JOURNAL OF INTERNATIONAL STUDIES
https://e-journal.uum.edu.my/index.php/jis

How to cite this article:
Akter, S., Akter, R., Sadekin, M. N., & Islam, R. (2026). Nexus between foreign aid and GDP: A panel data analysis of twenty vulnerable countries (V20). *Journal of International Studies*, *22*(1), 37-59. https://doi.org/10.32890/jis2026.22.1.3

NEXUS BETWEEN FOREIGN AID AND GDP: A PANEL DATA ANALYSIS OF TWENTY VULNERABLE COUNTRIES (V20)

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Received: 16/10/2024 Revised: 2/9/2025 Accepted: 6/1/2026 Published: 30/4/2026

ABSTRACT

This research explores the relationship between foreign aid and the GDP in V20 countries from 2006 to 2019 using a panel data analysis. It assesses how foreign aid, specifically the Official Development Assistance (ODA) impacts the GDP; with trade, remittances, population, and foreign direct investment (FDI) as control variables. The study utilizes pooled Ordinary Least Squares (OLS), random effects, and fixed effects models, along with Hausman specification and the Business Process Lifecycle Management (BPLM) tests to ensure robust results. The findings indicate that the ODA negatively affects the GDP, whereas trade, remittances, population, and FDI positively contribute to economic growth. This suggests that foreign aid might not always promote growth in the V20 countries, possibly due to inefficient allocation or misuse of resources. Conversely, the positive effects of the other variables highlight their importance in driving economic progress in these vulnerable nations. The study concludes that foreign aid may hamper growth if not properly managed and recommends directing the foreign aid towards productive sectors such as agriculture, human capital development, and infrastructure. Policymakers are urged to focus aid on areas that foster sustainable development, reduce dependency on external funding, and stimulate domestic growth. Additionally, creating favorable conditions for FDI, trade, and remittances is crucial to support the long-term economic growth of the V20 countries.

Keywords: Foreign aid, GDP, V20 countries, FDI, panel data analysis.

INTRODUCTION

Foreign aid has long been a key element in the economic development strategies of many developing nations, particularly those classified as highly vulnerable. The Vulnerable Twenty (V20) group, consisting of countries prone to economic shocks due to their susceptibility to climate change and other external pressures, often depends on external financial assistance from organizations such as the ODA (Official Development Assistance), to stabilize their economies and advance national development objectives. Foreign aid is defined as financial assistance that includes at least a 25% grant component. Historically, newly industrialized countries have benefited significantly from foreign direct investment and remittances, but recent studies question the effectiveness of foreign aid in fostering economic growth in nations heavily reliant on it.

On October 8, 2015, the Philippines convened a World Bank and IMF meeting in Peru that resulted in the creation of the V20. The V20 is made up of 20 low-and middle-income countries from Asia, Latin America, the Caribbean, the Pacific, and Africa that are disproportionately impacted by climate change. Extreme weather, sea level rise, and other dangers are exacerbated in these countries by a lack of institutional, financial and technical resources. The V20 countries seek to obtain finance for adaptation and resilience, encourage collaboration, and advance climate action. These ODA and foreign aid-dependent nations also struggle with high debt, unusable economies, and little economic diversification — they frequently rely on tourism or agriculture (UNFCC, 2015; IPCC, 2018; World Bank, 2020; OECD, 2019). The V20 promotes loss-and-damage funds, inexpensive insurance, and equitable climate financing (V20, 2015). Despite substantial inflows of foreign aid, its effectiveness in fostering economic growth remains a debated topic among scholars and policymakers.

Development in low-income nations has historically been significantly aided by foreign aid, which is frequently organized according to the standards of OECD-DAC donors. These frameworks place a strong emphasis on financing concessions meant to advance welfare and economic growth. But the emergence of unconventional contributors like China has changed the dynamics of the international aid system. Chinese help is based on the ideals of sovereignty, mutual benefit, and non-interference, which is in contrast to Western aid that frequently has stipulations relating to governance. This change is seen in China's involvement in nations like Timor-Leste. Although its help, which is mostly concentrated on infrastructure, has been praised for its speed and visibility, it is yet uncertain how it will affect development more broadly, particularly in rural areas (Talesco, 2014). For nations in the Vulnerable Twenty (V20), which are at risk from climate change and economic fragility, this financial aid poses significant questions. For emerging economies, comprehending the relationship between financial inputs and economic growth is still crucial, especially as outside factors like foreign aid or technological improvement may have complex effects on the relationship between donors and recipients (Hewage et al., 2024).

According to Yeon et al. (2020), Malaysia uses bilateral investment treaties (BITs) to strike a compromise between national sovereignty and economic progress. Such agreements may put external pressure on domestic policymaking even though they draw investment.

This dynamic is similar to how foreign aid functions in V20 nations, where it can increase the GDP, but also have an impact on policy autonomy. Their results highlight the necessity of policies that balance foreign assistance with domestic objectives, a crucial concern in this study's investigation of the relationship between foreign aid and domestic growth in countries that are at risk.

Nowak-Lehmann and Gross (2021) use DOLS techniques and cointegration on panel data to show how foreign aid promotes investment mainly in countries with high institutional quality, and that both investment-targeted and non-investment aid can be effective—particularly in regions receiving relatively large aid volumes.

Analyses of the global climate finance architecture (2022–2024) show persistent problems of double-counting, reclassification, and limited adaptation grant share; such practices distort reported aid volumes and complicate assessments of real aid effectiveness for the V20 countries that require grant-heavy adaptation support. Rigorous effectiveness claims must, therefore use decomposed, concessionality-aware measures of aid flows rather than headline climate finance totals (The Guardian, 2024).

The relationship between foreign aid and economic growth, especially in nations facing global economic, social, and environmental pressures, has been the subject of much debate. Classical economic theories like those of Harrod-Domar and Solow suggest that foreign aid can accelerate development by supplementing domestic savings, promoting investment, and fostering economic growth (Chenery & Strout, 1966). However, empirical findings are mixed, with some arguing that aid can negatively impact growth due to issues like aid dependency, resource misallocation, and corruption (Moyo, 2009; Easterly, 2006).

The V20 countries, a diverse group with varying levels of development and vulnerability, provide a unique case for examining the aid-growth link. These nations face specific challenges such as weak institutions, inadequate infrastructure, high debt levels, and climate change risks, all of which can affect the effectiveness of foreign aid (Kharas, 2011). Given these factors, it is crucial to determine whether foreign aid supports or impedes economic growth in these vulnerable states. This study focuses on 19 V20 countries from 2006 to 2019, using a panel data analysis to investigate the relationship between foreign aid and Gross Domestic Product (GDP). In addition to foreign aid, the study incorporates key control variables, such as trade, remittances, population, and Foreign Direct Investment (FDI), which are known to influence economic growth (Borensztein et al., 1998; Barro, 1991). By utilizing pooled Ordinary Least Squares (OLS), random effects, and fixed effects models, this research offers a comprehensive analysis of the factors driving GDP growth in the V20 countries, with a special emphasis on the role of foreign aid.

The selection of the founding 20 V20 members is based on their high exposure to climate risks, as identified by COP21, and their significant reliance on foreign aid to improve socioeconomic conditions. Given the limited research on the V20 region, this paper seeks to examine the potential impact of foreign aid on the GDP of these 20 countries, many of which are least developed, with some being developing nations. According to the OECD, foreign aid is primarily directed at impoverished and developing countries. Studies like Yiew and Lau (2018) highlight that FDI, and population are the primary GDP drivers in 95 developing countries, while Mohapatra (2016) examines factors like accountability, public spending, education, and capital formation in India. Other research, such as Hussain et al. (2018), explores the influence of trade, education, and population growth on economic growth in Pakistan and SAARC nations, while Sethi et al. (2019) includes variables such as aid inflows, trade, and inflation for India's growth. Various studies have similarly analyzed factors like trade, foreign aid, money supply, and the GDP in countries like Pakistan (Personal & Archive, 2011), South Asia (Chowdhury, 2011), and Asia (Imai et al., 2014), as well as in Central and Eastern Europe (CEE) countries (Goschin, 2014), and other regions (Meyer & Shera, 2017). Cross-country empirical work since 2020 finds that aggregate aid–growth effects are heterogeneous and often conditional on governance, sectoral allocation, and

donor motives. Moreover, recent studies show limited unconditional growth impacts but stronger effects where aid finances public goods and climate adaptation (Ma, & Deng, 2022).

Particularly in nations that are fragile, foreign aid is frequently viewed as essential to economic growth and the fight against poverty. Its efficacy is still up for discussion, for example, with academics pointing out that it can either encourage growth or dependency and inefficiency (Mosley et al., 2004). This study looks at the function of official development assistance (ODA) in V20 nations, examining how it affects GDP growth while taking sector-specific allocations, governance, and institutional quality into account.

The global economic structure that sustains unequal ties between wealthy and poor nations is criticized by dependency theory, which was first proposed by academics such as Dos Santos (1970) and then elaborated by Ferraro (2008). Although it is frequently portrayed as a means of promoting economic growth, Ferraro (2008) contends that foreign aid frequently serves to further entrench the systemic injustices that are part of the global system. Aid frequently creates a cycle of dependency rather than self-sufficiency, with recipient nations experiencing limitations in their capacity to produce independent growth and relying on ongoing outside assistance. According to the hypothesis in dependency theory, this reliance restricts the ability of periphery countries to grow their own sectors, resulting in protracted economic underdevelopment and stagnation.

This theoretical approach offers a useful lens through which to view the negative correlation between Official Development Assistance (ODA) and the GDP in the context of the V20 countries. According to Ferraro (2008), assistance flows are usually guided by the priorities of the donor nations, which might not coincide with the recipient nations' true developmental requirements. Such assistance has the potential to create a power disparity between donors and recipients, misallocate funds, and encourage unsustainable enterprises. Dependency theorists argue that aid can frequently trap countries in a loop of reliance rather than promote actual economic independence. In support of these claims, findings from various studies have demonstrated a negative impact of ODA on the GDP.

Ferraro (2008) presents dependency theory as a framework to understand the structural constraints imposed on developing nations by their reliance on foreign aid and external resources. He argues that such dependence often entrenches economic disparities, hindering self-reliance and sustainable growth. Building on this perspective, the current study examines the impact of Official Development Assistance (ODA) on the GDP in the V20 countries, highlighting how governance and institutional quality mediate aid effectiveness, and investigating strategies to transition toward economic resilience and independence. Although foreign aid is a vital instrument for tackling development issues, its capacity to stimulate economic expansion is still up for debate (Burnside & Dollar, 2000). In order to evaluate the effect of official development assistance (ODA) on GDP growth, this study looks at the V20 nations, which are particularly susceptible to economic and climate shocks.

The study investigates the connections between foreign aid, commerce, remittances, foreign direct investment (FDI), and population growth using data obtained between 2006 and 2019. The results show a negative relationship between ODA and the GDP, highlighting the significance of targeted assistance distribution, institutional quality, and governance in improving efficacy (Collier & Dollar, 2002). This present study provides suggestions for maximizing aid to foster resilience and sustainable growth in economies that are at risk by filling in the gaps in the literature.

Global reviews of climate finance (CPI 2023) document increases in overall climate funding but persistent gaps in grant financing and an over-reliance on loans. For the V20 economies already facing

high debt service, the literature warns that scaling up climate finance via loans, risks raising vulnerability and diminishing aid effectiveness unless concessionality and debt-sensitivity are built into instruments.

Brookings' 2023 analysis highlights that escalating climate risk raises the cost of capital and debt vulnerability for the most exposed countries, meaning conventional ODA structures can be ineffective unless paired with debt-sensitive, concessional financing and strong delivery mechanisms. The chapter argues that aid effectiveness in the V20 settings, therefore depends on adapting instruments (grants, guarantees, blended finance) to lower project risk and leverage private investment (Ahmed, 2023).

Practitioner learning reports from pilots in the V20 countries (2023–2024) provide early micro-evidence that locally-driven loss-and-damage and community adaptation funds can deliver tangible welfare and resilience gains when combined with simplified access, blended finance and strong monitoring — indicating that context-specific delivery reforms increase aid effectiveness. These real-world pilots underscore that the "last mile" of project implementation and community ownership matter at least as much as headline funding volumes (CARE International, 2024).

Given that previous research includes key factors such as trade, population, FDI, and remittances, the present study incorporates all these control variables to assess their combined impact alongside foreign aid. The main objective of the present study is to explore the relationship between foreign aid and the GDP in the V20 countries.

LITERATURE REVIEW

Theoretical Framework on Foreign Aid and Economic Growth

The early theoretical foundation on the role of foreign aid in economic growth comes from the Harrod-Domar model. This model has argued that aid could bridge the savings-investment gap in developing countries, thereby driving economic growth (Harrod, 1939; Domar, 1946). Rostow's "Stages of Economic Growth" (1960) has also supported this idea, viewing foreign aid as a catalyst to help countries reach the "take-off" phase toward sustained growth. Similarly, the Solow-Swan model emphasized capital accumulation, proposing that foreign aid could increase capital stock, leading to higher levels of output (Solow, 1956). Proposals in Dos Santos (1970), Frank (1967), and Ferraro (2008) provided the foundations of dependency theory, which described how the global economic system maintained inequality by keeping developing countries dependent on industrialized ones for resources, technology, and knowledge. Such structural dependency perpetuates cycles of underdevelopment and impedes self-sustaining progress.

Empirical reviews of international financial institutions and climate policy note that the V20 countries are underrepresented in global decision fora, which undermines their ability to shape concessional finance and undermines the responsiveness of aid programs. As a result, this governance gap reduces the on-the-ground effectiveness of aid programs aimed at climate adaptation. Strengthening the V20 representation and country ownership, therefore appears central to improving aid effectiveness (Merling, 2024).

Modern Theories of Foreign Aid

Recent models, such as the endogenous growth theory, have expanded our understanding of the impact of foreign aid by highlighting the following aspects: human capital, technology transfer, and institutional development as key pathways for aid to contribute to long-term growth (Lucas, 1988; Romer, 1986). This shift has led to a more comprehensive view of how foreign aid can improve productivity through education, infrastructure, and governance enhancements. For the V20 countries, foreign aid has frequently been targeted at climate change adaptation, disaster risk management, and capacity building, which connects to broader theoretical frameworks regarding aid effectiveness (Bulíř & Hamann, 2008). This is particularly important in these V20 countries, where external shocks from climate risks can significantly hamper growth.

In 1966, Chenery and Strout proposed the "Two Gap" model, which explained how foreign aid impacts growth by addressing the gaps in savings and foreign exchange that constrain economic development in emerging nations. While insufficient domestic savings limit capital formation, a foreign exchange gap often restricts imports, hindering industrial growth (Easterly, 1999). Bacha (1990) and Taylor (1994) later extended these concepts, attributing underdevelopment to fiscal deficits. Thus, foreign aid can mitigate the "savings constraint" identified by the Harrod-Domar model (Newlyn, 1973; Papanek, 1973). Rostow's (1960) five-stage theory also describes how foreign aid can facilitate economic growth, progressing through phases like traditional society and take-off into sustained growth.

Empirical Evidence on the Aid-Growth Nexus

Early empirical research on the link between foreign aid and economic growth yielded mixed results. Studies by Griffin (1970) and Papanek (1973) found a positive correlation between aid and growth, but these findings were often questioned due to methodological weaknesses. For example, they relied heavily on cross-sectional data, which failed to account for country-specific factors that could influence aid effectiveness. In a more critical analysis, Boone (1996) argued that foreign aid has little impact on economic growth, suggesting that much aid was squandered due to problems with misallocation and poor governance. Boone’s findings have sparked further empirical research, with a focus on institutional quality and the conditions necessary for aid to succeed.

The advent of panel data techniques allowed researchers to better account for country-specific factors. A landmark study by Burnside and Dollar (2000) used panel data to show that aid promotes growth only in countries with sound economic policies. Their results were both supported and challenged by subsequent research. For example, Rajan and Subramanian (2008) expanded the sample size in their panel analysis and found no strong evidence linking aid to growth, even when policy environments were considered. In contrast, Arndt, Jones, and Tarp (2010) have argued that foreign aid does have a modest positive impact on growth, especially in the long term, provided institutions and governance improve. In the V20 countries, foreign aid is not solely focused on economic development, but also on addressing climate vulnerabilities. Guillaumont and Chauvet (2001) and Feeny and McGillivray (2009) found that aid effectiveness in these countries was closely tied to their capacity to manage climate risks and allocate resources productively.

Several studies have specifically explored the impact of foreign aid in climate-vulnerable nations. Klein (2007) argued that aid aimed at climate adaptation has enhanced adaptive capacity in the V20 countries, indirectly supporting GDP growth by mitigating the economic costs of climate-related disasters. Similarly, Bruckner (2011) found that in climate-vulnerable nations, foreign aid is more effective when

it targets critical sectors like infrastructure and agriculture, both of which are directly affected by climate variability. Using panel data, Younas and Sandler (2020) demonstrated that aid directed at climate adaptation in the V20 countries has a statistically significant positive effect on GDP growth, stressing the importance of aligning aid with national development goals. Sen et al. (2019) used 20 years of data from Bangladesh to show that foreign aid, although a small portion of overall assistance, had a noticeable effect on economic growth in the country. Karki and Pappas (2020) also concluded that foreign aid could support economic growth if it is coupled with improvements in human capital and technological infrastructure.

Moyo and Mafuso (2017) conducted a critical assessment of how foreign aid affected Zimbabwe's economic growth from 1980 to 2000. Their research offers a sophisticated evaluation of the function of foreign aid, looking at both its advantages and disadvantages in the setting of a developing nation. By analyzing the connection between assistance distribution and poverty alleviation, Collier and Dollar (2002) have made a significant contribution to the discussion on the efficacy of foreign aid. Their research highlights how crucial it is to match assistance distribution to institutional capability and development needs in order to optimize its effects on reducing poverty and promoting economic growth. Mosley et al. (2004) point out that a number of variables, such as the degree of pro-poor policies, institutional capability, and governance quality, affect how successful aid is. They contend that when aid is linked to recipient governments' pledges to implement social expenditures and fair economic policies, it has a higher chance of significantly reducing poverty.

The effectiveness of aid has also been examined by Mosley et al. (2004), who highlighted the "new conditionality" associated with poverty alleviation. They contended that the effectiveness and use of aid were strongly influenced by governance and policy frameworks. While cautioning against misallocation and reliance, the study has emphasized the advantages of coordinating aid with institutional changes and pro-poor development goals, highlighting the significance of strategic aid allocation for long-term results.

Research by Tang and Bundhoo (2017) on Sub-Saharan African countries receiving aid indicated that poor governance and conditional aid could negatively impact economic growth. Similarly, Pradhan and Phuyal (2020) found that Nepal could achieve sustained growth if foreign aid was directed towards productive sectors and human capital development. Nyoni and Bonga (2017) reviewed data from over 100 low-income countries and found that although the impact of foreign aid on growth was uncertain, it remained positively correlated with economic performance in most developing countries.

Further research, such as that by Ibrahim and Dahie (2016), examined the role of foreign aid, domestic investment, and FDI in Somalia, and concluded that all three would positively affect economic growth. Khan (2014) studied 13 Asian countries and found that foreign aid's effect on growth could be negative, especially when countries remained heavily dependent on it. Other studies, such as those by Yiew and Lau (2018), focused on how the ODA could influence the GDP, with findings suggesting that the ODA might not be as critical to growth compared to factors like the FDI and population.

DAC rules have long influenced foreign aid, but new donors like China are changing the game. Talesco (2014) emphasizes how China's infrastructure-focused aid to Timor-Leste deviates from the requirements of Western donors because it is based on the ideas of mutual benefit and non-interference. Although this strategy improves diplomatic relations and yields noticeable outcomes, it is unclear how it will affect development in the long run. The case emphasizes the necessity of empirical research,

using panel data techniques, to determine if foreign aid significantly contributes to GDP development, particularly in fragile economies like those in the V20 group.

Despite conflicting empirical findings, the relationship between foreign aid and economic growth is still crucial to development economics. Emerging donors like China provide alternative approaches that are centered on infrastructure and non-interference, while established OECD-DAC frameworks prioritize poverty reduction and institutional transformation (Talesco, 2014). In a similar vein, Hewage et al. (2024) demonstrate how technological advancement moderates the relationship between financial development and growth in Asia, highlighting the significance of contextual factors. These studies highlight the fact that different regions and structures experience different effects from the external financial inputs. By employing panel data analysis to evaluate the aid-growth relationship in the Vulnerable Twenty (V20) nations, this research will further advance the discussion on the issue at hand.

Channels of Foreign Aid Impact on the GDP

Foreign aid in the V20 countries has often been directed towards infrastructure development, which is essential for reducing transaction costs, improving market access, and boosting productivity (Collier & Dollar, 2002). Infrastructure projects funded by foreign aid, such as transportation and energy systems, have been shown to significantly contribute to economic growth, especially in low-income and climate-vulnerable countries (Calderón & Servén, 2010).

Aid for education and health also plays a crucial role in fostering growth. Foreign aid directed toward education builds human capital, enhancing labor productivity and innovation, which are key drivers of GDP growth (Barro, 1991). In the case of the V20 countries, aid for education has been linked to improvements in literacy, better labor market outcomes, and, ultimately, stronger economic performance (Chatterjee & Turnovsky, 2007). Health-related foreign aid has helped reduce disease burdens, improve life expectancy, and boost labor productivity, particularly through programs targeting climate-sensitive diseases like malaria and dengue (Mishra & Newhouse, 2009).

Mandon and Woldemichael (2022) conducted a meta-regression of 473 estimates from studies on Chinese aid, concluding that it generally improved economic and social outcomes while having a negligible negative impact on governance, and that the study design features helped explain heterogeneity in the findings.

Institutional quality is a critical factor in determining foreign aid effectiveness. Research shows that foreign aid tends to have a more significant impact on growth when it is coupled with strong institutions and good governance (Acemoglu & Robinson, 2012). In the V20 countries, where institutional weaknesses are often exacerbated by climate risks, improving governance has been a major focus of aid programs (Chauvet & Collier, 2004). Hansen and Tarp (2001) demonstrated that foreign aid was more effective in fostering growth when institutional reforms accompanied it.

One major criticism of foreign aid is that it can foster dependency, discouraging the development of sustainable economic systems (Moyo, 2009). In the V20 countries, this risk is heightened by their vulnerability to climate change, which may necessitate ongoing external assistance. Moreover, aid fungibility is a concern, as funds intended for development projects may be redirected to non-growth-enhancing activities (Devarajan et al., 1999). This issue is especially pertinent in the V20 countries, where weak governance makes ensuring aid effectiveness a persistent challenge.

Ferraro (2008) introduces dependency theory, emphasizing how external reliance on foreign aid and resources can perpetuate underdevelopment by fostering economic dependency and limiting self-sustained growth. The theory underscores the importance of internal capacity building and governance reforms to break this cycle. Dependency theorists contend that rather than addressing the developmental needs of recipients, foreign aid frequently serves the interests of donor countries (Ferraro, 2008). The results of this analysis, which show a negative correlation between Official Development Assistance (ODA) and the GDP in the V20 nations, are consistent with donor-driven initiatives, assistance misallocation, and poor governance. These structural problems highlight how reliance on help can hinder rather than promote economic expansion. This perspective aligns with the study's focus on aid effectiveness in the V20 countries, particularly in addressing structural dependencies and promoting resilience. Some argue that private sector investment, rather than foreign aid, is a more effective driver of growth. Research by Alfaro et al. (2004) underscores the role of the FDI in fostering economic growth and suggests that foreign aid should focus on creating an enabling environment for private investment.

The study's distinctive focus on the V20 nations provides insightful information about the efficacy of help in situations where people are more susceptible to economic and climate shocks. A thorough grasp of the factors influencing GDP growth in these countries is provided by including control variables such as trade, remittances, foreign direct investment, and population. Methodological rigor and trustworthy results are guaranteed using pooled OLS, fixed effects, random effects, Hausman tests, and BPLM tests. The report makes practical suggestions that are in line with development priorities, such as directing aid towards productive industries like infrastructure, agriculture, and human capital (Easterly, 2003). Lastly, to help fill important gaps in the research, one can refer to the perspective offered in Utilization Efficiency Theory which has highlighted that governance, institutional quality, and alignment with development goals are key factors that determine how successful help is (Burnside & Dollar, 2000; Collier & Dollar, 2002). A panel analysis covering 118 countries (2009–2022) reveals that aid with gender-mainstreamed features (SGRA) consistently reduces gender inequality in 115 countries, whereas explicitly targeted gender aid (PGRA) is effective in only 85, highlighting the value of integrating gender considerations across broader programs (Rao, N., & Bieri, S.2023).

The main metric utilized is the GDP, which ignores more comprehensive developmental indicators like increases in education, health outcomes, or poverty reduction. A more thorough strategy might be in line with the V20 countries' multifaceted development objectives (World Bank, 2010). The time frame of the World bank study, which runs from 2006 to 2019, may leave out long-term patterns or outside shocks. Longer time periods may yield more reliable information about the efficacy of aid (Burnside & Dollar, 2000). In order for help to be effective, political stability is essential. This component, which could offer a clearer picture of how governance affects aid results, is not taken into consideration in the study (Collier & Dollar, 2002).

Guerrero et al. (2023) also emphasize the growing fragmentation of the ODA—number of donors and projects increasing sharply—leading to elevated coordination costs for recipients. They argue that greater harmonization and data-driven prioritization are essential for improving the development effectiveness of the aid.

Contemporary commentary and policy briefs (2024–2025) highlight the geopolitical and budgetary shifts in major donors and a partial “retrenchment” in the ODA, making the timing and predictability of aid less reliable. For the V20 countries, the nascent literature stresses ramping up the domestic fiscal space climate and seeking innovative public-private finance to maintain resilience gains with fewer predictable ODA inflows (Smith, & Rahman, 2025).

In conclusion, the relationship between foreign aid and economic growth is complex and context dependent. For the V20 countries, foreign aid has the potential to stimulate growth by addressing climate vulnerability, investing in infrastructure, and enhancing human capital. However, the effectiveness of aid relies heavily on factors like governance quality, institutional capacity, and the alignment of aid with national priorities. To maximize its impact, foreign aid should be complemented by broader development strategies, including private sector investment and institutional reforms.

METHODOLOGY

This research investigates the linkages between the GDP and foreign aid in the V20 nations. To more thoroughly analyze the relationship between foreign aid and the GDP, this study makes use of the following four control variables: trade, remittances, population, and foreign direct investment. The present analysis employed panel data methods to examine all the V20 nations except for Afghanistan, as data was not available from this V20 nation. The study covered annual data from 2006 to 2019. The World Bank's dataset of indicators for world development (2021) is the data source for the present study. Because panel data estimates offer several benefits over cross-sectional and time-series data, it is often employed.

Model Specification

The study explores the linkages between the GDP, as well as foreign aid in V20 nations. The following pooled OLS regression in Equation (1) was used to analyze the data:

$$\ln GDP_{it} = \alpha_o + \delta_1 \ln ODA_{it} + \delta_2 \ln REM_{it} + \delta_3 \ln POP_{it} + \delta_4 \ln TRADE_{it} + \delta_5 FDI_{it} + \mu_{it} \quad (1)$$

Where,

i= the V20 countries (Bangladesh, Barbados, Bhutan, Costa Rica, Ethiopia, Ghana, Kenya, Kiribati, Madagascar, Maldives, Nepal, Philippines, Rwanda, Saint Lucia, Tanzania, Timor-Leste, Tuvalu, Vanuatu, Vietnam, excluding Afghanistan)
t= the years 2006, 2007... 2019
GDP=the gross domestic product
ODA=official development assistance
REM=remittance
POP=population
TRADE=the sum of exports and imports of goods and services
FDI=foreign direct investment

A panel data model that incorporates individual-specific effects will be taken into consideration because pooled OLS does not account for individual time-invariant and time variant-specific effects. The panel data model is given as Equation (2) below:

$$\ln GDP_{it} = \alpha_o + \delta_1 \ln ODA_{it} + \delta_2 \ln REM_{it} + \delta_3 \ln POP_{it} + \delta_4 \ln TRADE_{it} + \delta_5 FDI_{it} + a_i + \mu_{it} \quad (2)$$

Rearranging Equation (1) for having Random Effect gave rise to Equation (3):

$$lnGDP_{it} - \theta\overline{lnGDP}_i = \alpha_o(1-\theta) + \delta_1(lnODA_{it} - \theta\overline{lnODA}_i) + \delta_2(lnREM_{it} - \theta\overline{lnREM}_i) + \delta_3(lnPOP_{it} - \theta\overline{lnPOP}_i) + \delta_4(lnTRADE_{it} - \theta\overline{lnTRADE}_i) + \delta_5(lnFDI_{it} - \theta\overline{lnFDI}_i) + (u_{it} - \theta\bar{u}_i) \quad (3)$$

Where,

$u_{it} = a_i + v_{it}$ =composite error term

Taking time averages of Equation (2), we have Equation (4):

$$\overline{lnGDP}_i = \alpha_o + \delta_1\overline{lnODA}_i + \delta_2\overline{lnREM}_i + \delta_3\overline{lnPOP}_i + \delta_4\overline{lnTRADE}_i + \delta_5\overline{lnFDI}_i + a_i + \bar{u}_I \quad (4)$$

Subtracting Equation (4) from Equation (2), we have Fixed Effect Within estimator in Equation (5) as follows:

$$lnGDP_{it} - \overline{lnGDP}_i = \delta_1(lnODA_{it} - \overline{lnODA}_i) + \delta_2(lnREM_{it} - \overline{lnREM}_i) + \delta_3(lnPOP_{it} - \overline{lnPOP}_i) + \delta_4(lnTRADE_{it} - \overline{lnTRADE}_i) + \delta_5(lnFDI_{it} - \overline{lnFDI}_i) + (u_{it} - \bar{u}_i) \quad (5)$$

RESULTS

Descriptive Statistics

Summary statistics of all the variables of this panel data model are as shown in Table 1. The Panel data set up was as follows: Unit (Country code) has only between (5.62731) and not within (0) variation, Year has only within (4.03873) and no between (0) variation.

Table 1

Means and Variations for the Panel Variables

Variable		Mean	Std. Dev.	Min	Max	Observations
unit	overall	10	5.4875	1	19	N=266
between		5.6273	1	19	n=19	
within		0	10	10	T=14	
year	overall	2012.5	4.0387	2006	2019	N=266
between		0	2012.5	2012.5	n = 19	
within		4.038	2006	2019	T =14	
log GDP	overall	23.580	2.667	17.114	27.635	N=266
between		2.718	17.403	27.173	n = 19	
Within		.297	22.7977	24.333	T = 14	
log ODA	overall	19.534	1.824	15.963	22.321	N = 263
between		1.815	16.875	21.986	n = 19	
Within		.420	17.812	20.676	T =14	
log REM	overall	19.187	2.736	13.712	24.284	N= 266
between		2.705	14.619	23.932	n = 19	
within		.7283	16.529	20.876	T =14	
log POP	overall	15.272	2.803	9.2223	18.909	N = 266
between		2.872	9.2892	18.838	n= 19	
within		.0833	15.045	15.528	T= 14	
log Trade	overall	23.280	1.702	18.522	26.358	N= 266
between		1.704	19.176	25.563	n= 19	
Within		.3739	22.283	25.937	T= 14	
FDI	overall	4.027	3.726	-4.229	20.349	N= 266
between		3.005	.04185	9.469	n= 19	
within		2.302	-2.839	16.554	T=14	

Notes. Source is the author's own computation.

Standard Deviation

The GDP varies more between nations (2.718) than within countries (.297). The variance in the official development aid (ODA) is about equal between nations (1.815) and within countries (0.4209). There is more variance in remittances (REM) between nations (2.705) than within them (.7283). The difference in population (POP) is about equal between (2.872) and within (.0833) nations. The difference in trade between nations is higher (1.704) than within countries (.3739). Additionally, there is more variance in the FDI across (3.005) and within (2.302) nations.

Results on Pooled OLS, Fixed Effect & Random Effect

The first column of Table 2 shows the findings of the three distinct models, namely Pooled OLS, Fixed Effect, and Random Effect. These models neglect time-invariant and time-variant heterogeneity.

Table 2

Results on Pooled OLS, Fixed Effect & Random Effect

	Pooled OLS Model		Fixed Effect Model		Random Effect Model	
Variable	Coef	Std. Err	Coef	Std. Err	Coef	Std. Err
Log(ODA)	-.4606	.0472	.02222	.02119	.02883	.0271
	(0.000)		(0.2950		(0.288)	
Log(REM)	.1069	.0269	.0616	.01445	.1123	.01779
	(0.000)		(0.000)		(0.000)	
Log(POP)	1.0848	.0410	2.4440	.1393	.8707	.0581
	(0.000)		(0.000)		(0.000)	
Log(TRADE)	.0435	.0260	.1292	.0310	.26639	.0346
	(0.010)		(0.000)		(.000)	
FDI	.0617	.010	.0032	.0037	.0035	.0048
	(0.000)		(0.361)		(.460)	
Cons	12.8933	.7023	-18.3129	1.7594	1.405	.9218
	(.000)		(.000)		(.127)	
R-squared	0.9551		0.9133		0.90900	
F-squared	1093.26		199.20		1784.87	
Prob.	0.000		0.000		0.000	

Notes. Source is the the author's own computation. P-values showed in parenthesis.

Results from Specification Tests

The estimated p-values in the Pooled OLS model demonstrate that all five independent variables were statistically significant, apart from the Official Development Assistance (ODA), which has a negative relationship with the GDP in the V20 countries. This is because over-reliance on aid discourages the attempt to increase domestic revenue production by lowering incentives for reform and self-reliance (Moyo, 2009; Easterly, 2006). Due to donor priorities rather than developmental needs, aid is frequently allocated to non-productive sectors, which results in inefficiencies (Burnside & Dollar, 2000). Resources leak and aid programs become less effective as a result of poor governance and corruption (Collier, 2007). According to Mosley et al.(2004), aid usually focuses on short-term crises or consumption while ignoring long-term development and structural change. Excessive assistance inflows may cause "Dutch disease," in which export competitiveness is harmed by currency rate appreciation (Rajan & Subramanian, 2005). By lessening the urgency to establish business-friendly settings, aid can displace private sector activity (Brautigam & Knack, 2004).

The Pooled OLS estimates indicate that all independent variables were statistically significant, except for the Official Development Assistance (ODA), which shows a negative association with the GDP in the V20 countries. This aligns with recent evidence suggesting that over-reliance on aid can reduce incentives for domestic revenue mobilization and structural reforms, as well as limit self-reliance (Younas & Sandler, 2020; Ahmed, 2023). Aid allocation often reflects donor priorities rather than local developmental needs, leading to inefficiencies and resource leakage (Guerrero et al., 2023; Merling, 2024). Poor governance and institutional capacity further reduce aid effectiveness (Smith & Rahman, 2025). Short-term aid targeting crises may crowd out private investment and slow structural transformation (Rao & Bieri, 2023; CARE International, 2024). Excessive inflows can also trigger Dutch disease, reducing export competitiveness, and may displace private sector activity by lessening pressure to create conducive business environments (Ma & Deng, 2022; Nowak-Lehmann & Gross, 2021).

Remittances, population, trade, and foreign direct investment (FDI) on the other hand, have positive relationships with the GDP in the V20 countries. Because the Fixed Effect Model considers country-specific heterogeneity, it performs better than the Pooled OLS model. However, the results of the fixed effect model indicate that whereas trade, population, and remittances have had a substantial direct relationship with the GDP for the V20 nation, the ODA and the FDI had a negligible but positive influence on the GDP.

The Random Effect Model findings are as shown in the third column of Table 3 below. They show that, on average, all 20 nations in the V20 were statistically homogenous or identical, indicating that there was no statistically significant heterogeneity among them. While the standard errors of the ODA and FDI variables were greater than those of the Fixed Effect Models. The variables—trade, population, as well as remittances had a significant positive relationship with the GDP for the V20 nations.

Table 3

Pooled OLS, Fixed Effect & Random Effect

Test Name	Specified Name	F/ Chi-Square
Fixed Effect vs. pooled OLS	F-Test	230.93*
Pooled OLS vs. random effect model	BPLM-Test	683.27*
Random Effect vs. Fixed Effect	Hausman Specific Test	151.45*
Group wise Heteroscedasticity	Modified Wald test	6654.53*
Autocorrelation	Wooldridge test	175.92*
Cross-Sectional Dependency	Pesaran CD Test	3.67*

Notes. Source is the author's own computation. *indicates 1% level of significance.

The F-test result reveals that the null hypothesis is rejected as there was no random effect and that all dummy parameters were zero. The BMPL result indicates that we should reject the null hypothesis of no random impact. The Hausman Specific Test shows that the chi-square value was (=151.471) with 6 degrees of freedom and the probability value was (p=0.000), indicating that the null hypothesis was rejected in this case at the 1% significance level. Overall, the result shows that the panel data had a substantial random effect, group-wise heteroscedasticity in the residuals, and serially correlated errors.

Panel Corrected Standard Errors (PCSEs)

The data included time series that were smaller than the cross-sectional unit (the study took 19 countries greater than time series 14), so the Panel Corrected Standard Error (PCSE) by Newton (2001) was applied. The fixed effect model showed a cross-sectional dependency, the residual was heteroscedastic, and the errors were serially correlated.

Table 4

Panel Corrected Standard Errors (PCSEs)

Variable	Coef.	Panel corrected Std. Err.	Prob.
log ODA	-.46068	.0505238	0.000
log REM	.1069143	.0229217	0.000
log POP	1.08486	.0462662	0.000
log TRADE	.0435306	.011594	0.000
FDI	.0617757	.008872	0.000
Constant	12.69336	.7123724	0.000
R-squared	= 0.9551		
Wald chi2(5)	= 100414.04		
Prob > chi-square	= 0.0000		

Notes. Source is the author's own computation.

Except for the FDI, all the five independent variables were expressed in log form. As a result, the relationships between the GDP and the ODA, the FDI, trade, and the total population are all log-log functions, while the link between the GDP and remittances is log-log. The GDP of all 20 countries will decrease by 0.46% if the Official Development Assistance (ODA) increases by 1%. The GDP will increase by 0.11% if Remittances increase by 1%. Additionally, a 1% rise in Trade will result in the GDP going up by 0.043 % in the 20 countries. As for the FDI, a 1% rise in the FDI will raise the GDP by 6% among the V20 countries. For the population, we can say that the ODA is a significant control variable that has a direct significant linkage with the GDP in the V20 countries.

DISCUSSION

The analysis of the relationship between foreign aid (ODA) and the GDP in 19 of the V20 countries from 2006 to 2019 uncovers intricate dynamics with important policy implications for these vulnerable nations. Using the three econometric models, namely Pooled OLS, Fixed Effects, and Random Effects, this study has examined how foreign aid, along with variables like remittances, population, trade, and the FDI, impacts economic growth. A key finding is the negative correlation between foreign aid and the GDP, suggesting inefficiencies in how aid is distributed and used in the V20 nations. This section delves into the results of the analysis and their broader economic implications.

Descriptive Statistics

Variability in Key Variables

The descriptive statistics highlight variations between and within countries over time. For example, the logged GDP shows greater variation between countries (2.718) than within them (0.297), indicating that differences in the GDP are more pronounced across countries than over time within the same nation. Similarly, foreign aid (ODA) shows comparable variation across countries (1.815) and within them (0.4209), suggesting that aid allocations fluctuate significantly both across nations and over time. Other variables, like remittances (REM) and population (POP), show larger cross-country variation, reflecting structural differences in labor migration and demographics. The significant variation in trade and the FDI, particularly across countries, points to disparities in trade and investment flows within the V20 nations.

Results of Pooled OLS, Fixed Effects, and Random Effects Models

The econometric results show notable differences in model performance. The Pooled OLS model indicates that all independent variables, except the ODA, had a statistically significant effect on the GDP. The negative coefficient for the ODA suggests that increased foreign aid was associated with the decreased GDP, aligning with findings in the literature on aid ineffectiveness, which critiques aid dependency and misallocation to non-productive sectors.

The Fixed Effects model, which accounts for unobserved country-specific factors, provides a more nuanced view. It shows that trade, population, and remittances have a significant positive relationship with the GDP, while the effect of the ODA and the FDI becomes insignificant. This suggests that foreign aid's impact is country-specific, depending on how it is utilized, whereas trade and population have a more uniform, positive effect across all the V20 countries.

The Random Effects model yields similar findings to the Fixed Effects model, but it suggests homogeneity in the economic responses of the V20 countries. The insignificant role of the ODA and the FDI in this model suggests that foreign aid and investment flows may not be as influential in driving growth compared to remittances, trade, and population dynamics. Aid limits growth by encouraging dependency, discouraging the mobilization of domestic resources, and is frequently being misallocated to unproductive sectors (Moyo, 2009; Burnside & Dollar, 2000). While erratic aid flows threaten economic stability (Easterly, 2003), poor governance and corruption impede effective aid usage (Collier & Dollar, 2002).

Foreign aid has been critiqued for potentially hindering economic growth by fostering dependency, discouraging domestic resource mobilization, and often for being misallocated to unproductive sectors (Moyo, 2009; Burnside & Dollar, 2000). Easterly (2003) highlights that erratic aid flows can destabilize economies, while Collier and Dollar (2002) argue that poor governance and corruption impede the effective utilization of aid.

Recent studies further emphasize the need for institutional quality in aid effectiveness. For instance, Guerrero et al. (2023) discuss the challenges posed by fragmented aid and the importance of harmonization. Similarly, Merling (2024) points out that underrepresentation of certain countries in global finance decision-making undermines aid responsiveness. These findings underscore the critical role of governance and institutional capacity in maximizing the impact of foreign aid.

These important insights have key policy implications, highlighting the need for country-specific approaches to aid and investment, rather than employing a blanket strategy.

Market integration, exports, and foreign investment are all fueled by trade (Frankel & Romer, 1999). Remittances increase earnings and help small enterprises and education (World Bank, 2010). When combined with investments in human capital, population expansion boosts economic activity (Bloom & Canning, 2004). The reliance on extractive industries and the lack of infrastructure in the V20 nations limit the growth impact of the FDI (Mosley et al., 2004; Moyo, 2009).

Recent evidence also shows that aid effectiveness is conditional on governance, human capital, technological infrastructure, and alignment with national priorities (Younas & Sandler, 2020; Karki & Pappas, 2020; Guerrero et al., 2023; Ahmed, 2023; CARE International, 2024; Merling, 2024).

Specification Tests and Model Robustness

The models' robustness was tested using various specification tests, including the F-Test, Breusch-Pagan LM Test, Hausman Test, and the Modified Wald Test. These tests confirmed that the Fixed Effects model is the most appropriate for analysing this panel data due to the significant country-specific factors affecting the aid-GDP relationship. The Hausman test specifically rejected the Random Effects model in favour of Fixed Effects, reinforcing the importance of unobserved heterogeneity.

Moreover, the Modified Wald test identified heteroscedasticity, and the Wooldridge test found autocorrelation in the residuals. These issues were corrected using Panel Corrected Standard Errors (PCSE), confirming the robustness of the negative ODA-GDP relationship. The PCSE results indicate that a 1% increase in the ODA is associated with a 0.46% reduction in the GDP, while remittances, trade, and the FDI positively contribute to economic growth. The substantial positive impact of remittances and trade highlights their potential as growth drivers, offering an alternative to aid reliance.

Negative Impact of Foreign Aid on the GDP

The observed negative relationship between foreign aid and the GDP in the V20 countries underscores challenges in how aid is allocated and utilized. This empirical finding supports arguments that aid may sometimes hinder economic growth, especially when it is not directed toward productive sectors like infrastructure, education, or human capital development. Research indicates that aid often fails to foster sustainable growth, due to factors like corruption, poor governance, and resource misallocation. When aid is focused on short-term projects or crisis response rather than long-term development, it can foster dependency, reducing incentives for innovation and economic reform while perpetuating inefficient spending.

Dependency theory, which was created by academics like Dos Santos (1970), Gunder Frank (1967), and Ferraro (2008), contends that by fostering a cycle of dependency, foreign aid frequently serves to perpetuate the structural disparities between rich and developing countries. As a result of this dependence, the V20 nations' inability to employ aid efficiently for sustainable growth can be explained by the negative correlation between the ODA and the GDP.

Aid reliance is a major problem in the V20 nations. According to dependency theory, aid can prolong inefficiency and stagnation in the absence of robust institutions or efficient governance (Ferraro, 2008). The present study backs this up by demonstrating that misallocation of aid and a discrepancy between

donor priorities and the V20 development needs may be the cause of the Official Development Assistance's (ODA) detrimental effect on the GDP. Instead of promoting sustainable growth, aid frequently goes to unproductive industries or is utilized for temporary alleviation (Ferraro, 2008). The postulation of Dependency theory is further supported by governance concerns. The efficiency of aid is decreased in the V20 nations by corruption and poor institutions (Ferraro, 2008). Aid cannot promote sustainable development because of problems with poor management and resource diversion, which feeds the cycle of dependency and impedes the goal of economic independence. According to this study, the improper use of foreign aid (ODA) rather than the aid itself is what causes its detrimental effects on the GDP. Burnside and Dollar (2000) point out that good governance and policies in recipient nations are essential to the efficacy of aid. An Aid Utilization Efficiency Theory is necessary in light of this, highlighting the fact that the effectiveness of aid depends on institutional quality, governance, and alignment with development objectives (Collier & Dollar, 2002; Easterly, 2003).

Recent studies highlight conditions under which aid can positively influence growth. Sen et al. (2019) show that even a small portion of aid contributed noticeably to Bangladesh's economic growth over the past 20 years. Karki and Pappas (2020) emphasize that aid supports growth when paired with human capital and technological infrastructure. Guerrero et al. (2023), Ahmed (2023), CARE International (2024), Merling (2024), and Rao and Bieri (2023) underscore that governance, country ownership, context-specific delivery, and social integration improve aid effectiveness. Nowak-Lehmann and Gross (2021) and Ma and Deng (2022) show that aid effects are conditional on institutional quality, sectoral allocation, and donor motives. CPI (2023), Mandon and Woldemichael (2022), and Smith and Rahman (2025) highlight the risks of debt-heavy financing and geopolitical shifts as affecting aid predictability.

Positive Influence of Remittances, Trade, Population, and the FDI

Contrary to the negative impact of the ODA, remittances, trade, population, and the FDI positively influence the GDP in the V20 countries. The significant positive effect of remittances aligns with the literature that emphasizes their role in stimulating consumption, investment, and overall economic activity. In many V20 nations, remittances are crucial for poverty reduction and financial inclusion. Trade also emerges as a key driver of growth, reflecting the importance of access to markets, technology, and investments in these economies. Population growth, contributing to a larger labor force and higher consumption, similarly boosts the GDP. Although the FDI's significance varies across models, the Pooled OLS results suggest that foreign investment can promote economic growth when directed towards sectors that create jobs and foster innovation.

Policy Implications

The findings of the present study have important policy implications for the V20 countries and their development partners. The negative correlation between foreign aid and the GDP points to the need for a more strategic approach to aid distribution. Rather than focusing on short-term relief, aid should be targeted at sectors that promote sustainable development, such as infrastructure, education, and human capital. Additionally, improving governance and reducing corruption is vital to ensuring the effective use of aid. Simultaneously, policymakers should prioritize enhancing domestic economic drivers, such as fostering remittances, trade, and the FDI. This could involve creating a more business-friendly environment, reducing trade barriers, and encouraging diaspora engagement. By focusing on these areas, the V20 countries can reduce their reliance on foreign aid and promote long-term economic growth.

The V20 nations should diversify their economies by advancing manufacturing, technology, and services while encouraging entrepreneurship and small and medium-sized businesses (SMEs) in order to lessen their reliance on aid and susceptibility to external shocks (Gunder Frank, 1967). Breaking the cycle of dependency requires strengthening governance. Aid will be efficiently distributed to long-term objectives and productive sectors if transparency is increased, corruption is addressed, and public sector capacity is increased (Ferraro, 2008).

The V20 nations should diversify their economies by strengthening manufacturing, technology, and service sectors while promoting entrepreneurship and small and medium-sized enterprises (SMEs) to reduce aid dependence and vulnerability to external shocks (Sen et al., 2019; Karki & Pappas, 2020). Breaking the cycle of dependency also requires improving governance. This is because aid effectiveness increases when transparency is enhanced, corruption is mitigated, and public sector capacity is strengthened (Guerrero et al., 2023; Ahmed, 2023; CARE International, 2024; Merling, 2024). Evidence shows that aligning aid with national priorities, investing in human capital and technological infrastructure, and promoting context-specific, community-driven implementation significantly improves outcomes (Rao & Bieri, 2023; Hewage et al., 2024; Nowak-Lehmann & Gross, 2021; Ma & Deng, 2022). Recent policy analyses also emphasize the importance of concessionality, debt-sensitive instruments, and coordinated financing to safeguard economic resilience in the V20 countries (CPI, 2023; Mandon & Woldemichael, 2022; Smith & Rahman, 2025). Complementary drivers such as trade, remittances, and foreign investment further support economic growth and reduce aid dependency (Frankel & Romer, 1999; World Bank, 2010).

This study has demonstrated the complex relationship between foreign aid and the GDP in the V20 countries. While foreign aid negatively impacts growth; remittances, trade, population, and the FDI contribute positively to the GDP. Policymakers should focus on strengthening domestic economic factors while ensuring foreign aid is used strategically for sustainable development.

CONCLUSION

This study has examined the relationship between foreign aid (ODA) and economic growth, as measured by the GDP across 19 of the V20 countries, from 2006 to 2019. The results indicate that the ODA has a negative effect on the GDP, potentially due to issues like the inefficient use of aid resources, corruption, and ineffective allocation to sectors that drive growth. These factors can prevent foreign aid from contributing to sustainable development and may even impede progress by creating dependency on external funds. This study has highlighted the structural obstacles that hinder foreign aid from facilitating sustainable growth by utilizing dependence theory to analyses the effect of the ODA on the GDP in the V20 nations. The results support the claim made by dependence theory that the development potential of vulnerable countries is weakened by reliance on aid, misallocation, donor-driven goals, and governance issues, which in turn will prolong cycles of poverty and underdevelopment.

On the other hand, the study has found that variables such as trade, remittances, population, and foreign direct investment (FDI) have positive and significant impacts on the GDP. These factors play a crucial role in driving economic growth in the V20 countries, emphasizing the importance of both domestic and external resources beyond foreign aid. For example, the FDI boosts the GDP by promoting capital accumulation, technology transfer, and job creation, while remittances directly raise household income and consumption. Trade allows these nations to capitalize on globalization, access larger markets, and exchange goods and services, further aiding economic growth.

The econometric models used in the present study, namely pooled OLS, fixed effects, and random effects, suggest that while trade, remittances, population, and the FDI positively contribute to the GDP, the impact of the ODA is more nuanced. The negative relationship between the ODA and the GDP could be linked to weak governance and institutional challenges in recipient countries, where aid is not used efficiently to spur growth, but instead causes economic distortions.

Given these findings, the study recommends that policymakers in the V20 countries focus on using foreign aid more effectively by channelling it into productive sectors such as agriculture, infrastructure, and human capital development. For instance, investments in education and vocational training can enhance human capital, boost productivity, and gradually reduce dependence on foreign aid. Additionally, improving governance and transparency in the management of aid is crucial to ensuring that resources are allocated to sectors that can genuinely drive economic growth. Enhancing education, healthcare, and vocational training in order to grow human capital, create a skilled labor force, and lessen reliance on outside knowledge should be the top priorities of foreign aid for the V20 nations (Dos Santos, 1970). Redirecting aid towards the construction of infrastructure, such as electricity systems, communication networks, and roads, can improve productivity, reduce transaction costs, and open up trade opportunities, all of which promote sustainable growth (Ferraro, 2008). In addition to diversifying economies and increasing resilience to shocks, agricultural assistance can increase employment, productivity, and food security (Gunder Frank, 1967). According to the World Trade Organization, aid that aims to increase trade capacity through export promotion, trade infrastructure, and regulatory reforms can enhance global market integration and boost long-term growth. In order to fight corruption, fortify institutions, and guarantee effective resource management, governance reform assistance is essential. Strong governance structures will support sustainable development and improve the efficient distribution of aid (Ferraro, 2008).

Enhancing human capital through investments in education, healthcare, and vocational training should be a central focus of foreign aid in the V20 nations, as it fosters a skilled labor force and reduces dependency on external expertise (Sen et al., 2019; Karki & Pappas, 2020). Infrastructure development, including energy, communication, and transport networks, can boost productivity, lower transaction costs, and expand trade opportunities, promoting sustainable growth (Ahmed, 2023; Guerrero et al., 2023). Agricultural assistance remains vital for employment generation, productivity enhancement, and food security, while supporting economic diversification and resilience to shocks (CARE International, 2024; Rao & Bieri, 2023). Aid which is aimed at governance reforms strengthens institutions, combats corruption, and improves resource management, thereby enhancing the efficiency and impact of development assistance (Merling, 2024; Nowak-Lehmann & Gross, 2021). Climate finance analyses highlight the need for concessional, debt-sensitive instruments and context-specific delivery to maximize aid effectiveness in the V20 countries (CPI, 2023; The Guardian, 2024; Ma & Deng, 2022; Smith & Rahman, 2025). Moreover, trade, remittances, and foreign investment remain important complementary channels for growth and market integration (Frankel & Romer, 1999; World Bank, 2010; Hewage et al., 2024).

The positive contributions of trade, remittances, FDI, and population growth to the GDP underscore the importance of creating a supportive environment for these factors. Governments should adopt policies that encourage foreign investment by enhancing infrastructure, ensuring political stability, and improving communication networks. Similarly, reducing trade barriers and export restrictions in promoting local products in international markets can help to facilitate trade.

However, the present research has some limitations. The study's use of total ODA may mask the subtle differences in the impacts of other sectors or forms of aid. A longer timeframe may show more robust patterns and dynamics as the present period of analysis was only from 2006–2019. Political stability, which could have a big impact on how successful aid is, is not taken into consideration in this analysis. The intricacy of the aid-GDP relationship may not be well captured by the assumptions used in the fixed effects, random effects, and pooled OLS models. The GDP by itself might not accurately represent the wider developmental effects of aid, such as advances in health, education, or poverty alleviation.

Despite these limitations, the findings from the present research can still make a significant contribution to future research. To evaluate the different effects of foreign aid on the GDP, future studies might want to look deeper into the following three categories of aid: technical, development, and humanitarian (Burnside & Dollar, 2000). It may be possible to ascertain whether the negative ODA-GDP link is context-specific by conducting comparative research between the V20 nations and other regions (Collier & Dollar, 2002). Examining aid in certain sectors, such infrastructure, health, or education, may show how it promotes economic progress (Easterly, 2003). Further insights would be gained by investigating the ways in which policy settings, governance, and institutional quality mediate aid effectiveness (Burnside & Dollar, 2000).

In summary, while foreign aid may support development in the V20 countries, its effectiveness depends on strong governance, efficient management, and a focus on long-term sustainable growth. Policymakers should prioritize creating conditions that attract FDI, encourage remittances, promote trade, and harness population growth as a driver of economic development. By doing so, the V20 countries can achieve sustained economic progress and lessen their reliance on foreign aid over time.

ACKNOWLEDGMENT

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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