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Exploring the Impact of Foreign Aid, Agricultural Production, and Corporate Social Responsibility on Poverty Reduction in Pakistan

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Abstract: For many years, Pakistan's economic progress and development have primarily depended on agriculture. However, widespread rural poverty impairs agricultural productivity, which worsens the outlook for growth for both the agricultural sector and the nation as a whole. Raising farmers' incomes through rural development is a key component of agricultural reform, and the prime objective of this study is to identify how government policies and foreign aid affect Pakistan's degree of rural poverty. This research aims to check the mediating role of rural development for the relationship of foreign aid, agricultural production, and corporate social responsibility with poverty reduction. This research also examines the moderating role of government support in the relationship of rural development with poverty reduction. In this regard, the current study proposes four hypotheses of direct relationships, three mediating relationships, and one moderating relationship. The population comprised farmers. The sample size of 119 was determined using G*Power with medium effect size settings, ensuring a robust representation of the target group. To gather primary data, a close-ended structured questionnaire was administered, employing a 7-point Likert scale to gather respondents' opinions. This study investigates the Punjab province's agricultural landscape from a quantitative perspective, using convenient sampling to identify the characteristics that contribute to reducing poverty, and was conducted from January to December 2023. Analytical procedures utilizing Smart PLS 4.0.9.6 for SEM testing reveal that all proposed hypotheses, including direct, mediating, and moderating, are accepted. The main results show that rural development significantly mediates the relationship between foreign aid, agricultural production, and corporate social responsibility with poverty reduction. Furthermore, government support positively moderates the relationship between rural development and poverty reduction. The findings underscore the significance of rural development, coupled with government support, as a pivotal factor in effectively reducing poverty in Pakistan's economic landscape.

Keywords: social responsibility; foreign aid; government support; poverty reduction; rural development; agricultural production; Punjab; agricultural development

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1. Introduction

The immense change and advancement in the agriculture sector of Europe from the 1950s is considered the basic reason behind the massive increase in the productivity of livestock and crop yields. Also, there is a decrease in the number of farms with intense specialization, independence, automation, and high scaling [1]. There is a major cost incurred on the adaptability of advancement, but ultimately, it reduces the cost of production with higher safety, particularly in the European food sector. In agriculture, major costs are

incurred concerning environmental effects like greenhouse gases that affect biodiversity, air quality, and water quality [2]. Certainly, agriculture contributes in terms of natural resources like water, phosphorus, fossil fuel, and land itself [3]. Similarly, modern techniques at different farms produce reusable energy from crop residues after harvesting [4]. Such residues are also very useful to enhance soil productivity with quality and excellent feed for livestock [5]. Consumption behaviors are being changed with the improved level of wealth, higher population, globalization, urbanization, and other social emergence; due to all of them, the utilization of meat has increased [5], and there is a great change in the overall system of the food chain at world level [6]. During the last 60 years, the world food system has stepped ahead from food unavailability to reliance on food-type trade [7]. As per the statement of the European Commission in 2018, the European Union is the biggest international importer and exporter of agriculture-related food and products. That kind of world-level trade may enable the exchange and burden shifting of agriculture-related products with their impact on the environment [8].

From the start, the economic growth and national development in Pakistan have relied heavily on the agriculture sector [9,10]. Considerably, agriculture in Pakistan is rapidly improving and purely contributing about 22% to the Gross Domestic Product (GDP) from agricultural activities only [11]. Agriculture significantly contributes to Pakistan's GDP; rural poverty is a severe problem this study seeks to solve. Focusing on rural development (RD) and poverty reduction (PR), this study examines the roles played by government policies, foreign aid (FA), agricultural production (AP), and corporate social responsibility (CSR). This study fills a vacuum in the existing literature and provides policymakers with actionable insights to effectively target and alleviate rural poverty in Pakistan by studying these interactions, mainly the mediating function of RD and the moderating effect of government support. Widespread rural poverty remains a critical issue. The Pakistani government has not made any significant changes in strategy and policy related to the agriculture sector in the last ten years, resulting in underperformance relative to desired targets. This research addresses how government policies and FA can effectively contribute to reducing rural poverty in Pakistan.

Under the 17 Sustainable Development Goals (SDGs), the United Nations Department of Social Affairs and Economics established a "2030 agenda" to urgently address sustainable development [12]. The first three SDGs—no poverty, zero hunger, and good health and well-being—are directly associated with the quality of sustainable agricultural production. Effective government policies and FA are crucial for developing countries like Pakistan to expand the agriculture sector, minimize poverty, and implement sustainable advancements. Increased agricultural activities can significantly reduce poverty levels. The literature indicates a substantial correlation between the agricultural sector and the broader economy, which needs to be addressed [13]. Previous research has individually examined the impact of FA, AP, and CSR on RD and PR. However, there needs to be a greater gap in understanding the mediating role of RD in the relationship between these factors and PR, particularly in developing nations like Pakistan. This study fills this gap by examining these relationships comprehensively and exploring the moderating role of government support (see Table 1).

Table 1. Key concepts.

Foreign Aid	Foreign aid describes the monetary and non-monetary contributions made to developing nations by other nations' governments, NGOs, and international organizations to foster their social, economic, environmental, and political progress [14].
Agricultural Production	Agricultural production refers to attaining sustainable outcomes through various interventions by the state, market, and civil society [15].

Table 1. *Cont.*

Corporate Social Responsibility	Social responsibility pertains to the ethical and moral duties that individuals and organizations bear about society and the environment [16].
Rural Development	Rural development is the multifaceted endeavor of enhancing rural regions' economic, social, and environmental aspects. The process entails the execution of strategies and initiatives aimed at augmenting the quality of life and overall well-being of those residing in rural communities [17].
Poverty Reduction	Poverty reduction entails systematically reducing the number of individuals living in impoverished conditions and enhancing their overall quality of life. The process entails the execution of policies and activities aimed at tackling the fundamental factors contributing to poverty and facilitating avenues for economic and social progress [18].
Government Support	Financial allocations, infrastructure development, and social welfare initiatives are provided by the government to enhance the effectiveness of rural development efforts and poverty reduction [19].

Through the provision of financial resources, FA significantly contributes to Pakistan's agricultural production [20]. Many Pakistanis live in the agricultural sector, making its improvement an economic priority. Incorporating new farming techniques, strengthening rural infrastructure, and increasing irrigation systems are all areas that can benefit from foreign aid. Examples of such initiatives include those in which the World Bank (2022) and the Asian Development Bank (2022) worked with Pakistan to promote sustainable practices and increase agricultural output [21]. Furthermore, Pakistan's agricultural industry can benefit from knowledge exchange and capacity building through bilateral aid from countries with agricultural expertise. However, FA can only achieve its full potential if used wisely, in tandem with domestic policy, and tailored to Pakistan's unique agricultural sector's needs. Poverty emerged due to low economic resources, resulting in minimized income and savings, making it difficult to establish further earning ways like minor or good investments. Such hard financial and economic activities make life tougher for individuals [12]. Developing and less developed countries, where the rural poverty problem is exacerbated by market imperfections, capital shortage, economic backwardness, infrastructure deficiencies, and low productivity [22], fail to meet domestic market needs or demands, resulting in issues of hunger, health, and well-being. To deal with these issues and challenges, developing countries such as Pakistan need to adopt sustainable agriculture practices to achieve the required level of agricultural production to reduce poverty.

The major hurdle for sustainable rural-based development in Pakistan is poverty. About 28% of Pakistan's overall area is cultivated [23]. Due to the rigid mindset of the landholders, it takes a lot of work to adopt the latest technology in Pakistan [24]. Multiple factors such as transport, electricity, roads, storage facilities, sanitation, health facilities, and education negatively impact agricultural development [25]. In Pakistan, the farm industry employed 45%, 43.5%, and 42% of the labor force overall in 2015, 2016, and 2017, respectively, and contributed around 21.4%, 20.9%, and 19.53% of the country's GDP [9]. Approximately 63% of Pakistan's rural populace made their living either directly or indirectly from agricultural activities [10,26]. The census did not account for the substantial correlation between the agriculture business and the rest of the economy [13]. In FY 2017, the industrial sector grew by 5.26%, while the agriculture sector grew by 3.46% from the previous year's rise of 0.27% [9]. During three consecutive years, the Pakistani government reported a declining trend in the GDP contribution of the agricultural sector. This decline was attributed to the low GDP contribution of agricultural exports, which resulted in local farmers losing market share to foreign producers who sold subpar products at uncompetitive prices.

The government always tries to improve exports by minimizing tariffs and lifting non-tariff hurdles on trade. This approach is a helpful technique to boost exports in the agriculture sector, which highly contributes to GDP [27]. This study aims to understand

the impact of RD on the relationship of foreign aid, agricultural production, and corporate social responsibility with poverty reduction. The agricultural sector is the backbone of GDP growth in any country. Globally, agricultural activities have shifted from old systems to the latest technology-based industrial farming, capable of producing high-level commercial agriculture-based products [28]. According to the latest research, agriculture-related companies from Indonesia are giving outstanding results compared to others. Therefore, Indonesian companies have adopted CSR policies [29]. It has been identified that CSR implications have provided enhanced results at the international level for agriculture-related products [30]. That is why CSR has gained full attention, particularly in agriculture. Moreover, it has rapidly changed agriculture-related businesses and enhanced the utilization of agriculture-related items. The role of CSR cannot be ignored in the advancement of nations. Such CSR implications are important to create a better social setup. In Pakistan, multiple companies are using CSR very efficiently and effectively. International organizations are more aggressively working on CSR.

On the other hand, local organizations give little importance to CSR implications. Developing countries are mainly facing difficulties in handling CSR and its impact. Currently, increased inflation is the biggest challenge for low-income households. One of the reasons is the inequality in the distribution of wealth. Still, in developed countries, wealth is distributed more equally among residents, reducing the need for extensive CSR implications. Pakistan still needs to catch up in utilizing the CSR concept in agriculture compared to other nations [31].

As of the most recent report in January 2022, poverty is still a significant issue in Pakistan [32]. In 2020, over 24.3% of Pakistanis lived below the poverty line, according to data from the Pakistan Bureau of Statistics (PBS) [33]. This is due to various issues, such as growing populations, inadequate social safety nets, and economic inequality. Poverty rates tend to be higher in rural areas compared to urban centers. The Pakistani government has been working on PR through social welfare programs and economic reforms, but they must maintain consistent efforts to see actual results. The significance of this research rests in its use of a novel method. According to the researcher's best knowledge, this study is unique in that it investigates the function that RD plays as a mediator in the interaction between FA, AP, CSR, and the elimination of poverty. As an additional point of interest, this study is the first attempt to investigate the moderating effect of government support on the connection between RD and PR. The rationale of this study is the driving force behind it. As far as the researcher is aware, this study is unique in that it investigates the function of RD as a mediator between FA, AP, CSR, and PR. By taking this all-encompassing approach, we help fill gaps in our knowledge of these variables, especially as they pertain to developing countries. RD and PR go hand in hand, and this study is the first to examine how government support moderates this connection.

2. Literature Review

2.1. Relationship of CSR, FA, and AP with RD

According to Hu and Chen [4], currently, more research is being conducted about CSR, which reflects the importance of this concept. Studies have identified the high recognition of CSR concepts across the world [34]. Currently, CSR is of more importance and impact for organizations due to greater attention given to agriculture and the environment [35]. There is higher awareness about risks related to public health due to agricultural activities [36]; multiple food challenges like dioxin, horse meat, fipronil, and mad cow disease [37]; and the influence of animal welfare procedures at farms is the major issue at political and societal level [38]. Researchers agree with the concept that agriculture has a great impact on society and the environment [39]. In alignment with corporate responsibilities for society, agriculture-related products should match legal and economic requirements as well as ethics [40]. As Duane Hansen and Dunford [41] put it, "The goal for agriculture is no longer simply to maximize productivity and profitability, but to optimize across a far more complex range of production, RD, environmental, social and food consumption

outcome, CSR presents a premier channel through which farmers and agribusiness actors may discharge their ethical responsibilities" [39,42]. Results indicate that CSR practices have a positive impact on RD in the Indian cultural context [43,44]. Malik [45] examined CSR and found that it has a positive impact on the development of Pakistan. In this regard, the current study proposes the following hypotheses.

H1. *CSR initiatives aimed at improving agricultural practices significantly enhance RD.*

Globally, developments in agriculture have the greatest history. Several studies have identified that policy implications related to agriculture have played an important role in enhancing social welfare and production concerning agriculture. For agriculture-based economic growth, strategies related to agriculture play a vital role. Technological advancement is considered the basic tool for growth in agricultural production [46]. The differences in "aggregate agricultural productivity across countries are mainly attributed to modern technical inputs, human capital, agricultural research, and infrastructure" [47]. The increased production in the agriculture sector enables rural society to earn more [48]. The "empirical literature documents the significant effects of agricultural productivity on rural people welfare" [49]. The enhancement in agribusiness products supports agriculturists in earning more and attaining sufficient food for households at adequate price levels [50]. The intensity of the impact on the lives of rural residents around the world majorly depends on agribusiness growth and production, which has implications for the latest strategies and technologies [51]. Researchers indicate that agricultural growth has a positive impact on RD [52–54]. In this regard, the current study proposes the following hypotheses.

H2. *Adoption of modern agricultural technologies leads to substantial improvements in RD outcomes.*

Researchers have had a parallel focus on FA and its effectiveness for many years. Many studies have been conducted, and the raging debates have led to the emersion of three distinct camps. The main researchers consist of "proponents of FA who argue that targeted aid can contribute towards the eradication of poverty in developing countries, presently, the empirical literature on aid effectiveness is dominated by studies on the effectiveness of FA on economic growth and hence advance the RD" [55,56]. Approximately 63% of Pakistan's rural population, as indicated by Fahad and Wang [26] and Nadeem and Surienty [10], is directly or indirectly reliant on the agricultural industry for their livelihoods. However, it is noteworthy that the robust connection between the agricultural sector and the broader economy was overlooked in many agriculture censuses [13]. Moreover, the researchers indicate that FA has a positive impact on RD.

H3. *Targeted FA for agricultural development positively impacts RD.*

Technological advancement is essential for increasing agricultural output and reducing poverty in emerging nations, particularly in sub-Saharan Africa (SSA) and Khorasan Razavi [57,58]. It is commonly acknowledged that one of the main factors contributing to an increase in rural agricultural productivity is the creation and adoption of enhanced crop varieties and associated agronomic techniques [59,60]. It may be necessary to implement policies like input subsidies to encourage the use of new technology [61]. Farmers who have access to the technology and are aware of the new kinds select whether or not to adopt them after they are released. Adopters require knowledge of the features of the latest variety, and in remote regions, this information may be inadequate or non-existent. The anticipated productivity gain and its variability in comparison to existing kinds are the main factors that influence the adoption decision. Considering the accessibility of land and their goals for production, farmers choose how much acreage to grow each kind on. Adoption will continue based on farm findings and numerous technologies that function effectively under optimum trial conditions but are inappropriate under different circumstances [49]. When supplementary inputs, like fertilizer, are required, adoption may be slowed by restricted

access to loans and input markets [62]. After the growing season, farmers harvest the crop, sell the produce, and set aside a portion for their use and, if necessary, for seeding the next year.

Research has connected crop research to various degrees of poverty alleviation. According to certain research, the spread of improved technologies has resulted in estimated yield gains worldwide [63], and it has been observed that global food costs would be substantially higher than they are now if these yield advances had not occurred [64]. Food price moderation is acknowledged to have been a key factor in the worldwide reduction of poverty. Poor consumers, for whom staple foods account for a considerable amount of food expenditures, benefit disproportionately from these price reductions [63]. Moreover, research indicates that RD has a positive impact on poverty reduction [65,66].

H4. *Enhancing rural areas contributes significantly to alleviating poverty.*

Some researchers have used RD as a mediator [65,67]. That is why the current study also uses RD as a mediator. Agriculture development has a positive impact on PR [66,68]. Foreign aid has a positive impact on PR [56,69]. CSR has a positive impact on PR [70–72]. Results indicate that CSR practices have a positive impact on RD in the Indian cultural context [43,44]. Malik [45] found that CSR has a positive impact on the development of Pakistan. Research indicates that agricultural growth has a positive impact on RD [52–54]. Moreover, research indicates that FA has a positive impact on RD [57,58]. Additionally, research indicates that rural development has a positive impact on PR [65,66]. Based on these facts, the current study proposes the following intervening hypotheses.

H5(a). *RD serves a mediating role in the relationship of CSR with PR.*

H5(b). *RD serves a mediating role in the relationship of AP with PR.*

H5(c). *RD serves a mediating role in the relationship of FA with PR.*

2.2. Moderating Role of Government Support

Government support, spanning financial allocations, infrastructure development, and social welfare initiatives, catalyzes enhancing the effectiveness of RD efforts and PR [73,74]. Transparent and well-executed support programs are posited to amplify the positive correlation between advancements in rural areas and subsequent poverty reduction. The contextual nuances of governance, political stability, and community engagement are integral components of this argument, recognizing that the moderating impact of government support is contingent upon their alignment with socio-political dynamics [74]. Therefore, the present study also proposes the moderating hypothesis.

H6. *Government support serves a moderating role in the relationship of RD with PR.*

3. Methodology

This study investigates Punjab province's agricultural landscape from a quantitative perspective, using convenient sampling to identify the characteristics that contribute to reducing poverty. This region of Punjab province is important due to its significant agricultural contributions to Pakistan's GDP and the prevalence of rural poverty within the region. In this area, most people work as farmers. According to [75], 119 participants were selected for the study using G*Power with medium effect size parameters. This was carried out to ensure that the sample accurately reflects the target group. Data were collected from January to December 2023. Data on AP were collected using a structured questionnaire that included items adapted from Sikandar and Erokhin [9]. This questionnaire aimed to capture the nuances of production practices, yield levels, and technological adoption

among farmers. Information regarding the government support variable incorporated 6 items adapted from Hidzir and Ismail [76]. The measurement scales of the study variables were adapted from existing research. The FA and AP variables were adapted from Sikandar and Erokhin [9] with 10 and 15 items, respectively. Similarly, RD and PR scales, consisting of 6 and 7 items, were also drawn from the same source. A set of 7 items of social responsibility was adapted from Tam and Yeung [77]. Lastly, this contributes to a nuanced exploration of the moderating role of government assistance in PR. This section includes questions on financial allocations, infrastructure development, and social welfare initiatives provided by the government. The impact of FA on AP and RD was measured using items from Sikandar and Erokhin [9], which assessed the effectiveness and perception of assistance among the local farming community. Indicators for PR were adapted from existing research scales to understand the socio-economic changes resulting from agricultural productivity and support mechanisms.

This study was conducted over one year, from January to December 2023, ensuring that the data reflect seasonal variations and other temporal factors affecting AP. A closed-ended structured questionnaire was administered to gather primary data. A 7-point Likert scale was used to comprehensively gauge respondents' opinions on various aspects of AP, government support, FA, and their effects on PR. The survey was conducted through a paper-based method, successfully yielding 256 responses. After meticulous screening, 231 responses were finalized for analysis, which surpassed the minimum sample size requirement and ensured the reliability of the collected data for a thorough examination of the chosen variables. Out of 231 participants, 76% were males, and the rest were females. In terms of education, 57% had a master's degree, 29% had a bachelor's degree, and the remaining had a secondary school certificate or lower. Regarding income, 19% earned less than PKR 20,000 per month, 43% earned less than PKR 30,000 per month, and the remaining respondents reported a monthly income exceeding PKR 30,000.

4. Data Analysis

4.1. Preliminary Analysis

During the screening phase, 21 responses displayed a straightforward pattern; 4 were identified as outliers. Consequently, these 25 responses were excluded from the dataset. Normality checks indicated that the data fell within acceptable limits of ± 2 [78]. An additional statistical measure was employed despite taking procedural precautions such as including cover letters, shuffling questions, and using varied color schemes to minimize standard method variance (CMV). The Harman single-factor test revealed a variance of 43%, comfortably below the critical threshold of 50% [79], indicating the absence of significant CMV in the data. Confident in the data's integrity, this study proceeded to the next phase of analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM). Normality checks were conducted and fell within acceptable limits.

4.2. Measurement Model Assessment

Initially, the research utilized Cronbach's alpha and composite reliability to assess internal consistency. Both metrics exceeded the 0.7 benchmark, confirming the items' satisfactory internal consistency [78]. Additionally, most factor loadings were above the 0.7 threshold, highlighting the strong relationships between the observed indicators and their latent constructs. Although a few factor loadings, such as FA2, FA7, and FA10, were near the threshold, they did not significantly affect the overall convergent validity, which met the AVE threshold of 0.5. Therefore, these values were deemed acceptable and included in subsequent analyses [78]. Detailed results are presented in Table 2, while Figure 1 illustrates the measurement model.

Internal consistency was validated with Cronbach's alpha and composite reliability, both exceeding 0.7. Most factor loadings were above 0.7, ensuring strong relationships between indicators and constructs. The average variance extracted (AVE) surpassed 0.5, confirming convergent validity. Figure 1 depicts a structural equation model (SEM) with

six variables. Each variable is linked to several observed variables, with standardized factor loadings showing the strength of their relationships. The circles contain values representing the variance explained (R-squared) by each variable. Overall, the model illustrates the relationships and contributions of observed variables to their respective constructs.

Table 2. Reliability and validity.

Construct	Item	Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Agriculture Production	AP1	0.795	0.959	0.963	0.636
	AP2	0.788			
	AP3	0.783			
	AP4	0.811			
	AP5	0.781			
	AP6	0.840			
	AP7	0.795			
	AP8	0.796			
	AP9	0.810			
	AP10	0.760			
	AP11	0.796			
	AP12	0.803			
	AP13	0.796			
	AP14	0.788			
	AP15	0.814			
Foreign Aid	FA1	0.719	0.891	0.91	0.504
	FA2	0.679			
	FA3	0.726			
	FA4	0.708			
	FA5	0.718			
	FA6	0.704			
	FA7	0.688			
	FA8	0.714			
	FA9	0.741			
	FA10	0.699			
Government Support	GS1	0.775	0.898	0.922	0.663
	GS2	0.829			
	GS3	0.813			
	GS4	0.823			
	GS5	0.809			
	GS6	0.835			
Poverty Reduction	PR1	0.848	0.926	0.941	0.693
	PR2	0.836			
	PR3	0.834			
	PR4	0.808			
	PR5	0.855			
	PR6	0.825			
	PR7	0.823			
Rural Development	RD1	0.799	0.902	0.925	0.672
	RD2	0.834			
	RD3	0.823			
	RD4	0.819			
	RD5	0.816			
	RD6	0.827			

Table 2. *Cont.*

Construct	Item	Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Social Responsibility	SR1	0.810	0.918	0.934	0.671
	SR2	0.809			
	SR3	0.822			
	SR4	0.826			
	SR5	0.860			
	SR6	0.784			
	SR7	0.822			

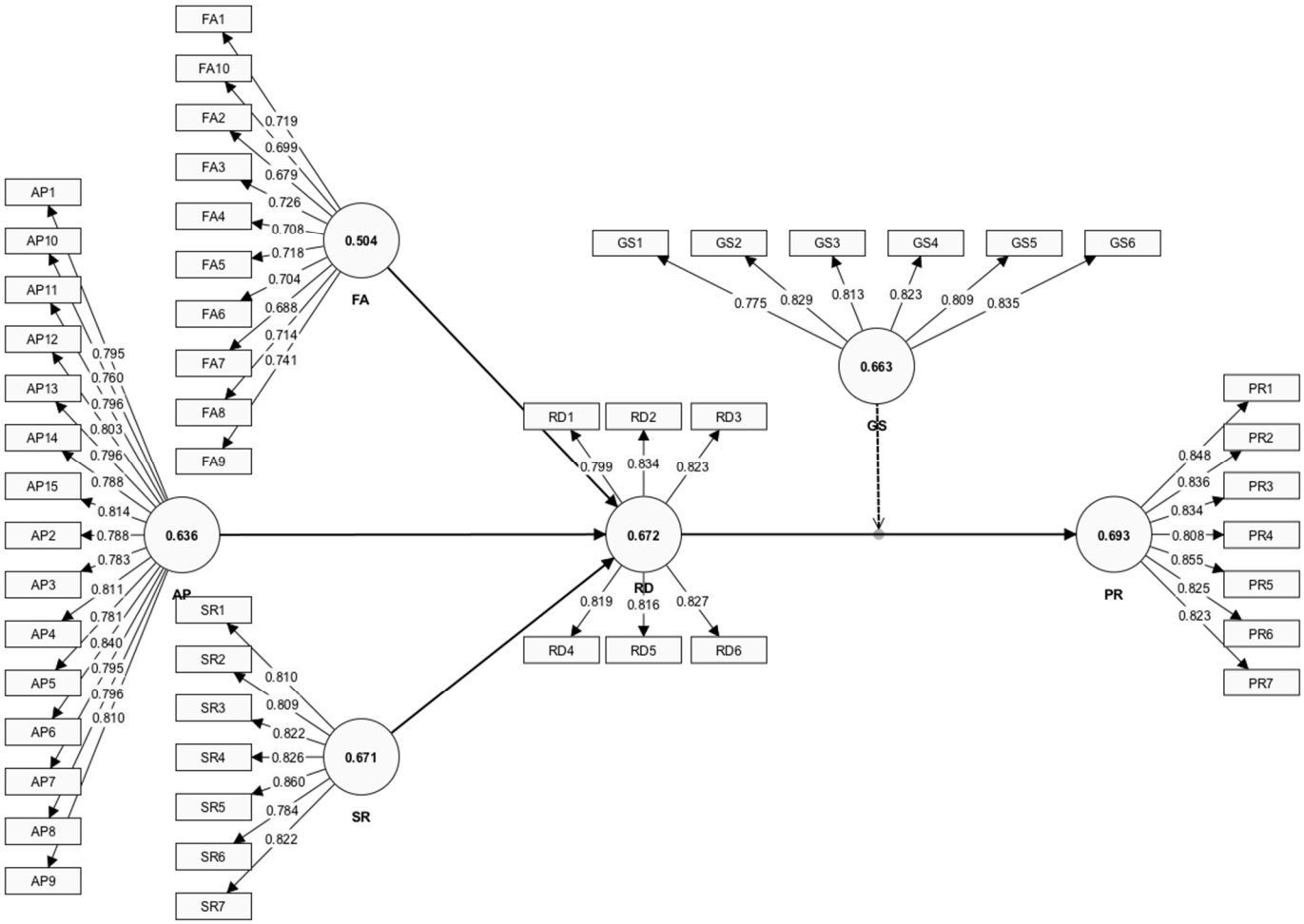

Figure 1. Measurement model assessment. Note: AVE is presented within the circles, while the values on arrows indicate factor loadings.

Figure 2 illustrates a structural equation model (SEM) similar to Figure 1, with six variables: FA, AP, GS, RD, SR, and PR. The observed variables are connected to their respective variables, each showing standardized factor loadings (values next to the rectangles), indicating the strength of relationships. The circles indicate the variance explained (R-squared) by the variables, with values inside the circles. Figure 2 helps us understand the contributions of observed variables to constructs and the overall model fit.

Figure 3 shows the structural model assessment focusing on moderating relationships within the SEM. The arrows represent the directional relationships between variables, with standardized path coefficients indicating the strength and significance of these relationships. The dashed arrow represents a moderating effect, illustrating how one latent variable

influences the relationship between two other variables. This model assesses the direct and moderating effects within the framework.

This research paper employed the Heterotrait–Monotrait (HTMT) correlation coefficient to assess discriminant validity, which is considered a superior alternative to the Fornell–Larcker criterion and cross-loading tables [78]. As shown in Table 3, the HTMT values for all constructs were significantly below the recommended threshold of 0.85, indicating that the constructs are empirically distinct. This confirms the discriminant validity and enhances the credibility of the measurement model. Moreover, the results highlight the relationships between various constructs. For example, FA has a strong relationship with AP (HTMT value of 0.644), while government support shows significant correlations with both AP (0.637) and FA (0.657). PR is notably correlated with AP (0.689) and government support (0.596). RD also shows substantial correlations with AP (0.684), FA (0.609), government support (0.646), and PR (0.690). Social responsibility is correlated with multiple constructs, including AP (0.636), FA (0.675), government support (0.628), PR (0.636), and RD (0.641).

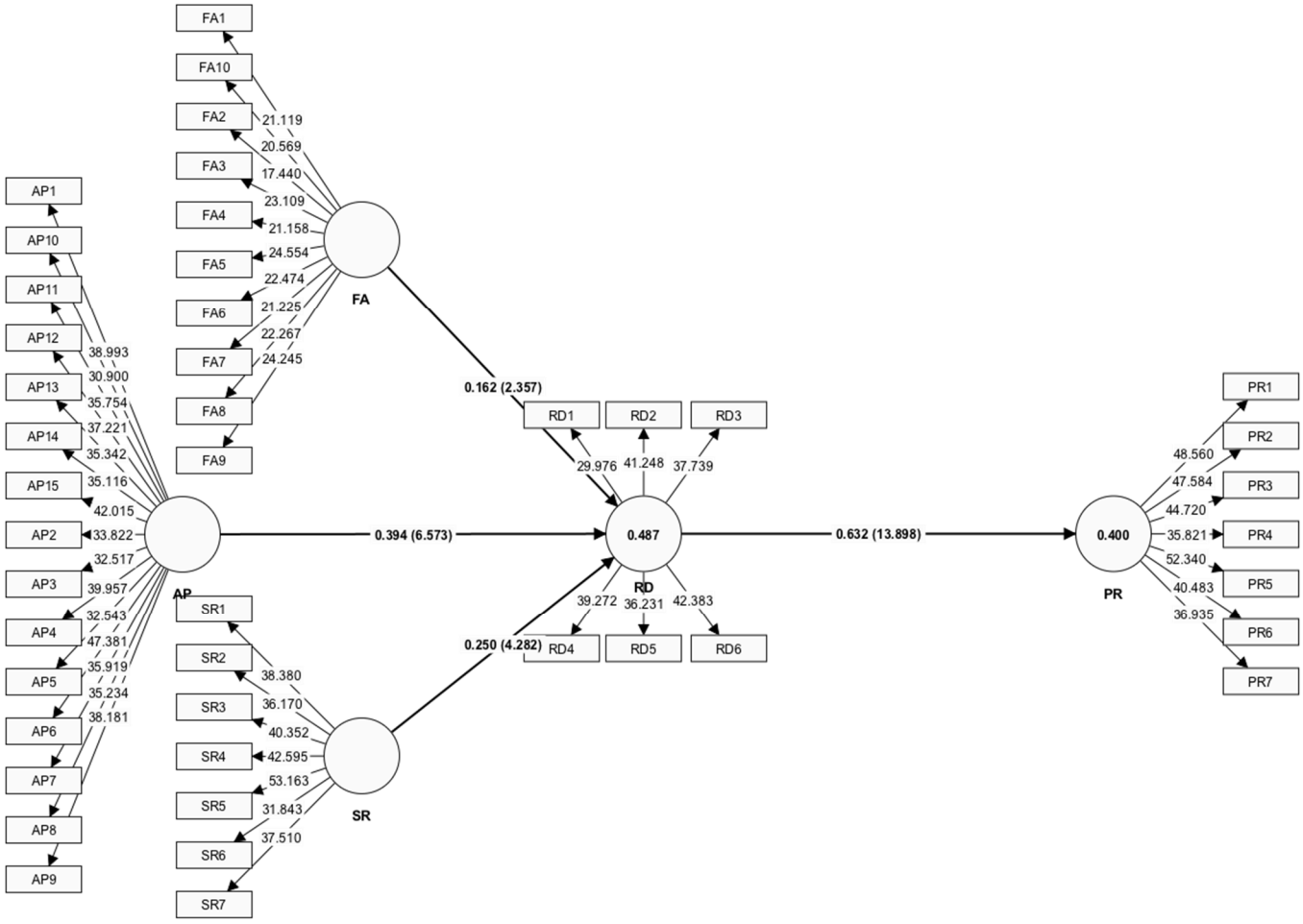

Figure 2. Structural model assessment—direct relationships. Note: Bootstrapping— 10,000 subsamples. The values on inward arrows are path coefficients and t-value, while R2 values are within the circle.

Table 3. Discriminant validity.

Construct	AP	FA	GS	PR	RD	SR
Agriculture Production						
Foreign Aid	0.644					
Government Support	0.637	0.657				
Poverty Reduction	0.689	0.596	0.604			
Rural Development	0.684	0.609	0.646	0.690		
Social Responsibility	0.636	0.675	0.628	0.636	0.641	

Note: AP = agriculture production; FA = foreign aid; GS = government support; PR = poverty reduction; RD = rural development; SR = social responsibility.

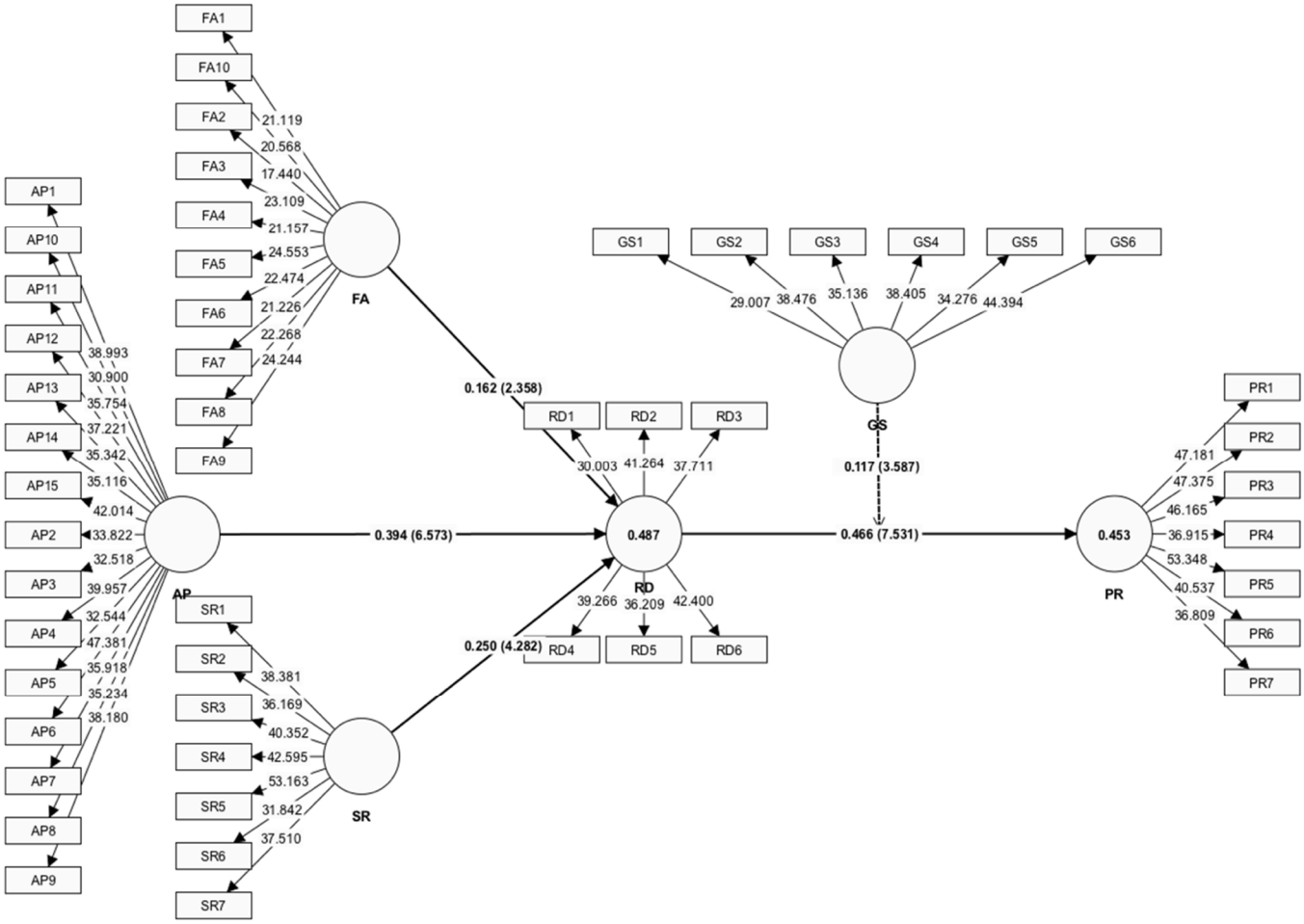

Figure 3. Structural model assessment—moderating relationships. Note: Bootstrapping—10,000 subsamples. The values on inward arrows are path coefficients and t-value, while R2 values are within the circle.

4.3. Structural Model Assessment

The current study used a recommended bootstrapping approach with 10,000 subsamples to rigorously examine the quality of paths in the model [78]. The results are tabulated in Table 3, while structural model assessment diagrams are presented in Figures 2 and 3. The evaluation of direct relationships revealed that social responsibility significantly impacts RD with a path coefficient of 0.250, while AP exhibits a more substantial influence with a higher path coefficient of 0.394. Although FA demonstrates a significant yet comparatively lower impact on RD with a path coefficient of 0.162, the cumulative direct effect of RD on

PR is pronounced, as indicated by the substantial path coefficient of 0.632. This points to a robust and direct relationship between RD and PR. The exploration of RD as a mediator further unveiled that RD significantly mediates the relationship between SR, AP, FA, and PR. However, its mediating role is substantial between AP and PR. Additionally, this study also evaluated the moderating role of government support in influencing the relationship between RD and PR. The results revealed that government support positively moderates the relationships among these two variables. Thus, all hypotheses of the current study were accepted.

Moreover, Table 4 shows critical metrics such as effect size, explanatory power, and predictive relevance of the examined relationships, which were also examined at this stage. The effect sizes of independent variables on dependent variables were found to be weak to moderate, as per Cohen [80]. Meanwhile, the coefficient of determination (R^2) revealed that 49% and 45% of the variance in RD and PR, respectively, were explained by their respective independent variables. Finally, the predictive relevance was assessed through Q^2. It represented the model's ability to forecast the dependent variable for new data. The elevated Q^2 values signify a substantial capability of the model to predict RD and PR with 0.466 and 0.45 values.

Table 4. Hypotheses testing.

Hypotheses	Path Coefficient	SD	t-Value	*p*-Value	f^2	R^2	Q^2
Direct Relationships							
SR → RD	0.250	0.058	4.282	0.000	0.066		
AP → RD	0.394	0.060	6.573	0.000	0.168	0.487	0.466
FA → RD	0.162	0.069	2.357	0.009	0.028		
RD → PR	0.632	0.045	13.898	0.000	0.262	0.453	0.450
Mediating Relationships							
SR → RD → PR	0.158	0.039	4.005	0.000	-	-	-
AP → RD → PR	0.249	0.042	5.945	0.000	-	-	-
FA → RD → PR	0.102	0.045	2.247	0.013	-	-	-
Moderating Relationship							
GS × RD → PR	0.117	0.033	3.587	0.000	-	-	-

This comprehensive analysis demonstrates the model's significant direct, mediating, and moderating relationships, highlighting the impactful roles of social responsibility, agriculture production, foreign aid, and government support in RD and PR.

5. Discussion

In Pakistan, where 70% of the population lives in rural regions and is actively involved in agriculture, RD is crucial for reducing poverty. SR, AP, FA, RD, government support, and PR were all factors that were investigated in this study, which uncovered intricate linkages among them. The favorable correlation between foreign assistance and RD is among the most important results. The results of this study contradict those of Sikandar and Erokhin [9], who found that farmers in Pakistan generally view foreign assistance as a restricting factor. Consistent with the findings of Jones and Tarp [55] and Mahembe and Odhiambo [81], who observed that higher education levels correlate with a better understanding of how to utilize FA effectively, the higher educational background of the respondents may explain the acceptance of foreign aid's positive role in this study. This study also significantly correlated agricultural output, social responsibility, and RD. Sikandar and Erokhin [9] contended that increased production may be greatly enhanced by using contemporary farming practices, access to machinery, and knowledge, and these findings align with their arguments. The emphasis on social responsibility highlights the significance of promoting RD through guaranteeing fair access to resources.

This study's structural model analysis shed light on the complex network of links in the agricultural landscape of Punjab. Emphasizing the significance of ethical business operations and community welfare, social responsibility became a critical component of RD. Results showed that AP substantially impacted RD, highlighting the importance of using modern farming techniques and technology to improve rural areas. Although

there is a strong correlation between RD and FA [82], the route coefficient implies that this is not the only factor at play. The complex character of RD shows while FA does help local efforts [83], it is not necessarily the deciding factor. Additionally, there was a vigorous relationship between RD and PR [84–86], lending credence to the idea that a well-developed rural sector is essential for drastically lowering poverty rates. Because of this, if we want to reduce poverty significantly, we need policies and programs that target rural communities. The function of RD is to provide a more in-depth examination as a go-between for social responsibility, agricultural output, foreign assistance, and poverty alleviation. CSR contributes to PR by advocating for RD and moral corporate practices. AP substantially impacts PR thanks to RD's mediating role. Developmental advances that aid in the alleviation of poverty are one of the indirect benefits of foreign aid.

These mediating relationships demonstrate the interconnectedness of many elements, making a holistic approach critical for the long-term reduction of poverty. RD must be empowered via the implementation of policies and programs. When the government steps in, it acts as a moderator, enhancing the positive impact of RD on PR [87]. Improving the impact of development in rural areas requires new infrastructure, fair funding allocation, and good governance. This highlights how government policies and support systems greatly impact the effectiveness of efforts to alleviate poverty. By sorting these correlations from strongest to weakest, we find that agricultural productivity has the greatest impact on RD, highlighting farming's role as a motor of regional advancement. Afterward, there is social responsibility, which highlights the importance of ethical business operations in building stronger communities. Compared to these elements, foreign aid, albeit helpful, has less impact. Developed rural areas play a crucial role in lowering poverty rates since RD directly influences this matter.

While FA is the most important factor in RD, CSR and AP play a significant role. Similarly, in line with Sikandar and Erokhin [9], government support was a moderating element that helped reduce poverty by promoting RD. According to the study, RD was a positive and statistically significant mediator between the research framework's independent and dependent variables. Sikandar and Erokhin [9] showed that these results are consistent with the literature. Positive results in AP, CSR, and PR are influenced by RD, which plays a crucial mediating function in facilitating the complex interactions between many elements. These congruent results add to what is already known, highlighting the complex role of RD in determining community outcomes that are both sustainable and welcoming.

6. Limitations and Future Research Directions

Future research should address this study's numerous flaws even though it offers useful insights. First, there may have needed to be more people to accurately reflect Pakistan's varied agricultural terrain because the sample size was so small (119 responses). To improve the generalizability of future studies, bigger and more diverse samples should be considered. Another potential issue is that this study used self-reported data, which might be influenced by recall bias and social desirability. To better grasp the dynamics involved, I suggest using a mixed-methods approach, which includes qualitative interviews and longitudinal investigations. This study also has a few caveats: it only looked at Punjab, a big province that might only represent some of Pakistan. In the future, research should cover more than one area to understand regional variations better and generalize the results nationwide. Also, this study did not examine how social and economic factors like government stability, infrastructural quality, and market access affected the associations found. For a more complete picture, future studies should take these into account.

The importance of training and education in making the most of international aid and contemporary farming techniques is an area that needs further investigation in future studies. Policymakers should benefit from a better understanding of how RD projects can incorporate education and capacity-building initiatives. To design development plans that are both successful and sustainable, it is essential to investigate the long-term viability of FA as well as its possible unforeseen effects on local economies and dependence. CSR, AP, FA,

and government support are all interdependent, and this study concludes that RD is vital to reducing poverty. Improving targeted policies and programs for sustainable RD and PR in Pakistan can be achieved by addressing the highlighted constraints and broadening the scope of future studies.

7. Conclusions

This study provides insights into the complex agricultural processes in Pakistan's Punjab province and their impact on PR. Extensive testing and validation of the overall framework for decreasing poverty were carried out through government support, RD, CSR, AP, and FA. The findings have important theoretical and practical implications, corroborating notable direct and mediated relationships. SR, AP, FA, RD, and PR are all interrelated concepts that this study takes a comprehensive look at. It stresses that business engagement in environmental and social issues can greatly help rural communities, and it highlights the important role of SR in RD promotion. This discovery aligns with the idea that sustainable development cannot be achieved without ethical corporate practices.

Additionally, this study emphasizes how important AP is in shaping RD, showing how modern farming methods and technology are crucial for bettering rural areas. This finding highlights the significance of embracing current farming techniques and continuously innovating to maintain and improve production. This study adds to the existing body of knowledge by contrasting it with prior results and investigating the positive effect of FA on RD. This disparity could be explained by the fact that the respondents had a higher level of education. People with more education tend to grasp better how to use FA effectively. This discovery proves that educational programs can potentially boost FA's effectiveness in RD endeavors. Additional evidence from this study demonstrates that RD mediates the connections between SR, AP, FA, and PR. The research shows that RD and ethical corporate practices can help reduce poverty by a large margin. RD plays a vital mediating function in reducing poverty through increased agricultural output and foreign aid.

The investigation's hypotheses were endorsed through broad testing and disclosed numerous key affiliations. AP, FA, and CSR have a direct impact on PR. Furthermore, RD assists as a facilitator in the associations between AP, FA, CSR, and poverty reduction. Moreover, the support of the government plays a regulating role in improving the effectiveness of reducing the poverty of RD. These outcomes emphasize the complex interaction between variables and their combined effect on PR in Pakistan.

8. Practical Implications

Based on this study, policymakers and practitioners can take several steps forward. Findings from this study highlight the importance of incorporating social responsibility initiatives, increasing agricultural output using modern technology, and making good use of foreign aid to promote RD and alleviate poverty for policymakers. Strong frameworks that promote modern farming techniques guarantee the appropriate distribution of foreign aid and stimulate business involvement in social and environmental issues should be the focus of policymakers. This study stresses the significance of using contemporary farming techniques and technology to increase output for practitioners, particularly those engaged in RD and agricultural sectors. It further argues that corporations should promote sustainable development by participating in socially responsible activities that benefit local communities. Government policies that offer essential infrastructure, fair funding distribution, and social welfare programs should supplement RD projects because of the good moderating influence of government support.

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