP was significant in our GPI models, with a stronger effect found among the highest remittance earning nations. This indicates that there is a correlation between remittances and peace levels in terms of proportion of domestic product. Our FSI model finds limited support for this hypothesis. Whilst there was no significant correlation between REM and FSI overall, we found the same significant correlation between the highest recipient nations and peace levels in our FSI model. Furthermore, the beta coefficient in model 1b) with GPI and 3b) with FSI displayed a similar value, further strengthening the validity of this result.

In terms of average transaction costs, our results were less favourable towards the hypothesis. In our GPI models, ATC significantly correlated with the dependent variable however did not display the same affinity with results on the higher end of the spectrum as was seen with REM. For FSI, neither ATC nor high ATC returned significant correlations with the variable of interest. We can interpret this as indicating that ATC has a higher amount of variation as compared with REM as a measure of remittance impact. In the one model where ATC was significant however,

we saw its relevant importance alongside the control variables as being quite high. This result warrants further research on the nuance of ATC and whether measuring barriers to remittance in an alternative way may lead to results of greater uniformity.

In terms of our outliers, we identified several nations who stood out in multiple models such as Sudan, Afghanistan, and Iraq with the highest levels of instability and Finland, Estonia, and Latvia at the lower end of the spectrum. Their results warrant further case study analysis into their specific characteristics.

Our control variables overall support the predictions of extant literature. Population had a similar positive association with higher degrees of instability in all but 2 of the models. This supports the overarching consensus that higher populations are more prone to conflict. GDPPC was significant in all models and had a positive correlation with higher degrees of stability. This once again supports consensus that higher average income reduces the probability of conflict. Lastly, FIW was also significant in all models, displaying a positive association with higher degrees of peace. This is once again in line with expectations of societies with greater political and civic freedoms being less prone to conflict.

Conclusion

This paper has explored the interaction between remittances and peacebuilding. Remittances have grown into an important source of development financing, however, their entanglement with conflict remains unclear. Literature finds limited consensus on the ability for remittances to facilitate peacebuilding. Furthermore, the interaction effects between remittances and other factors in conflict remains unexplained. This study aimed to empirically show there was a correlation between remittances and peace levels in the modern age. We also aimed to determine the strength and nature of this relationship as well as its relative importance alongside social, political, and economic factors.

Our cross-country regression models found that remittance as a proportion of GDP was a significant indicator for GPI score over this period but not for FSI. Both models however did highlight that those countries with high proportions of remittances to domestic product tended to

follow the predictions of our regression more closely, having a higher GPI score over this period and a lower amount of variation. The average cost of transaction was found to negatively correlate with GPI. This indicates that nations with higher barriers to remittance (fees) tended to have greater stability in this period. With FSI, however, this relationship was found to be statistically insignificant. This result highlights that transaction costs have high variability across nations. The models also showed some outliers with nations such as Sudan, Iraq, and Afghanistan consistently ranking above their peer nations in conflict levels and nations such as Finland, Estonia, and Latvia ranking below. Future research should examine these cases more closely to understand the reasons behind their variation. We would also benefit from deeper research into the causal mechanisms underlying the effect of remittances on peacebuilding in pre-conflict, conflict, and post-conflict settings.

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