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Evaluating the Impact of Withdrawal of Telegraphic Transfer (TT) Charges Reimbursement on the Remittances from the Kingdom of Saudi Arabia (KSA)*

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Abstract: The Government of Pakistan reimburses SAR 30 in Telegraphic Transfer Charges (TTC) for every USD 100 or more transferred by a foreign MTO into the country, as compensation for their transaction costs. In May 2020, the government removed this facility for KSA, citing zero transaction costs announced by the KSA authorities for digital money transfers from the kingdom. The inflow of workers' remittances from KSA began to decrease once KSA eased the travel ban. This paper aims to estimate the impact of the withdrawal of TTC reimbursement on remittances flowing from KSA to Pakistan. The difference-in-difference (DID) method is applied to data from July 2018 to September 2022. The estimates indicate that this policy caused an average monthly decline in remittances from KSA between US$ 31 million and US$ 76 million. The findings appear to be robust to various estimation adjustments.

Keywords: Pakistan, remittance inflow, policy impact, Covid-19, panel data.

JEL Classification: F24, F31.

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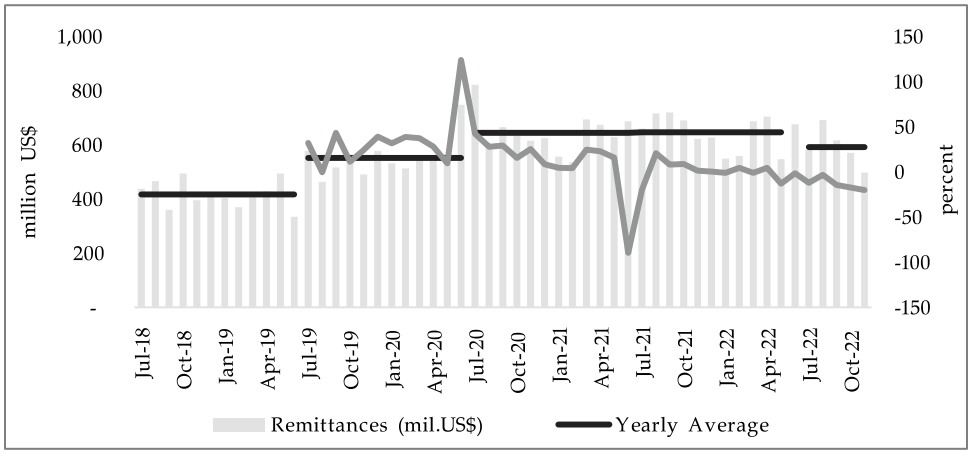
1. Introduction

Remittances are one of the key sources of external financing, and their sustained inflow plays a very important role in stabilizing domestic prices and household consumption, and supporting domestic economic activity. Importantly, the Kingdom of Saudi Arabia (KSA) contributes around 25 percent of total workers' remittances inflows in Pakistan. Between 2019 and 2023, Pakistan received, on average, around US$7.5 billion annually from KSA in workers' remittances, compared to the total average receipt of US$28 billion. Interestingly, in the post-pandemic era, growth in remittances inflow from KSA witnessed a persistent decline, particularly since the relaxation of the Covid measures in KSA and the restarting of issuance of Umrah visa by the Kingdom in August 2021 (**Figure 1**). This phenomenon was more intriguing due to the fact that the number of workers emigrated KSA during this period increased steeply.

Figure 1: Monthly Trend of Remittance Inflows from KSA



Source: SBP

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With the outbreak of Covid-19, KSA eliminated fees on digital money transfers both within and outside the Kingdom[1]. Pakistan, however, removed the Telegraphic Transfer Charges (TTCs) on remittances coming from KSA, claiming that the cost of remitting has dropped to zero due to KSA's free digital transfer policy. This paper aims to assess the impact of the withdrawal of TTC reimbursement on remittances flowing from KSA.

Inflowing remittances are crucial for managing Pakistan's current account balance, and the country has implemented several initiatives to efficiently attract remittances through formal channels such as banks and designated MTOs. However, an impact analysis of these policies has never been conducted before, as it requires controlling for various domestic and foreign factors. Unsurprisingly, the literature on remittance flows mainly focuses on economic growth and development in recipient countries [for example, Giuliano and Ruiz-Arranz (2009), Cooray (2012), and Barajas et al. (2009)], the financing of the current account deficit [for instance, □akajac et al. (2023), Lartey (2019), and Hassan and Holmes (2015)], or the impact of these inflows on the real exchange rate in the recipient country [see, for instance, Montiel and Hakura (2010), Amuedo-Dorantes and Pozo (2004), and Acosta et al. (2009)], as well as on labor market dynamics [notable examples include Cox-Edwards and Rodríguez-Oreggia (2009), Amuedo-Dorantes and Pozo (2006), and Rodriguez and Tiongson (2001)]. Therefore, our study differs from the existing literature on remittances. Our work aligns more closely with Kpodar et al. (2022), Withers et al. (2021), and Kessegn (2021); however, these authors have focused on the impact of the COVID-19 pandemic on overall remittance inflows in specific areas, while we assess the impact of a specific policy—namely, the withdrawal of TTC reimbursement—on remittances inflow.

For estimation purposes, we used the Difference-in-Difference (DID) technique. DID is commonly employed for impact assessment, such as evaluating the effect of sudden changes in the economic environment, policies, or medical trial treatments on a group or individual. Essentially, we compare changes in a variable over time for those enrolled in or subjected to a policy intervention (the intervention group) with those who are not (the control group). Our findings suggest that the withdrawal of TTC reimbursement has led to an average decline in remittance inflows from KSA, ranging from US$ 31 million to US$ 76 million each month. Our

[1] For details, see Section 2.

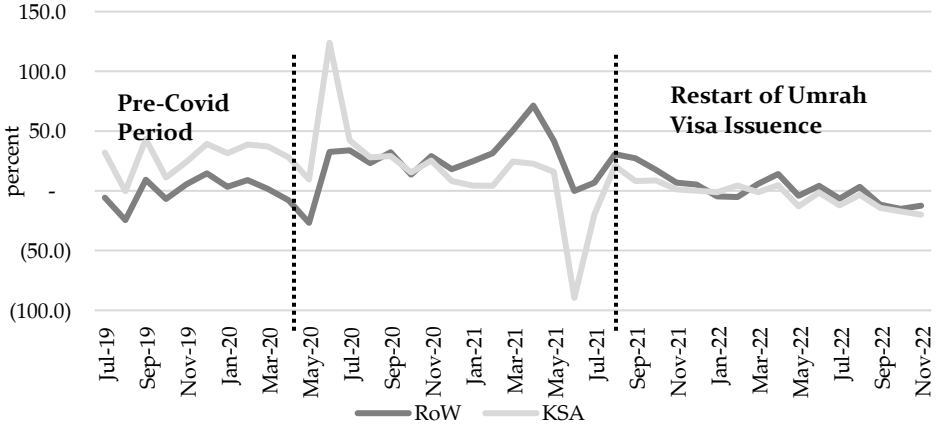
results are consistent when comparing inflows from KSA to other Gulf Cooperation Council (GCC) countries. Additionally, we employed a synthetic Difference-in-Difference test, which effectively includes a placebo test. Furthermore, as an alternative to PKR-denominated exchange rates, we also used country-specific exchange rates against the US dollar. The results remain similar, demonstrating the robustness of our estimates.

The rest of the paper is structured as follows. Section 2 explains the background development of remittance inflows from KSA, Section 3 describes the methodology adopted and explains the data used in this research, while Section 4 presents an analysis of the results. Finally, Section 5 concludes this paper.

2. Background: Remittances inflows from KSA and the recent developments

Export of crude oil and its products is the key source of revenue for GCC countries. As Brent crude prices plunged by 72.5 percent year-over-year, from US$ 111.87 per barrel in June 2014 to US$ 30.80 per barrel in January 2016, Saudi Arabia along with other GCC countries experienced growing fiscal and external sector imbalances. To restructure the economy away from oil dependency, KSA introduced several fiscal and external sector reforms aimed at diversifying the country's revenue base (**Figure A1** in **Annexure 1**).

Figure 2: YoY Growth in Monthly Remittances from KSA and Rest of World



Source: SBP

a. Remittances trend in the Pre-Covid

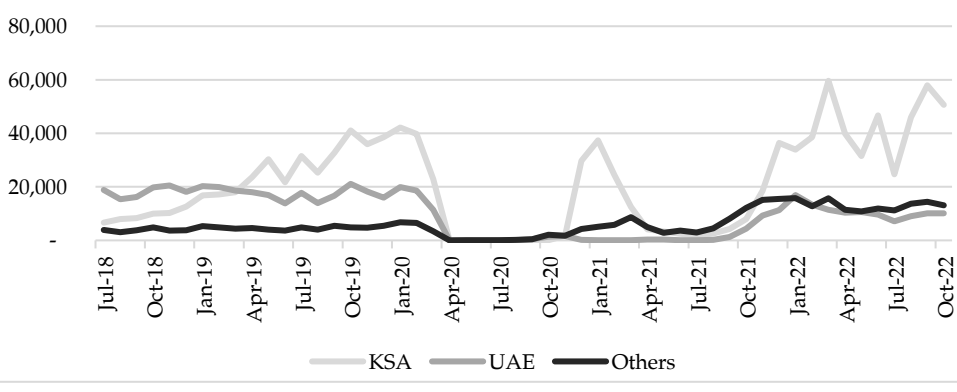
Explicitly, the Saudi government imposed new taxes, some of which were designed specifically to target expatriates. In addition to imposing taxes, KSA adopted various measures to increase the presence of the local population in the Saudi labor market (**Annexure 2- Section 2.1**). Besides their fiscal impact, these measures were expected to reduce the outflow of foreign exchange and improve the country's current account balance. However, some policies ended up increasing remittance outflows contrary to their intended objectives, as shown in the pre-Covid period in **Figure 2**. For example, the 'expatriate levy' imposed on the family members of employees forced many expatriates to send their dependents back home. This decreased their expenditure in the Kingdom and increased remittance outflows from KSA.

The government of Pakistan, at the same time, was promoting several policies to attract remittances through formal channels using a three-pronged strategy; 1) strengthening the remittance distribution network, 2) removing structural bottlenecks, and 3) introducing incentives for intermediaries and beneficiaries (**Annexure 2- Section 2.2**). As a result, Pakistan experienced a sustained increase in workers' remittance inflows, not only from KSA but also from the rest of the world during the pre-Covid period.

b. During the pandemic

The outbreak of the Covid pandemic, along with the strict implementation of lockdowns and social distancing measures, and the announcement of economic stimulus packages, significantly altered the dynamics of remittance flows worldwide. KSA, in particular, adopted more stringent social distancing measures and actively promoted digitalization to reduce human contact (**Annexure 2- Section 2.3**). In doing so, they waived fees on most fund transfers, including outbound remittances, conducted through digital means.

Figure 3: Number of Pakistani Workers Emigrating to GCC Countries per Month



Source: BE&OE

Like some other developing economies, Pakistan also witnessed a broad-based surge in the workers' remittances following the imposition of the lockdown (**Figure 2**-middle panel). While travel restrictions played an important role, the government of Pakistan also announced measures, including the introduction of the Roshan Digital Account (RDA) to strengthen the inflows through formal channels (**Annexure 2- Section 2.4**). As a result, inflows from KSA grew steeply in the months following the outbreak of the pandemic and then began declining (**Figure 2**). Between August 2021 and December 2022, inflows from KSA grew more slowly than those from the rest of the world. This occurred in spite of the fact that the number of workers emigrating to KSA rose sharply during this period (**Figure 3**).

c. Post-Covid Time Period

The government implemented a series of policy measures as the pandemic's spread threatened to trigger an economic collapse. Pakistan stopped reimbursing TT charges on remittances from KSA starting in May 2020. This policy move initially went largely unnoticed because KSA had waived fees on digital fund transfers[2]. At the same time, economic officials might have assumed that Pakistani workers in KSA would immediately switch to digital channels to send money home. However, it's important to recognize that most Pakistani laborers in the GCC are semi-skilled or unskilled workers employed in blue-collar jobs. They tend to avoid digital

[2] This was communicated to the banks and other stake holders through letters, instead of following formal process of circular/SRO.

methods and usually rely on Money Transfer Operators or a network of family and friends to send money back home.

The imposition of a travel ban not only disrupted the network but also forced these blue-collar remitters to send their money back home through money transferring operators (MTOs), which then began charging fees on remittances to Pakistan. As the lockdown eased and air travel restrictions were lifted by August 2021, Pakistani remitters reverted to using their personal networks, and remittance inflows from KSA started to decline immediately (**Figure 2**, right panel). These developments are illustrated in **Figure A2** in **Annexure 1**.

3. Methodology and Data

6.1 Methodology

We used the Difference-in-Differences (DiD) method for estimation. DiD is commonly applied to measure the effect of sudden changes in the economic environment, policies, or medical treatments on a group or individuals. It involves comparing changes in outcomes over time between a group that receives the treatment or intervention (the intervention group) and a group that does not (the control group). DiD is a quasi-experimental design widely utilized in health sciences to evaluate the impact of specific experimental interventions [Bendavid et al. (2012), King et al. (2013)] and also in economics. For example, Card and Krueger (1994) used this method to analyze the labor market, while DiTella and Ernesto (2004) applied it in criminology, and Galiani et al. (2005) studied the externalities of water privatization.

We designated all countries for which Pakistan continued to reimburse TTC upon receipt of workers' remittances as the control group (g=0) and KSA as the treatment group (g=1).[3] Furthermore, the period before May 2020 when no treatment or measure was applied, during which TTC reimbursement continued (t=0), and the period after May 2020 when treatment or measures were applied, with TTC reimbursement discontinued based on remittances from KSA (t=1). The framework of this procedure is illustrated in Figure 4. As Pakistan stopped reimbursing TT

[3] For the list of countries in the control group, see SBP for country wise workers' remittances inflows (available at: https://www.sbp.org.pk/ecodata/ORA_Arch.xlsx)

charges only for remittances from KSA starting May 2020, we defined the treatment solely for KSA and for the period from May 2020 to October 2022.

Figure 4: Schematic Diagram of Average Treatment and Control Effect

		Period		
		Not treated (0)	Treated (1)	
Group	Control (0)	(0,0)	(0,1)	(0,1)-(0,0)
	Treatment (1)	(1,0)	(1,1)	(1,1)-(1,0)

Difference in Difference (DiD) =[(1,1)-(1,0)]-[(0,1)-(0,0)]

$=\boldsymbol{\beta_3}$

Moreover, since the withdrawal of TTC reimbursement and the imposition of travel restrictions were enforced almost simultaneously, it is not possible to separate the impact of the two from the coefficient estimated. At the same time, the travel ban was the only period when remitters were forced to send remittances, through whatever means available to them, as the income stream of most low-income people back home dried up due to the imposition of strict lockdowns. This forced, abnormal remittance flow during the lockdown is likely to introduce an upward bias in the estimated coefficient, which may lead to a misleading conclusion.

To fix this problem, we first estimated DID using the full sample and then excluded the travel ban period (May 2020–August 2021) from the sample. In this setup, the full sample estimate (including the travel ban period) shows how remittance inflows from KSA behave after the withdrawal of TTC reimbursement, including the impact of the travel ban. Also included are the effects of KSA Saudization policies and Pakistan's efforts to attract remittances. The shorter sample estimate (excluding the travel ban period) illustrates the typical behavior of remittance inflows after the withdrawal of TTC reimbursement, essentially excluding the travel ban period. This estimate also accounts for the impact of KSA and Pakistan's remittances-related policies. The difference between the two coefficients demonstrates how inflows from KSA have changed after the withdrawal of the TTC reimbursement, while holding all other factors constant.

Moreover, we have constructed a panel of heterogeneous countries that differ significantly in time-invariant economic characteristics. The Difference-in-Differences (DiD) technique adequately handles this

problem. Let us assume y_{igt} that the monthly workers' remittances inflowing from any specific country *i* belonging to group *g* in the period, *t*. A general specification for the remittances inflows for this purpose could be given by (1),

$$y_{igt} = \alpha_g + \gamma_t + \beta_1 g + \beta_2 t + \beta_3 (G * t) + \epsilon_{igt} \quad (1)$$

where α_g represents the group-level fixed effect, γ_t and is the period-specific fixed effect. These account for the country-specific, time-invariant unobserved characteristics and heterogeneity over time. G is a group-specific indicator variable, t is a period-specific indicator variable, and the $\beta's$ are the regression coefficients to be estimated; ϵ_{igt} is the random error. A step-by-step formulation of this procedure is provided in Annexure 3. For estimation, we used the random effects model. The estimated coefficients are similar to those obtained with the fixed effects model.

6.2 Data

We used country-specific worker remittance inflow data from July 2018 to October 2022 to construct the panel. Moreover, to capture the remittance originating country's macroeconomic environment, first, we used the exchange rate of that country against the US dollar. We have then converted these exchange rates into Pakistani rupees using the PKR/USD exchange rate. Second, we have used OECD Trakker to capture growth in economic activity across OECD countries.[4] However, this indicator is not available for Malaysia and the GCC countries. Therefore, for Malaysia, we used YoY growth in monthly sales of manufactured products. For GCC countries, we have used year-on-year growth in the monthly Brent crude index.

To control the impact of labor migration to KSA, we included the number of workers emigrating from Pakistan every month to the destination country. We have acquired remittance data from the State Bank of Pakistan(SBP). For the exchange rate data, OECD tracker of economic activity, and Brent crude price index, we used Haver Analytics. Moreover, monthly data on workers emigrating from Pakistan have been acquired from the Bureau of Emigration and Overseas Employment (BEOE).

[4] For example, Boone (2021) has used OECD tracker as proxy of growth in OECD countries.

Descriptive statistics of these variables are provided in Table A1 (in Annexure 4).

4. Results

For estimation purposes, we have used the lag of economic activity in our models, as rising economic activity in the home country may take some time to translate into workers' wages and then into remittances outflows from that country. For similar reasons, we have used the lag of the exchange rate in our model. For the number of workers emigrating for jobs from Pakistan, we employed a second lag of this variable, as some gestation period is needed for their settlement in a new environment and sending remittances back home.

Table 1 presents the estimates from the Difference-in-Differences (DiD) analysis evaluating the impact of the withdrawal of TT charges in Pakistan on remittances from KSA. In this context, we have adopted specifications, 1) assessing the impact of TTC withdrawal solely, 2) assessing the effect of TTC withdrawal by controlling the impact of the domestic economic activity, exchange rate fluctuations, and country-specific number of workers emigrating from Pakistan.

Table 1: Impact of TTC charges Withdrawal on Remittances Inflows (mil US$)

	Coefficients	p-value
Control Group: All Countries		
No Covariates	168.2889*	(0.000)
with Covariates	197.5991*	(0.000)
Excluding the period of Umrah ban during Covid		
No Covariates	137.7537*	(0.000)
with Covariates	121.6335*	(0.000)
Impact of TTC withdrawal		
No Covariates	-30.5352	
with Covariates	-75.9656	
Control Group: Gulf Cooperation Council (GCC) Countries		
No Covariates	142.1919*	0.000
with Covariates	160.7122*	0.000
Excluding the period of Umrah ban during Covid		
No Covariates	113.6816*	0.000
with Covariates	79.0059*	0.009
Impact of TTC withdrawal		
No Covariates	-28.5103	
with Covariates	-81.7063	

Notes: Coefficients ($\boldsymbol{\beta_3}$) estimated using DID. * indicates at 1% level of significance. Covariates include Exchange rate of that country against US Dollar (Converted in Pak Rupee) and economic activity in that remittance originating country.

The results in **Table 1** suggest that workers' remittances inflow has increased by US$168.0 million since Pakistan withdrew TTC on remittances inflow from KSA. However, when covariates are included in the model, the result suggests a US$198 million per month increase in inflows. As economic activity in KSA plunged with the outbreak of COVID-19, the inclusion of the covariate further pushes this impact upward (**Figure A1 in Annexure 1**).

It is important to note that the above estimated coefficients include impacts of Saudization measure adopted by KSA, as well as Covid-induced travel restrictions, the latter had forced almost all informal inflows to the formal channel during the travel ban period (**Annexure 2**). Both of these factors have pushed the average monthly inflows upward. As a result, even after Pakistan withdrew TTC reimbursement, which imposed a cost on remitters, remittances from KSA continued to increase.[5]

KSA began easing restrictions in late 2020, allowing a significant number of immigrants to return to work (**Figure 3**). A large number of workers from Pakistan have emigrated to KSA since then. Later on, KSA further eased travel restrictions and began issuing Umrah visas in August 2021, thereby reviving informal means of sending remittances to Pakistan. As a result, remittance inflows from KSA have been slowing since then, despite a rapid increase in worker emigration to KSA (**Figure 1**). Since the withdrawal of TTC reimbursement and imposition of travel restrictions were enforced almost simultaneously, we removed the travel ban period (May 2020- August 2021) from the data to capture the actual impact of the withdrawal of TTC reimbursement.

Table 1 also shows the estimates from reduced data ('*Excluding the period of Umrah Ban during Covid*'). The estimates suggest that excluding the 'Umrah ban period' had a substantial impact on the coefficients. More precisely, the average impact of withdrawal of the TTC reimbursement resulted in an increase in the remittances inflow from KSA by US$138 million per month when no covariates were included in the model, thanks

[5] It is important to understand that Pakistani labor in GCC are mostly semi-skilled and unskilled employed in blue collar jobs. They tend to avoid digital means and rely on either Money Transfer Operators or the networking of family and friends for sending money back home. For details see Section 2.

to the 'Saudization' measures. The impact reduces to US$ 122 million when covariates are included in the model.

These results suggest that the withdrawal of TTC reimbursement reverted some remittances flowing from KSA toward informal channels. Our impact analysis suggests that, on average, US$30.5 million has shifted to the informal channel when no covariates are included. However, when covariates are included, the estimates suggest that, on average, US$76 million per month has shifted to the informal channel.

As robustness checks, we first re-estimated our model using the Synthetic Difference in Difference procedure proposed by Arkhangelsky et al. (2021) and Clarke et al. (2021) for small treatment and large control groups.[6] Moreover, the design of this test also incorporates the placebo inference procedure. To conduct this procedure, placebo treatments are randomly assigned based on the actual treatment structure; however, only to the control units. Building on these placebo assignments, placebo values for the coefficient are generated and used to calculate the variance. The coefficient of this test is reported in **Table A2** in **Annexure 4**. These estimates are very close to those reported in **Table 1**. Importantly, the impact of including the lag variable on the asymptotic normality of the estimator is unknown. This makes the Synthetic Difference-in-Differences procedure less suitable for our purpose, as we have used several covariates in their lags.

Second, we have assessed this impact in the GCC environment, using GCC countries other than KSA as a control and KSA as a treatment country. Results are reported in the lower panel of **Table 1**. In this case, the impact appears very similar, albeit in a lower magnitude, compared to the one reported in the upper panel of the table when all countries are considered.

Third, we have also estimated this impact using non-PKR exchange rates, that is, the actual exchange rate of the remittance originating country, instead of converting them into Pakistani rupees. The results are reported in **Table A3** (in **Annexure 4**). These estimates are consistent with those of

[6] Abadie et. al. (2010) faced very similar data structure like ours while investigating the impact of tobacco control program implemented in California in 1988. The impact of this reform was estimated by comparing the evolution of sales of cigarettes in packs per capita in California (the treated state) with those in 38 other (control) states, which did not significantly increase cigarette taxes during the study period.

Table 1. The results with covariates suggest that the impact is marginally lower compared to when exchange rates are in PKR. This is solely due to depreciation of the Pakistani rupee against the US Dollar, and therefore against other currencies as well.

Since DID provides an impact assessment of any specific event, the behavior or the true model explaining the determinant of workers' remittances inflow in Pakistan remained hidden. To provide the gist of the underlying model, we reported both random-effect and fixed-effect model estimates in **Table A4** (**Annexure 4**). The random effects model assumes that the country-specific characteristic has no significant impact on the covariates included in the model. However, these estimates are not very different from those of the fixed-effect model.

For the model incorporating the exchange rate in terms of the US Dollar, the results suggest that economic activity in the home country and the number of emigrants departing from Pakistan for that country are significant determinants of worker remittances inflowing from that country. The exchange rate (in US dollars) appears to be insignificant, suggesting that the exchange rate of the remittance origin country does not affect remittances coming into Pakistan. Nonetheless, beneficiaries in Pakistan receive the Pakistani rupee, and therefore, these results would be more meaningful when the exchange rate (covariate) is expressed in Pakistani rupees. This would help in capturing the impact of global exchange rate dynamics on remittances inflows in Pakistan.

Table A4 (**Annexure 4:** fourth and fifth columns) shows the estimates when exchange rates are converted to the Pakistani rupee. The results suggest that exchange rates are a significant determinant of remittances inflowing into Pakistan, together with economic activity in the remittances-originating country and the number of workers immigrating to that country. The estimate suggests that a 1% depreciation of the Pakistani rupee against the US dollar increases aggregate workers' remittances inflow in Pakistan by 0.22%. The positive and significant impact of exchange rates (asset prices) provides some evidence that remittances inflows in Pakistan also support investment activity, in addition to supporting the consumption of beneficiaries. However, conclusive evidence requires further research in this direction.

5. Conclusion

This paper attempted to estimate the impact of the withdrawal of TTC reimbursement on remittances inflowing from KSA in Pakistan. Our estimates suggest that this policy led to a decline in remittances from KSA of between US$31 million and US$76 million per month. Based on our assessment, the government of Pakistan has revised this policy since October 2023.

The following caveats are in order. Monthly information is available only on the gross stock of workers who emigrated from Pakistan. Theoretically, the net stock of workers emigrating from Pakistan, excluding those returning, should have been used. This number is not readily available. Moreover, BOE&E data on the number of workers going abroad is more meaningful for GCC countries as the laborers going to these countries had to register themselves with the Directorate of Emigration. The number of workers going to advanced economies is sparsely registered with the Directorate of Emigration. Furthermore, limited information on informal remittance inflow is acknowledged. Future work can better capture this channel-switching behavior.

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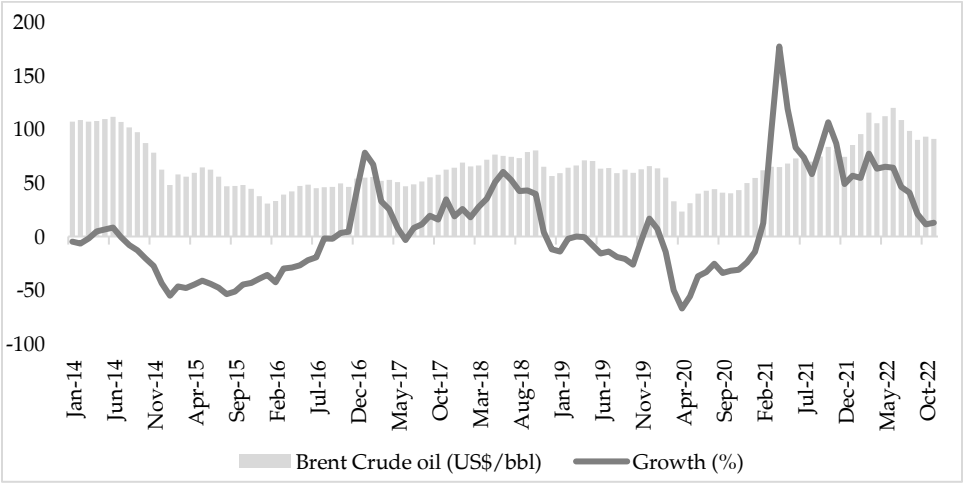
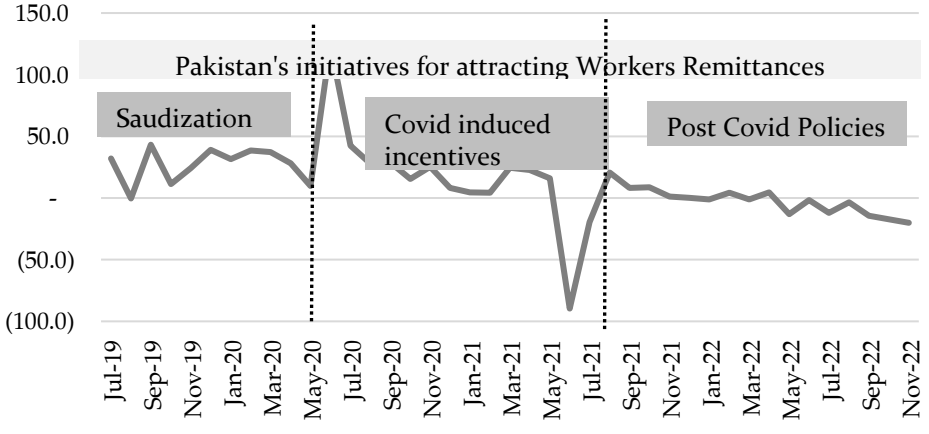
Annexure 1

Figure A1: Trend in Brent Crude Oil Prices



Source: World Bank

Figure A2: Remittances growth from KSA with Related Policy Development



Annexure 2

6. Pre-COVID Measures

6.3 KSA's Policy of Saudization

A) **Expatriate levy**: From July 2017, the KSA government imposed SAR 100 per dependent per month on expatriates and their dependents. This tax gradually rose every year until 2020. The tax amount doubled to SAR 200 in July 2018, increased to SAR 300 in July 2019, and to SAR 400 in July 2020.

Most expatriates responded by sending their dependents back home. As a result, this measure increased the outflow of workers' remittances from KSA.

B) **Taxing firms employing foreign workers:** From January 2018, the tax rate on private companies hiring an equal number of expatriates and Saudi workers increased to SAR 300 per foreign employee per month, from SAR 200. This rate was expected to increase to SAR 500 per foreign employee per month in 2019 and to SAR 700 per foreign employee per month in 2020. Moreover, in 2018, companies employing foreign workers, rather than Saudi nationals, were required to pay SAR 400 per employee per month. The tax rate was expected to increase to SAR 600 in 2019 and SAR 800 in 2020.

C) **Nitaqat Program**: Later on, the tax imposed on firms employing foreign workers was replaced by a performance-based nationalization of the job market, under the 'Nitaqat' program. The KSA government evaluates the performance of private entities on hiring Saudi nationals by calculating the percentage of Saudi nationals employed by the firms. The nationalization effort of the companies is calculated using a 13-week moving average over successive periods. The entities are classified into Excellent (Grey), Green, Yellow, and Red bands based on their performances relative to their economic activity and size. Firms are provided with various incentives based on their performance.

D) **Value Added Tax (VAT)**: Saudi Arabia has imposed a Value Added Tax (VAT) at the rate of 5.0 percent since January 2018. VAT has been imposed on wholesale and retail sales, including those of restaurants. This tax increased the cost of living for low-income expats in KSA and UAE.

6.4 Measures Adopted by Pakistan to Attract Remittances from the Formal Channel

From the start of the last decade, Pakistan adopted a three-pronged strategy to attract workers' remittances through the formal channel. These include a) strengthening of the remittances distribution network, b) removing structural bottlenecks in the inflow of remittances, and c) incentivizing the intermediaries and beneficiaries.

6.2.1 Strengthening of Remittances Distribution Network

a) Pakistan Remittances Initiative (PRI), in consultation with SBP and the Government of Pakistan (GoP), undertook more than 1,000 non-exclusive bilateral arrangements between domestic financial institutions and foreign entities, including foreign banks and money transferring organizations (MTOs). This substantially enhanced the reach of the domestic remittance-distribution network.

b) PRI launched two major schemes in December 2017: Asaan Remittance Account and digital *m-wallet*. The key feature of the 'Asaan Remittance Account' is that it can be opened in any scheduled bank through a simplified procedure.[7] Meanwhile, the government also launched a scheme to promote remittances through *m-wallets*, to accelerate remittance delivery and reduce remittance costs. The key feature of the *m-wallet* scheme is that the beneficiaries could withdraw cash from ATMs, bank branches or from hundreds of thousands of branchless banking agents. Moreover, they could make digital payments, for example to pay utility bills, using m-wallets.

c) These schemes utilized 12 Branchless Banking Operators (BBOs) with a network of 400,000 branchless banking agents spanning every nook and corner of the country. These BBOs supplement the domestic remittances distribution network, which consists of 24 banks, 5 microfinance banks, and 17 exchange companies.

[7] Similar to the 'Asaan Account' launched by SBP in 2015, the one-page account opening form for the 'Asaan Remittance Account' asks for basic customer information only. The customer's due diligence and other controls specified for 'Asaan Account' are applicable on the opening of the Asaan Remittance Account as well. This initiative aimed to encourage beneficiaries to receive remittances in a secured banking environment instead of over-the-counter cash they receive through traditional sources.

6.2.2 Removing structural impediments

a) SBP allowed authorized dealers (banks) to implement Business to Customer (B2C) and Customer to Business (C2B) transactions through foreign correspondent entities under either existing or new home remittance agency arrangements.

b) An individual, in B2C transactions, is allowed to receive up to US$ 1,500 per month for providing freelance and information systems services. Service providers other than of computer and information services are also allowed to receive up to US$ 1,500 per individual per month. Individual pensioners are also allowed to receive up to Rs 250,000 per month in remittances.

c) Meanwhile, in C2B transactions, overseas Pakistanis were allowed to pay directly utility bills, fees of Higher Education Commission-accredited institutions, insurance premiums, and make superstore purchases and on credit card payments. Overseas Pakistanis are also allowed to remit funds to purchase residential and commercial houses, plots, flats and buildings from reputed real estate builders/developers and housing societies.

6.2.3: Incentivizing beneficiaries and intermediaries

a) The government announced PKR 2.0 airtime incentive for mobile wallet users receiving up to for every US$ 1.0.

b) Exchange companies and banks were incentivized with PKR 1.0 for each US$ 1.0 incremental remittance that bring over 15.0 percent growth from previous financial year receipt.

7. Policies Adopted During COVID, and Subsequent Period

7.1 KSA measures that had implications for remittances inflow in Pakistan[8]

a) After the registration of the first COVID-19 case, Saudi Arabia suspended all schools, social events, sports activities, domestic travel, and international flights.

[8] Initiatives and services introduced by Saudi Arabian government authorities to support businesses during the emerging COVID-19 pandemic | Ministry of Investment (misa.gov.sa)

b) Restrictions were imposed on public movements, social and religious gatherings, travel, and businesses ahead of the first 100 confirmed COVID-19 cases.

c) The 2020 Hajj pilgrimage was scaled down to a limited number of participants. No cases of COVID-19 were detected among pilgrims.

d) Exempting expatriates, whose residency ended between March 2020 to June 2020, from the necessary financial requirements needed for visa renewal. In these cases, the residency period is extended by three months without reapplication.

e) Employers were allowed to extend unused exit and return visas during the entry and exit ban for three months at no charge.

f) Taking into account that the commercial activities were most affected, business owners were allowed to delay, by extending the postponement period as needed, for the following,

   a. Supplying value-added tax, selective goods tax, and income tax
   b. Submission of zakat returns and payment of zakat owed
   c. Implementing procedures to stop services and seizure of funds by the General Authority of Zakat and Income.

g) All customers were exempted from the fees for transactions made via electronic channels.

7.2 Measures taken by Pakistan to keep remittance inflows unaffected

The State Bank of Pakistan announced new measures on April 15, 2020, to encourage banks and exchange companies to attract higher remittance volumes.[9]

a) The rate of reimbursement for telegraphic transfer (TT) charges doubled. Specifically, the reimbursement rate for inflow between US$100-200 increased from SAR 10 to SAR 20 for each transaction.

b) A tier-based system was introduced to reimburse marketing transactions, where higher growth in remittances would lead to higher reimbursement of marketing charges. Authorized Dealer (ADs)

[9] Via EPD Circular Letters 11 and 12 of 2020.

generating remittances above the defined threshold growth became eligible to receive PKR 0.5, PKR 0.75, and PKR 1 for every additional US dollar generated.

c) The banks were also encouraged to promote digital channels for sending and receiving remittances and to introduce incentive schemes for their own customers.

d) From July 1, 2020, withholding tax on cash withdrawals, issuance of banking instruments, and on transfers in domestic bank accounts was withdrawn to the extent of the amount of remittances received into the accounts in a year.

Annexure 3

Step by step details of the DID procedure

For the period (t=0) when the TTC reimbursement policy was not withdrawn, both groups should have a similar trend driven by the intrinsic domestic and international factors; remittances inflows in the two groups could be described as:

Treatment group (g=1)

$$y_{i10} = \alpha_1 + \gamma_0 + \beta_1(1) + \beta_2(0) + \beta_3(1 * 0) + \epsilon_{i10} \quad (2)$$

Control group (g=0)

$$y_{i00} = \alpha_0 + \gamma_0 + \beta_1(0) + \beta_2(0) + \beta_3(0 * 0) + \epsilon_{i00} \quad (3)$$

After the withdrawal of reimbursement of TTC, the remittances inflows in the two groups could be described as:

Treatment group (g=1)

$$y_{i11} = \alpha_1 + \gamma_1 + \beta_1.1 + \beta_2.1 + \beta_3(1 * 1) + \epsilon_{ig11} \quad (4)$$

Control group (g=0)

$$y_{i01} = \alpha_0 + \gamma_1 + \beta_1.0 + \beta_2.1 + \beta_3(0 * 1) + \epsilon_{i01} \quad (5)$$

Change in remittances inflows in the treatment group [over the period (‘t’)] = (4) – (2)

$$y_{i11} - y_{i10} = (\alpha_1 + \gamma_1 + \beta_1.1 + \beta_2.1 + \beta_3(1 * 1) + \epsilon_{ig11}) - (\alpha_1 + \gamma_0 + \beta_1(1) + \beta_2(0) + \beta_3(1 * 0) + \epsilon_{i10}).$$

Or,

$$y_{i11} - y_{i10} = (\gamma_1 - \gamma_0) + \beta_2 + \beta_3 + (\epsilon_{ig11} - \epsilon_{i10}) \quad (6)$$

Change in remittances inflows in control group [over the period (‘t’)] = (5) – (3)

$$y_{i01} - y_{i00} = (\alpha_0 + \gamma_0 + \beta_1.0 + \beta_2.1 + \beta_3(0 * 1) + \epsilon_{i01}) - (\alpha_0 + \gamma_0 + \beta_1(0) + \beta_2(0) + \beta_3(0 * 0) + \epsilon_{00}$$

$$y_{i01} - y_{i00} = \beta_2 + (\gamma_1 - \gamma_0) + (\epsilon_{01} - \epsilon_{00}) \quad (7)$$

Average treatment effect or (Difference in Difference effect) = (6)-(7)

$$= (y_{i11} - y_{i10}) - (y_{i01} - y_{i00})$$

$$= \big((\gamma_1 - \gamma_0) + \beta_2 + \beta_3\big) - (\beta_2 + (\gamma_1 - \gamma_0)) + ((\epsilon_{ig11} - \epsilon_{i10}) - (\epsilon_{01} - \epsilon_{00}))$$

$$= \beta_3 + [(\epsilon_{ig11} - \epsilon_{i10}) - (\epsilon_{01} - \epsilon_{00})]$$

$$= \beta_3 + [Random\ error]$$

Annexure 4

Table A1: Descriptive Statistics

Variables	Observation	Mean	Standard deviation	Minimum	Maximum
Remittances	1,352	83.3	146.7	0.2	821.6
Econ. Activity	1,352	6.7	26.5	-67.2	177.5
Exchange Rate (in USD)	1,352	51.9	227.5	0.3	1426.1
No of Workers Emigrating	1,352	1464.9	5802.3	0.0	59615.0
Exchange Rate (in PKR)	1,352	163.3	134.9	0.1	780.2
No of cluster				1	12
No of Countries				1	26

Table A2: Robustness Test Using Synthetic Difference in Difference with Placebo Selection (million US$)

	Coefficients	p-value
No Covariates	181.9141*	0.000
with Covariates	164.6826*	0.000
Excluding the period of Umrah ban during Covid		
No Covariates	158.8868*	0.000
with Covariates	99.3212*	0.002
Impact of TTC withdrawal		
No Covariates	-23.0723	
with Covariates	-65.3614	

Notes: Coefficients ($\boldsymbol{\beta_3}$) estimated using DID. * indicates at 1% level of significance.

Table A3: Impact of TTC charges Withdrawal on Remittances Inflows (mil US$)

	Coefficients	p-value
All Countries		
No Covariates	168.2889*	0.000
with Covariates	195.4906*	0.000
Excluding the period of Umrah ban during Covid		
No Covariates	137.7537*	0.000
with Covariates	120.8412*	0.000
Impact of TTC withdrawal		
No Covariates	-30.5352	
with Covariates	-74.6494	
Gulf Cooperation Council (GCC) Countries		
No Covariates	142.1919*	0.000
with Covariates	172.1448*	0.000
Excluding the period of Umrah ban during Covid		
No Covariates	113.6816*	0.000
with Covariates	102.7883*	0.001
Impact of TTC withdrawal		
No Covariates	-28.5103	
with Covariates	-69.3565	

Notes: Coefficients ($\boldsymbol{\beta_3}$) estimated using DID. * indicates at 1% level of significance.

Table A4: Impact of Key Factors on Remittances Inflows in Pakistan

	All Countries			
	Exchange rate in USD		Exchange rate in PKR	
	Fixed Effect	Random Effect	Fixed Effect	Random Effect
Economic Activity (-1)	0.2414*	0.2443*	0.2113*	0.2181*
	(0.000)	(0.000)	(0.000)	(0.000)
Exchange rate (-1)	0.0121	-0.0324	0.2038*	0.1750*
	(0.863)	(0.520)	(0.000)	(0.000)
No. of Workers	-0.0015*	-0.0013*	-0.0015*	-0.0013836
Emigrating (-2)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	84.9930*	85.9061*	52.1894*	55.6214
	(0.000)	(0.000)	(0.000)	(0.001)

Notes: Estimates obtained using fixed effect and random effect models.