Strategic Partnership Financing Schemes and Agriculture Productivity in Zimbabwe: A Study of Selected Provinces

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Abstract

Africa is experiencing a general decline in agriculture productivity which is against a backdrop of increased global demand for food items. Zimbabwe is not spared. This has been worsened by climate change and a general decline in credit across all sectors. This calls for the need for more resources to boost agriculture productivity which has been affected by a general decline in traditional funding sources. The role of strategic partnership financing scheme is therefore worthy to explore in addressing funding challenges experienced in agriculture. This survey employed a cross sectional survey grounded on pragmatist philosophical view. The data was collected on commercial farmers from selected four administrative provinces of Mashonaland West, East, Central and Manicaland of Zimbabwe. A total of 377 questionnaires were administered and 323 were returned. Eight interviews were conducted. Data were analysed using descriptive and inferential statistics and conclusions drawn. A multiple regression model was fitted to ascertain the relationship among research constructs. Results show that private strategic partnership schemes were strongly associated with farm productivity. A weak association was established with state driven strategic schemes. It is therefore recommended for authorities to channel funding for agriculture through agriculture value chain. Government role should be confined to regulatory. The involvement of government of Zimbabwe resulted in inefficiencies and hijacking of resources by political elites.

Keywords: Agriculture finance, climate change, commercial agriculture, productivity, Strategic partnership schemes.

1. Introduction

Africa as a continent has been grappling with addressing the Sustainable Development Goals (SDGs) since 2015. Accomplishment of these goals is a mammoth challenge in Zimbabwe. To help address them, the continent through African Union (AU) set Agenda 2063 which is anchored on the SDGs and its main thrust is on how to achieve inclusive and sustainable growth. Agriculture has been identified as the major driver to this cause and Zimbabwe as a member is seized with attaining inclusive and sustainable growth. The increase in global demand for food and agriculture products has added on the need by authorities to look at ways to boost agriculture productivity as a way of meeting increasing food demand. All this calls for a thorough investigation on available inclusive financing models to address the espoused financing gap without necessarily compromising the future generations.

Developing nations given their overreliance on traditional models of farming are hard hit (Chirisa et al., 2018; Hermann, 2017; Chisasa, 2015). Ways to improve agriculture productivity through addressing challenges farmers are experiencing is increasingly becoming vital both in emerging and developed economies. Smart innovative schemes structured on a win/win basis are becoming integral in unlocking the full potential of

commercial agriculture. Studies on strategic partnership schemes and agriculture has been mainly confined to contractual based arrangements (contract farming), ignoring the other key components of strategic partnership schemes which have been credited for transforming agriculture in the developed world (Herrmann, 2017; Abu Rashed & Mahmudul Alam, 2011). This survey looks at how strategic partnership schemes can change the financing terrain and productivity of farming in an emerging economy context particularly in the post agrarian reform context. Prior studies in the Sub-Saharan regions were mainly pursuing agriculture finance from a traditional perspective- conventional bank credit as noted by Hall *et al.* (2017) and Chisasa *et al* (2015) with limited scope on strategic partnership schemes. Rare studies by Mazwi *et al.* (2019), Dube and Mugwagwa (2017) and Matenga *et al.* (2017) undertook an empirical analysis on out grower schemes and contract farming in tobacco leaving out joint venture schemes, hybrid crowdfunding as well as other joint venture schemes in the mould of share cropping schemes. This paper therefore incorporates all the above schemes simultaneously to ascertain the role of each scheme on agriculture productivity.

This paper is subdivided into four main sections namely Background of the problem, theoretical and empirical literature on the subject, research methodology, results and conclusions and winds up with practical implications of the paper

1.2. Background to the problem

Globally, credit has been found to be inadequate and limited, this is despite the well documented benefits that comes with increased use of credit across all sectors of the economy (Chisasa, 2015; Lean & Tucker, 2001). Agriculture has been hard hit given that agriculture with its overreliance on rainfall patterns has higher risk as compared to other sectors. This has been worsened by climate change which has made agriculture ventures riskier than it used to be in the past. The deterioration in credit to agriculture in emerging economies has forced nations to look for alternative financing as the few resources prefer less risky business ventures such as retail business. In Zimbabwe, the problem has been worsened by changes in land tenure system that came with the Millennium land redistribution exercise. In the late 1990s the Zimbabwean government then led by former president embarked on land rationalisation and redistribution exercise which came with change in land tenure (Land became state land) which rendered farming land unbankable. This meant that the newly resettled farmer could no longer use land as collateral security in accessing agriculture credit from banks. This coupled with strained relations with the country`s former colonial masters and the European Union made it difficult for the new commercial farmers to access credit to oil farm operation. Authorities had to expand the mandate of the land bank by making it a deposit taking institution and also ceding part of its stake to private players to inject fresh capital. All these efforts failed to address the problem of limited credit for agriculture as the land bank remained undercapitalised to fully execute its mandate (Scoones *et al.*, 2017). Many economies particularly the developed have revolutionised their farming through use of innovative and sustainable financing schemes which tap from idle and underutilised resources. Strategic partnership schemes have not only help automate farming operations but also provide the much needed technical expertise and back up services for sustained farm productivity (Van Bergen *et al.*, 2019; Herrmann, 2017; Abu Rashed & Mahmudul Alam, 2011).

1.3. Problem statement

Agriculture productivity is at its rock bottom levels with current contribution to GDP at less than 11% from a normal of above 20% (ZimStats, 2020). Funding to agriculture has dried up

leaving government as the major funder (Dube & Mugwagwa, 2017). Bank loan portfolio to agriculture has fallen to less than 5%. The drying up of conventional funding sources has reignited the need for authorities to seek for alternative financing and investments in agriculture, which now calls for inclusive funding models for sustainable agriculture productivity. Strategic partnership schemes have been credited globally for unlocking the full potential of agriculture. This paper therefore seeks to examine the role of strategic partnership financing scheme in agriculture.

2. Literature

Agricultural finance refers to the funding of agricultural-related operations from production to sale (Van Bergen *et al*., 2019; Chirisa, 2018). It is a field of study and analysis of the financial elements of the agriculture business. Agriculture finance fall into traditional (conventional) funding models and modern smart inclusive financing models. In the face of drying up of credit (traced back from the global liquidity crunch of 2007/8), authorities now expend more of their efforts in inclusive and sustainable funding models commonly referred to as value chain financing schemes (strategic partnership schemes). This paper adopted Solow- Swan growth model. The Solow–Swan model is an economic model of long-run economic growth that adopts neoclassical economic orientation. The model explains long-term growth through examining capital accumulation, labour or population increase, and productivity gains, all of which are referred to as technical advancement. In this study capital accumulation through strategic partnership schemes (value chain financing) is explored so as to ascertain its effect on agriculture productivity. The outcome variable is agriculture productivity whilst the explanatory variables are the strategic partnership financing schemes. The extended growth model of Solow- Swan gives a broader view in addressing agriculture finance as it integrates supply and demand issues to credit access in agriculture.

2.1 Strategic partnership financing scheme in agriculture

Strategic partnership financing scheme refer to financing arrangements where farmers partner with either value chain partners or the general public to help fund farming operations through negotiated contracts which are mutually beneficial (Pantoja *et al*., 2017; McNellis *et al*., 2010). These schemes fall into three main categories namely contractual arrangement based, equity based and joint venture schemes (Cramb & Ferraro, 2012).

Contractual arrangement based partnership entails partnership arrangements between farmers and value chain partners upstream or downstream where value chain partners provides credit to farmers and in return farmers sell output to value chain partners (Pantoja *et al.,* 2017; Patil *et al.,* 2016). The main form is contract farming and out-grower schemes as established by Matenga *et al.* (2017) a study on out-grower and contact farming in the Manicaland province of Zimbabwe on banana production. Their findings established out-grower schemes and contract faming as positively associated with farm productivity. Agribusiness units do not get directly involved in farming activities but as part of the agriculture value chain they offer credit to farmers in return farmers should sell the outputs to them thus allowing agribusinesses to recover advanced credit (Hall, Scoones, *et al.,* 2017; Iddrisu *et al.,* 2017). Agribusiness offer technical support and advice to farmers to ensure quality of output through their designated agents. Because the success of this arrangement is dependent on the performance of the value chain, all participants become involved in every step of the process. Aside from tackling financial issues that many farmers have, the model also provides farmers with the technical knowledge they need to succeed in the farming process.

These partnerships may also take the form of blended finance, which is public-private partnership. Blended financing as defined by Patil *et al*. (2016) refers to strategic use of development finance as well as philanthropic funds to mobilize public and private capital flows to evolving and frontier markets as presented in figure 1. The model offers possibility to scale up commercial agriculture financing in least developed economies. It has been designated to help support progress enroute to attainment of SDGs. It allows institutions to use the smallest amounts of concessional funding possible to address financing gaps in agriculture. Institutions such as international finance corporation, JICA, SNV as well as USAID have made inroads through their concessionary loans. Figure 1 below illustrates how the blended finance model operates.
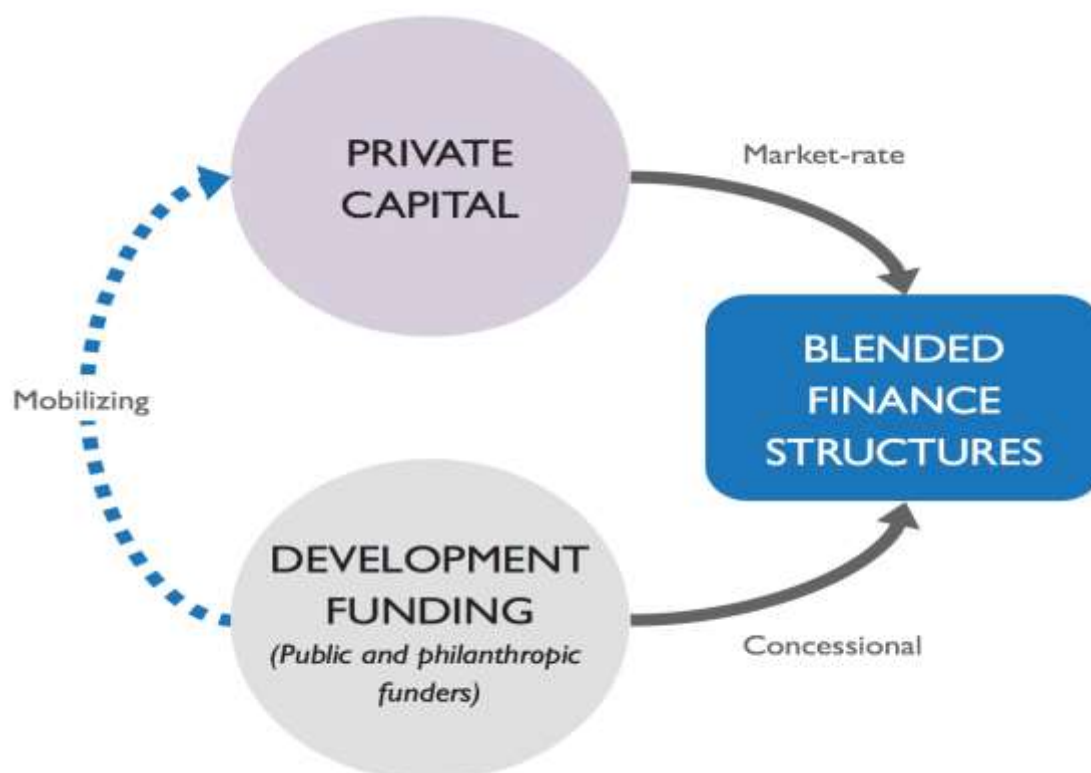

Figure 1: Blended finance

Source: Patil *et al*. (2016)

This model leaves the farmer with improved farming technical skills as well as asset base. A study by Dube and Mugwagwa, (2017) reported that contract farming as a contractual arrangement based financing model improves farm productivity through availing financial resources and technical services, which help transform farm productivity across all faming types. The association was however, found to be stronger in cash crops where over and above improved productivity, the model ensures farmers access lucrative markets through their partnerships with agribusiness entities. However studies by Herrmann (2017) in Tanzania, established a statistically insignificant weak positive association between participating in contractual based partnership and farm productivity and he opined that this was due to exploitative nature of contracts entered into by parties which ended up overshadowing the benefits of contract farming. This proposition was supported by Matenga (2017) through his study in Zambia where he established an insignificant positive association which once again was explained by exploitative nature of contracts particularly to farmers. Many economies

have moved to state supported contractual arrangements or having a strong regulatory board to address the problem of exploitation of farmers (Mazwi *et al.,* 2019). These contradictions across nations show that there still exists a gap in understanding the nature of the relationship between farmer participation in contractual arrangements and agribusiness.

Moreover, joint venture schemes have been suggested to address the deteriorating agricultural finance terrain. A joint venture scheme in agriculture is viewed as a temporal business association between two or more entities or persons for profit without necessarily forming a permanent entity (Suharto & Iqbal Fasa, 2017). The idea is for the entities to pool their resources for farming purposes, the partners will jointly perform the business activity in this case farming (Nakandala & Lau, 2019). It's different from contract farming in that the parties jointly perform farming activities (Mbizi & Gwangwava, 2013). This model ideally other than helping financing farm operations help retool the farm as well as transfer of technical skills (Ghebru et al., 2016). This is done partly to ensure quality inputs for agribusiness or to ensure market access by agribusiness for their high technology equipment (Abedifar et al., 2018). It takes the form of agriculture input manufacturer partnering farmers, manufacturers of stock feeds partnering farmers as well as some out grower contract schemes (Setyaningsih & Jayaprawira, 2020; Sulle, 2020). These schemes have been credited with aiding participants with the opportunity to gain new capacity and expertise, enables entities involved to enter into new related business or new markets or rather gain access to new modern technologies (Mardhiyyah et al., 2020; Yami et al., 2019). Firms also gain through increased availability of resources including specialised staff and technology. All these contribute to increased productivity with a strong positive association between use of joint venture schemes and agriculture productivity. On the contrary, Pantoja et al. (2017), established a rather weak and insignificant positive association between use of joint schemes and productivity, they indicated failure of strategic fit, goal congruence as well as power tussles which normally result eroding the benefits of the financing scheme.

2.2. Equity based models

Equity based models is proving to be popular globally given its flexibility across farming types. It is an alternative way of investing in agriculture without necessarily getting dirty. For those without farmland but with keen interest in farming they can venture into farming indirectly by providing finance and resources to those with land on a win/ win set up. It provides an opportunity for outside investors and existing farmers to grow their operations through smart partnerships (Cramb & Ferraro, 2012). The purpose is to diversify risk and at the same time provide capital for farming purposes. It allows those that intend to release capital from land for alternative investments or allow partial retirement as part of structured succession particularly with non-family members. Equity based partnerships are credited with providing a route to launching an ownership interest that may otherwise be out of reach of the partner. The partner after contributing capital to farmers may establish long term relationship which may ultimately results in the equity contributor given part of the farming land (Jin *et al.,* 2017; Pantoja *et al.,* 2017). These forms of partnerships are also credited with sharing agriculture risk across multiple partners within the agriculture value chain.

These models are however, discredited for their overreliance on relationships. There is need to manage relationships as the collapse of relations signal the end of marriage, thus resulting in drying up of finance from the source (Chirisa *et al.,* 2018). Increase in number of partners

results in increased chances of disagreements among partners. As partners also increase decision making become bureaucratic and slow which if not properly managed may lead to missed opportunities, thus loss of business.

3. Research Methodology

The study adopted a descriptive cross-sectional survey grounded on pragmatism research philosophy with a more inclination towards positivism. Data was collected using questionnaires and interviews. A total of 377 smallholder commercial farmers were selected across the four selected administrative provinces of Mashonaland west, East, Central and, Manicaland of Zimbabwe. These provinces had features of all natural regions and all farming types such that it was a representative of the whole country. Out of the 377 questionnaires send out 323 were returned giving a response rate of 86%. Out of targeted 15 interviews the study managed to conduct 8 as guided by interview saturation level. Descriptive statistics mere analysed through mean score, lowest and maximum values and standard deviation of scores by respondents. A multiple regression model was employed in order to infer associations between different strategic partnership schemes and agriculture productivity. Strategic partnership financing schemes were regressed on agriculture productivity. A linear model of the form as in equation 1 below has been formulated and the parameters were estimated using regression.

$$Pod = \alpha + \beta X + \cdots + \beta n Xn \qquad \text{Equation 1}$$

Where Pod represents agriculture productivity, α productivity not influenced by strategic partnership financing schemes, β measures responsiveness of agriculture productivity to changes in financing mode1 up to financing model n, X up to Xn represent strategic partnership financing schemes.

It is pertinent to note that for ordinary least squares (OLS) regression model to produce unbiased estimates, predictors should not be related and also the variance of residuals should be the same for the dependant variable across all groups (absence of heterogeneity among residuals of dependent variables). The survey data was tested for the homogeneity of variance through the Levine`s test and the absence of multi-collinearity among independent variables were tested by Variance inflation factor.

4. Results and Discussions

Results presented were both from descriptive statistics and inferential statistic conducted. Strategic partnership financing schemes used by farmers as well as their effects on farm productivity were examined.

4.1 Strategic partnership schemes usage by commercial farmers in Zimbabwe

The results showed varied levels of usage of strategic partnership schemes as presented in table 1 below. Of the five schemes only one was found to be mostly used by commercial farmers in Zimbabwe (state driven contract schemes which include command agriculture and operation *maguta)* given the mean score of 4 (3.89) which corresponds to mostly used. On the other hand, multilateral institutions schemes, share cropping schemes and private sector

driven contract schemes were found to be rarely used given their mean scores of approximately equal to 2 as shown in Table 1 below.

Table 5: Usage of strategic partnership schemes by commercial farmers

	N	Minimum	Maximum	Mean	Mean response	Std. Deviation
Multilateral institutions schemes	323	1	3	1.65	Rarely used	1.266
Tenant financing schemes	323	1	2	1.24	Not used	.374
Sharecropping schemes	323	1	3	1.51	Rarely used	.828
State driven contract schemes	323	1	4	3.89	Mostly used	.975
Contract schemes with Agribusiness (private)	323	1	3	1.45	Rarely used	1.226

As presented in table 1 above the huge standard deviations of above 0.7 in share cropping schemes, state driven contract schemes, multilateral institutions scheme and private sector driven contract schemes show that there were outliers in usage of such schemes as some were not using them at all reflected by lowest score of 1 and some were mostly using the reflected by mean score of 4 while others sometimes use them as reflected by highest score of 3. The results show varied usage of strategic partnership financing schemes, though State driven (command agriculture) was mostly used to fund commercial agriculture.

A look at the interview data analysed through word cloud and presented in Figure 2 below shows, that farmers mostly used command agriculture strategic partnership scheme as shown by a huge font size on the figure and its central position in Figure 2. This therefore reenforces descriptive statistics (quantitative results).

Figure 2: Usage of strategic partnership financial schemes

The least used schemes were share cropping and tenant financing scheme as the models in the past were discouraged as they were deemed to be an implied reversal to the government-initiated land reform.

4.2. Effect of SPFS on agriculture

Strategic partnership financing schemes used by commercial farmers were regressed on agriculture productivity so as to ascertain the effect of such schemes on productivity. However, there are preconditions to regressions which include that the variances of residuals of the outcome variable should be equal across all groups (Homoscedasticity), the predictor variables should not be correlated (absence of multicollinearity). The robustness check tests for homoscedasticity through the Levene`s test was presented in Table 2 below while for absence of multicollinearity were presented in table 5 of regression estimates as measured by the variance inflation factor (VIF).

Table 2: Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
perf	Based on Mean	1.014	2	320	.364
	Based on Median	.903	2	320	.406
	Based on Median and with adjusted df	.903	2	253.050	.407
	Based on trimmed mean	.899	2	320	.408

A look at the levene statistics probability value on all dimensions, that is based on the mean, on media, on median adjusted for degrees of freedom and trimmed mean (0.364, 0.406, 0.407 and 0.408 respectively) show that they are all above 0.05 implying that the paper rejects the null hypothesis that the variances are different, thus accepting the alternate hypothesis that they are equal. This therefore means variances were homoscedastic.

Regression results are presented in Table 3, 4 and 5 below. Table 3 is an analysis of variance testing the significance of the complete model. The probability value of 0.000 is less that 0.05 implying this model is significant in explaining agriculture productivity. In addition, a further look at Table 4 shows an adjusted R square of 0.665 which signify a strong explanatory power. The model has a 67% explanatory power implying 67% changes or variability in agriculture productivity is explained by changes in stated strategic partnership financing schemes and the remainder of 33% is explained by factors outside the model. This gives a strong explanatory power. Table 5 presents regression coefficients of the relationship between explanatory variables and the outcome variable.

Table 3: Significance of the whole model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	100.879	5	20.176	128.799	.000[a]
	Residual	49.656	317	.157		
	Total	150.535	322			

a. Predictors: (Constant), aid from multilateral organisations such as world bank, share cropping scheme, government contract schemes such as command agriculture, contract schemes with strategic partners, tenant financing using land ownership

b. Dependent Variable: performance

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.819ᵃ	.670	.665	.396

a. Predictors: (Constant), aid from multilateral organisations such as world bank, share cropping scheme, government contract schemes such as command agriculture, contract schemes with strategic partners, tenant financing using land ownership

Table 5: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	1.522	.099		15.423	.000		
contract schemes with private strategic partners	.618	.032	.761	19.503	.000	.683	1.464
government contract schemes such as command agriculture	.074	.040	.064	1.843	.046	.858	1.165
tenant financing using land ownership	-.026	.037	-.033	-.695	.488	.448	2.233
share cropping scheme	.031	.039	.040	.791	.429	.409	2.443
aid from multilateral organisations such as world bank	.215	.054	.133	4.000	.000	.935	1.069

a. Dependent Variable: performance

The research results in Table 5 can be presented in the linear multiple regression model based on standardised estimates illustrated below.

$$Pod = 1.52 + 0.761PSP + 0.133MSP + 0.064GSP \qquad \text{Equation 2}$$

Where Pod represents farm productivity, PSP represents private strategic partnership schemes, MSP represents Multilateral Strategic partnership schemes, and GSP represents government led strategic partnership schemes.

From table 4 the adjusted R square is 0.665. This implies that the explanatory power of the model is 66.5% (67). This mean that 67% of changes in farm productivity is explained by changes in private strategic partnership, multilateral strategic partnership as well as government initiated strategic partnership schemes and the remainder 33% is explained by factors outside the model. It's a fairly high explanatory power. A look at the model above shows that of the five predictors only three were found to be statistically significant in explaining variation in agriculture productivity among medium scale commercial farmers. Tenant financing and sharecropping schemes have P values of 0.488 & 0.429 respectively which are all greater than 0.05 (see table 2) thus implying the study rejects the alternative hypothesis that there is an association with productivity. All the three variables are positively associated with agriculture productivity. Private partnership which comprises of contract farming, joint venture schemes as well as equity based has a strong positive association with agriculture productivity as reflected by a standardised beta coefficient of 0.761 which implies a 10% increase in use of such a financing model will be associated with a 7.61% (8%) increase in agriculture productivity and the opposite is true. Multilateral strategic partnership

schemes such as NGO sponsored, international development-oriented institutions have a standardised beta of 0.133 which implies a weak association with farm productivity as a 10% increase in use of such a financing model is associated with a mere 1% increase in agriculture productivity. State sponsored strategic partnership scheme (Subsidised SEDCO loans, Command agriculture) with a standardised beta coefficient of 0.064 reflects a very weak association with agriculture productivity as a 10% increase in use of the model is associated with a 1% increase in productivity. The magnitude of the constant of 1.52 shows that a sizeable level of productivity is explained by other non-financial factors which may capture climate, technical skills as well as management competencies of the farmer.

4.3. Agriculture productivity

The paper showed deterioration in agriculture productivity. A look at table 6 on descriptive statistics show an overall mean score of 2.43 and standard deviation of 0.848. The mean score corresponds to disagree (2), thus productivity deteriorated (decrease in productivity), while the 0.848 shows that the overall performance of farms surveyed were highly dispersed around the mean score of 2.43, which implies that there were extremes cases of say 1 indicating worst performance and 4 indicating improved productivity though the overall mean was 2.43. It means that some farms performed very well.

Table 5: Descriptive statistics on Farm Productivity

	N	Minimum	Maximum	Mean	Mean response	Std. Deviation
farm liquidity improved	323	2	5	3.75	Agree	.666
litigation reduction	323	1	4	3.30	Neutral	.874
improved output	323	2	5	3.58	Agree	.828
improved hectarage usage	323	2	5	3.59	agree	.875
managed to hire more skilled labour	323	1	5	3.46	Agree	.926
new markets established	323	1	5	3.34	Neutral	.940
product line improved	323	1	5	3.27	Neutral	.901
managed to post profits consistently	323	1	4	3.10	neutral	.818
failed to produce to meet costs	323	1	5	2.45	Disagree	.932
Purchased new high-tech equipment	323	2	4	3.37	Neutral	.872
Overall				**2.43**	**Neutral**	**0.848**
Valid N (listwise)	323					

This was confirmed by a word cloud generated and presented in Figure 3 from interviews conducted which show reduced productivity and increased litigations against farmers dominating as shown by a huge font size as well as centred position of the response implying most farmers experienced reduced productivity. The adopted funding models explain the deterioration in agriculture productivity.

Figure 3: Agriculture productivity

The findings of the current study however contradicts Sulle (2020), in that he established a strong positive association between use of donor supported strategic alliance and agriculture productivity while current results show a very weak positive association between the variables. This however, can be attributed to drying up of donor supported strategic partnership as the operating environment in Zimbabwe is hostile to civic participation in community development. All non-state led initiatives are viewed with suspicion, thus the influence of multilateral and donor supported strategic alliances has been reduced and that explains the departure of the current results from existing literature. These results, however, dovetails with Cramb & Ferraro (2012) and McNellis *et al*. (2010) whose results established a very strong association between private strategic partnerships and agriculture productivity particularly with smart joint venture schemes. The results also concurs with Herrmann (2017) who established a strong positive association between use of strategic partnership schemes and farm productivity after undertaking a study on the role of out grower and contract farming schemes in Tanzania using multiple regression analysis. The study showed a strong association of productivity with contract farming and out grower schemes. In this way the current study reinforces the established relationship elsewhere. The study however noted the existence on rare occasions of exploitative contracts which disadvantaged farmers. On a different note, the results are a departure to existing literature as tenant financing and share cropping schemes were found not to be associated with agriculture productivity which contradicts Ghebru *et al*. (2016), Patil *et al*. (2016), in Ghana, Zambia and India respectively where such models were found to be statistically significant in explaining productivity (positive). This is in contrast to the results of the current study as the variables were found not to be associated with productivity. This may be explained by low adoption of the schemes as previously the schemes were largely discouraged by national authorities as they feel the schemes amount to returning the land back to former owners (White minority)- reversal of the land reform exercise. However, the current regime now encourages such partnerships as seen by the enactment of Joint Venture Act of 2016. The results show a decreased agriculture productivity despite use of strategic partnership financing scheme which contradicts Wickramasinghe (2017) who ascertained that inclusive strategic partnership schemes boost agriculture productivity as they are efficient and enable technology transfer through his study on fostering agriculture productivity in Asia. This is partly explained by inefficiencies in the

dominant government led schemes and political elites hijacking of such schemes who usually do not repay back resources advanced.

5. Conclusions and Policy implications

The survey sought to ascertain the role played by strategic partnership financing schemes on farm productivity. The study borrows from a modified Solow (1970) extended growth model which integrates supply and demand of credit in addressing financial challenges facing agriculture. The model fitted a five variable multiple regression model namely contract private strategic partnership schemes, government initiated strategic schemes, multilateral initiated strategic partnership schemes, tenant financing schemes as well as share cropping schemes to agriculture productivity. Survey results show that of the five strategic partnership schemes only three (3) variables were significant in explaining agriculture productivity and two were not. Private strategic partnership schemes (contract farming schemes and joint venture schemes) were found to be positively (very strong) with farm productivity while government initiated and international multilateral institution supported strategic partnership schemes have very weak positive association with productivity. Sharecropping and tenant financing schemes were found not to be statistically significant in explaining variations in farm productivity even at 30% error rate (70%) confidence interval. Thus, strategic partnership schemes as value chain financing scheme is positively associated with farm productivity though government initiated (command) have a very weak positive association. Private strategic partnership scheme provides a masterstroke solution to addressing agriculture financing challenges and ultimately agriculture productivity. Therefore, it is recommended that finances for agriculture should be channelled through the value chain partners (private partners in particular), given that private value chain partners know the farmer better than financial institutions and are professionally run their portfolios. There are limited chances for the hijacking of funds by political elites, thus allowing finance to reach genuine farmers. There is need for government to conscientise farmers on the new policy on joint venture and strategic partnerships schemes as espoused in the Joint Venture act (2015) to improve the uptake of tenant financing, sharecropping schemes and other strategic partnership schemes. Government should channel finance through the value chain to eliminate inefficiencies associated with government bureaucracies and corruption.

Though the study established the relationship between strategic partnership schemes and agriculture productivity as well as factors that enhance relations, there are other issues which were not addressed by this study. Thus, future studies can look at new innovative and inclusive financing schemes with the potential to unlock new resources for agriculture such as crowd farming. The study can be expanded to a national scale rather than the selected four administrative provinces.

References

1. Abedifar, P., Molyneux, P., & Tarazi, A. (2018). Non-Interest Income And Bank Lending. *Journal Of Banking And Finance*, *87*, 411–426. Https://Doi.Org/10.1016/J.Jbankfin.2017.11.003

2. Abu Rashed, M., & Mahmudul Alam, M. (2011). Considerable Issues For Sustainable Public-Private Partnership (PPP) Project Citation Reference: Considerable Issues For

Sustainable Public-Private Partnership (PPP) Project. *Res Manageria*, 2(4), 57–65.

3. Chirisa, I., Mukarwi, L., & Matamanda, A. R. (2018). Prospects And Options For Sustainable And Inclusive Crowdfunding In African Cities. *Crowdfunding And Sustainable Urban Development In Emerging Economies*, *February*, 211–231. Https://Doi.Org/10.4018/978-1-5225-3952-0.Ch011

4. Chisasa, J. (2015). An Econometric Analysis Of Bank Lending And Agricultural Output In South Africa: A Survey Approach. *Journal Of Applied Business Research*, *31*(1), 163–174.

5. Cramb, R. A., & Ferraro, D. (2012). Custom And Capital: A Financial Appraisal Of Alternative Arrangements For Large-Scale Oil Palm Development On Customary Land In Sarawak, Malaysia. *Malaysian Journal Of Economic Studies*, *49*(1), 49–69.

6. Dube, L., & Mugwagwa, K. E. (2017). Technical Efficiency Of Smallholder Tobacco Farmers Under Contract Farming In Makoni District Of Manicaland Province , Zimbabwe : A Stochastic Frontier Analysis. *Scholars Journal Of Agriculture And Veterinary Sciences*, *4*(2), 68–78. Https://Doi.Org/10.21276/Sjavs.2017.4.2.5

7. Ghebru, H., Khan, H., & Lambrecht, I. (2016). *Perceived Land Tenure Security And Rural Transformation: Empirical Evidence From Ghana* (Issue July). Http://Ebrary.Ifpri.Org/Cdm/Ref/Collection/P15738coll2/Id/130495

8. Hall, R., Scoones, I., & Tsikata, D. (2017). Plantations, Outgrowers And Commercial Farming In Africa: Agricultural Commercialisation And Implications For Agrarian Change. *Journal Of Peasant Studies*, *44*(3), 515–537. Https://Doi.Org/10.1080/03066150.2016.1263187

9. Hall, R., Tsikata, D., & Scoones, I. (2017). The Pros And Cons Of Commercial Farming Models In Africa. *The Wire*, *June*, 2–5.

10. Herrmann, R. T. (2017). Large-Scale Agricultural Investments And Smallholder Welfare: A Comparison Of Wage Labor And Outgrower Channels In Tanzania. In *World Development* (Vol. 90, Pp. 294–310). Https://Doi.Org/10.1016/J.Worlddev.2016.10.007

11. Iddrisu, A., Ansah, I. G. K., & Nkegbe, P. K. (2017, November 20). Effect Of Input Credit On Smallholder Farmers' Output And Income: Evidence From Northern Ghana. *Agricultural Finance Review*. Https://Doi.Org/10.1108/AFR-05-2017-0032

12. Jin, Y., Hu, Y., Pray, C., & Hu, R. (2017). Impact Of Government Science And Technology Policies With A Focus On Biotechnology Research On Commercial Agricultural Innovation In China. In *China Agricultural Economic Review* (Vol. 9, Issue 3, Pp. 438–452). Https://Doi.Org/10.1108/CAER-05-2017-0096

13. Lean, J., & Tucker, J. (2001). Information Asymmetry , Small Firm Finance And The Role Of Government. *Journal Of Finance And Management In Public Services*, *1*, 43–60.

14. Mardhiyyah, Y. S., Rasyidi, M. A., & Hidayah, L. (2020). Factors Affecting Crowdfunding Investor Number In Agricultural Projects : The Dummy Regression Model. *Journal Of Management & Agribusiness*, *17*(1), 14–25.

15. Matenga, C. R. (2017). Outgrowers And Livelihoods: The Case Of Magobbo Smallholder Block Farming In Mazabuka District In Zambia. *Journal Of Southern African Studies*,

43(3), 551–566. Https://Doi.Org/10.1080/03057070.2016.1211402

16. Mazwi, F., Chemura, A., Mudimu, G. T., & Chambati, W. (2019). Political Economy Of Command Agriculture In Zimbabwe: A State-Led Contract Farming Model. *Agrarian South: Journal Of Political Economy*, *8*(1–2), 232–257. Https://Doi.Org/10.1177/2277976019856742

17. Mbizi, R., & Gwangwava, E. (2013). Rotating Savings And Credit Associations: An Alternative Funding For Sustainable Micro Enterprises In Chinhoyi. *Journal Of Sustainable Development In Africa*, *15*(7), 181–193.

18. Mcnellis, P., Mhlanga, N., Miller, C., Richter, S., Mcnellis, P., & Mhlanga, N. (2010). Agricultural Investment Funds For Developing Countrieas. In *Fao* (Pp. 1–165). Http://190.11.224.74:8080/Jspui/Handle/123456789/517

19. Nakandala, D., & Lau, H. C. W. (2019). Innovative Adoption Of Hybrid Supply Chain Strategies In Urban Local Fresh Food Supply Chain. *Supply Chain Management*, *24*(2), 241–255. Https://Doi.Org/10.1108/SCM-09-2017-0287

20. Pantoja, B. R., Alvarez, J. V., & Sanchez, F. A. (2017). Assessment Of Agribusiness Venture Arrangements And Sugarcane Block Farming For The Modernization Of Agriculture. *Phillipine Institute For Development Studies*. Https://Pidswebs.Pids.Gov.Ph/CDN/PUBLICATIONS/Pidsdps1735.Pdf

21. Patil, S., Aditya, & Jha, A. K. (2016). Role Of Financial Agencies In Integrating Small Farmers Into A Sustainable Value Chain: A Synthesis-Based On Successful Value Chain Financing Efforts. *Current Science*, *110*(11), 2082–2090. Https://Doi.Org/10.18520/Cs/V110/I11/2082-2090

22. Rukuni, B. M. (2012). *Why Zimbabwe Needs To Maintain A Multi-Form Land Tenure System*. July.

23. Scoones, I., Mavedzenge, B., & Murimbarimba, F. (2017). Sugar, People And Politics In Zimbabwe's Lowveld. *Journal Of Southern African Studies*, *43*(3), 567–584. Https://Doi.Org/10.1080/03057070.2016.1187972

24. Setyaningsih, P., & Jayaprawira, A. R. (2020). Strengthening Agricultural Investment Through Sustainable Islamic Banking. *Iternational Journal Of Business Studies*, *4*(2).

25. Suharto, & Iqbal Fasa, M. (2017). The Challanges Of Islamic Bank For Accelerating The Growth Of Micro, Small And Medium Enterprises (Msmes) In Indonesia. *Jurnal Studi Ekonomi Dan Bisnis Islam*, *2*(2), 1–19. Http://Ejournal.Iainkendari.Ac.Id/Lifalah/Article/Viewfile/651/602

26. Sulle, E. (2020). Bureaucrats, Investors And Smallholders: Contesting Land Rights And Agro-Commercialisation In The Southern Agricultural Growth Corridor Of Tanzania. *Journal Of Eastern African Studies*, *14*(2), 332–353. Https://Doi.Org/10.1080/17531055.2020.1743093

27. Van Bergen, M., Steeman, M., Reindorp, M., & Gelsomino, L. (2019). Supply Chain Finance Schemes In The Procurement Of Agricultural Products. *Journal Of Purchasing And Supply Management*, *25*(2), 172–184. Https://Doi.Org/10.1016/J.Pursup.2018.08.003

28. Wickramasinghe, G. A. U. (2017). Fostering Productivity In The Rural And Agricultural

Sector For Inclusive Growth In Asia And The Pacific. *Asia-Pacific Development Journal*, *24*(2), 1–22.

29. Yami, M., Feleke, S., Abdoulaye, T., Alene, A. D., Bamba, Z., & Manyong, V. (2019). African Rural Youth Engagement In Agribusiness: Achievements, Limitations, And Lessons. *Sustainability (Switzerland)*, *11*(1), 1–15. Https://Doi.Org/10.3390/Su11010185