

Trends in Student Enrolments in Agricultural Degree Programmes in Zimbabwe

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Abstract

Following the fast track land reform programme, Zimbabwe needs more agricultural graduates to provide extension, training, research and development and ensure food security and national development. However, despite the general increase in enrolments in universities, the prospects of satisfying this requirement are not promising as the share of students opting to study agriculture at undergraduate and postgraduate levels has reportedly been declining. The objective of this study was to map the enrolment trends in agricultural degree programmes vis-à-vis overall student enrolments and to explore the factors that motivate students to pursue agricultural careers. The study included all the 15 registered universities and covered a span of 6 years (2009-2014). Documentary evidence and structured questionnaires were used to collect data from 250 students in universities studying agriculture-related degree programmes and 250 university students studying other science based degree programmes. The results of the study revealed an upward trend in student enrolments and a decline in the share of student enrolments in agricultural related programmes. The major factors that demotivate students to study agriculture include issues of poor employment prospects and the negative perceptions about agricultural jobs. In addition, the other science based programmes offer better opportunities, remuneration and better conditions of service and yet the entry requirements into the programmes are basically the same. The study recommended that government needs to aggressively promote and attract high school students to study sciences as a way of broadening the student base for agriculture and other sciences programmes.

Keywords: Agriculture careers, Student enrolment, Degree programmes, University

1. Introduction

After obtaining its independence in 1980, Zimbabwe made great strides in ensuring access to higher education. As a result, the number of universities increased from one to the current 15 (Garwe, 2015). However, despite the overall increase in university student enrolments, concerns have been raised that student enrolments in agriculture related degree programmes seems to follow a downward trend. The purported low student enrolments in agriculture related degree programmes has caused great alarm in Zimbabwe considering that agriculture plays a central role to food security, poverty reduction and economic growth (Kanyenze, Kondo, Chitambara, & Martens, 2011; Taylor, & Howard, 2005). For example in 2010, agriculture accounted for 19.5 percent of Gross Domestic Product (GDP), 40 percent of exports and 66 percent of employment (CAADP, 2010). Agricultural programmes are therefore fundamental to the continued development of adequate human resources to man the agriculture sector and improve productivity (Kruijssen 2009). The situation is exacerbated by the increased demand for appropriately trained personnel to provide extension, training, research and development following the implementation of the fast track land reform programme (Mutambara, Jiri, Jiri, & Makiwa, 2013).

Regardless of the fact that in Africa on average, agriculture represents 40 percent GDP, 15 percent exports, and 70 percent employment, various countries have reported a similar decline in enrolments for agricultural programmes. In addition, enrolment in undergraduate and graduate agricultural programmes is unbalanced, with more students enrolled at undergraduate level and a smaller proportion at post-graduate levels (Beintema & Stads, 2011). In Egypt, the public universities are reportedly “bursting at the seams with students - except for students of agriculture” (Khaled, 2008). In Nigeria despite the enormous prospects offered by the agricultural profession, enrolment in agriculture related programmes is one of the lowest Adebo & Sekumade (2013). Dramé-Yayé, Chakeredza, and Temu (2011) found that despite the fact that agriculture contributes 39.7 percent of GDP in Niger, student enrolment in agriculture programmes has declined. The declining trend in the share of enrolments in agriculture degree programmes as a proportion of total enrolment was also reported in 23 Sub-Saharan countries by Kruijssen (2009).

The same scenario has been reported in other America, Australia and New Zealand. The significant decline student enrolments in agricultural programmes raised great much concern in America (Wildman & Torres, 2001; Scott & Laverne, 2004) at a time when opportunities and shortage of qualified personnel in agriculture-related professions continues to increase (Goecker, Smith, Smith, & Goetz, 2010; Jones & Larke, 2001). Similarly, Kerin (2012) reported a huge decline in the student enrolment of agricultural programmes to the extent that the University of Western Sydney’s Hawkesbury campus had an enrolment of six students down from the normal enrolment of 80 students a year. Likewise, the demand for agricultural programmes Australian universities has declined significantly thereby compromising the capacity to provide trained human resources to spur agricultural research and development (Pratley, 2008; Pratley & Leigh, 2008). In New Zealand, Carter (2008) reported a drastic decline in student enrolments in agriculture programmes. In addition, a large number of the currently enrolled students in agriculture programmes were already employed and undergoing

further training, rendering the number of ‘new’ students even much smaller.

In view of the global decline of interest in agricultural careers, a number of pertinent questions relating to Zimbabwean agriculture potential linger. Is the declining trend in agricultural enrolments true for Zimbabwe? What are the factors that motivate students to pursue agricultural careers? What can be done to inspire students to study agriculture as a way of sustaining the agricultural profession and securing the future of the nation? The objective of this study was aimed at seeking answers to these questions by mapping the enrolment trends in agriculture-related degree programmes and to explore the factors that motivate students to pursue agricultural careers.

1.1 Agriculture and Development

The World Bank (2008) reports that approximately 75 percent of people in Sub-Saharan Africa (SSA) live in rural areas and depend on agriculture for their livelihoods. Agriculture is thus critical for economic development, reducing poverty and ensuring food security. There is need for highly trained human resources (DraméYayé et al., 2011) who will ensure the improvement of research, extension and marketing (Rukuni, 2002; Vandenbosch, 2006). DraméYayé et al. (2011) argues that despite the immense value of agriculture, support for agricultural education and training programmes, production, value addition, marketing, and development of appropriate policies has not been commensurate. As a result interest in pursuing agriculture related programmes is declining especially among high-school graduates.

1.2 Reasons for Lack of Interest in the Agricultural Profession

Agriculture is fraught with negative perceptions and dearth of information and awareness (Baker, Settle, Chiarelli, & Irani, 2013; Kruijssen, 2009; Myers, Breja, & Dyer, 2004). In fact, students enrolling in agricultural degree programmes are stigmatised as having failed to gain acceptance in the programmes perceived to be prestigious and lucrative, for example medicine, engineering, computer science, law, and business (Dobbins, King, Fravel, Keels & Covington, 2002; Jackson & Williams, 2003; Sutphin & Newsom-Stewart, 1995). The agricultural profession is considered as unfulfilling, drudgerous, dusty, filthy, poorly remunerated and best suited to non-academic people. In fact, a typical punishment in school is to be assigned to weed a certain plot of land (Carter, 2008; Rammolai, 2009). Studies have revealed that the push and pull factors of pursuing agricultural degree programmes include: Employment, career development opportunities and remuneration; perceived prestige of the profession and quality and relevance of the programmes.

1.2.1 Employment, Career Development Opportunities and Remuneration

Research has established that the availability of jobs and the remuneration level are the key motivating factors that guide the selection of degree programmes to pursue in line with their chosen career paths (Williams & Cappuccino-Ansfield, 2007). Previous exposure, interest and passion also inform the career decision-making process amongst the various options on offer. Sadly, employment opportunities for agricultural graduates have not been increasing with most graduates getting employment in the civil service as extension personnel, research

officers or teachers and very few are absorbed into the private sector (Temu, Mwanje, & Mogotsi, 2003; UNECA, 2003; Vandenbosch, 2006). In fact Saint (2005) asserts that agricultural education in most sub-Saharan countries is designed to supply the civil service with skilled manpower. Remuneration and career advancement opportunities in the public service are uncompetitive and limited (UNECA, 2003). Due to the requirement for science subjects to enter science based degree programmes, agriculture is in direct competition with programmes such as medicine, pharmacy, engineering, and business which are judged by the public as being more glamorous and career-promising. As a result, prospective students compare remuneration levels and career development opportunities with those in other competing programmes and they find agriculture to be restricted in terms of economic security and status (Thompson, 1993). This is worsened by the fact that due to frustration, agriculture graduates end up engaged in lucrative international positions or non-agricultural careers. This has scenario negatively impacts on prospective agricultural students, resulting in many of them shunning the agricultural profession (DraméYayé 2010).

1.2.2 Perceived Prestige and Status of the Agricultural Profession

DraméYayé et al (2011) avers that the prestige of any career is largely dependent on public opinions and attitudes. Prestige signifies the occupational and social status as well as financial and material returns associated with a given profession (DraméYayé 2011). Hoyle (2001) makes a distinction between occupational prestige and occupational status. He defines occupational prestige as “the public perception of the relative position of an occupation in a hierarchy of occupations” and occupational status as “the category to which knowledgeable groups of people (e.g. civil servants, politicians, social scientists, educationists” allocate a given occupation. Prestige therefore reflects the sum total of income, education, and working conditions. Owuamanam (1982) found that when given a list of 31 occupations and asked to rank the most prestigious ones; Nigerian students rated engineering first, followed by the academic profession and then medicine. Agriculture received a moderate prestige rating whilst dancing was rated the least. In most African countries agriculture is associated with manual labour, high risk, poor remuneration, and unpleasant working conditions (Carter, 2008; Rammolai, 2009). To make matters worse, the agricultural profession in many African countries does not have many role models. In Africa it is commonplace for parents (including agriculturalists and farmers) and school teachers to encourage children to study hard and to become medical doctors, chartered accountants, lawyers and other white collar jobs (DraméYayé et al., 2011). Thus agriculture careers are regarded as second rate professions.

1.2.3 Quality and Relevance of Programmes

Tracer studies of agricultural graduates performed in the Southern African Development Community (SADC) region from 2009 to 2011 draw attention to some shortcomings that affect the quality of agricultural programmes on offer (ANAFE, 2011). The studies revealed that employers found agriculture graduates to be deficient in technical and practical skills, resource management skills and writing skills. The quality of a programme is dependent on input, process and output factors shown in Figure 1.

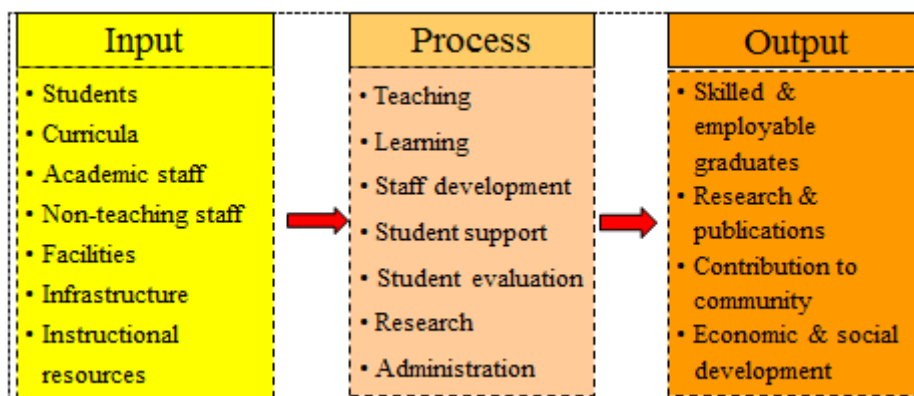


Figure 1. Factors that determine the quality of a degree programme

Adapted from: Shabani, Olebukola, & Oyewole (2014).

Figure 1 shows that the input category includes the quality of students, academic staff, non-teaching staff, curricula, facilities, infrastructure and instructional resources. The process category includes teaching and learning processes, staff development, student support, student evaluation, research and administration. Shabani et al. (2014) aver that when these inputs and processes relate to each other effectively, the resultant outputs include skilled and employable graduates, research and publications, contribution to community leading to economic and social development.

Most African countries lack the critical inputs to quality agricultural programmes namely: appropriately qualified, experienced and motivated academic and support staff; quality students, infrastructure, including lecture rooms, computer and science laboratories, offices, well-resourced libraries and competent leadership (Dramé-Yayé et al., 2011). The entry requirements for prospective students in agricultural programmes in sub-Saharan Africa including Zimbabwe are passing grades in at least two science subjects. Vandenbosch (2006) reported that due to the popularity of professions like medicine, pharmacy and engineering, most students who ultimately study agriculture are those who did not meet the selection criteria for these more prestigious programmes.

The World Bank (2008) reported that most agricultural degree curricula are outdated, inflexible, and lack relevance. In addition, teaching methods and instructional resources are inadequate. The ANAFE (2011) study found limited development of contextualized teaching and learning resources by academic staff in sub-Saharan Africa. The major source of teaching and learning materials was the Internet, supplemented with very few if any locally generated materials raising eyebrows on the relevance of the material to local situations. The lecture method was predominantly used together with limited assignments. In most countries in Africa, entrepreneurship courses are not included in the curricula resulting in universities churning out graduates who are unable to run their own businesses (Gyimah-Brempong & Ondiege, 2011). Beintema and Stads (2006) assert that since 1990, investments in agriculture

and agricultural education in Africa have declined drastically.

1.3 The Problem

Enrolments in agricultural programmes have been declining in many countries particularly in Africa. A similar trend is feared to be the case in Zimbabwe although it has not been substantiated by empirical research. If indeed the purported decline is true for Zimbabwe, it will not augur well for the future of agriculture. The reasons for the declining trend in enrolments are clearly stated in other countries. These include poor employment, career development opportunities and remuneration; perceived lack of prestige and status of the profession and quality and relevance of the programmes. However, documented information on the situation in Zimbabwe is not available. This study sought to provide the required information to bridge the gap in knowledge and to map out strategies to sustain quality human resource development in the critical field of agriculture.

1.4 Research Questions

The objective of this study was to determine the enrolment and graduation trends in agricultural degree programmes offered in Zimbabwe and to explore the factors that motivate students to pursue agricultural careers. Accordingly, the following two research questions were formulated.

- 1) What are the trends in student enrolments in agriculture-related programmes offered in Zimbabwe?
- 2) What are the factors that motivate students to pursue agricultural careers?

2. Methodology

The study included all the 15 registered universities in Zimbabwe and covered a span of 6 years (2009-2014). Documentary evidence was used to collect data on overall university student enrolments as well as enrolments in agriculture-related programmes. The documents used included the annual reports from universities and the enrolment figures from universities that are kept in the database of the Zimbabwe Council for Higher Education. The data was analysed in order to map out the trends in enrolment.

Focus group discussions were used to collect data from 250 students in universities studying agriculture-related programmes and 250 students in other science related programmes. The students studying agriculture provided information on what motivated them to pursue a career in agriculture whilst those in other science based programmes were asked to provide their opinion of careers in agriculture. The rationale for excluding non-science programmes was based on the entry requirements for science programmes inclusive of agriculture. Although students in non-science field have their own opinions about agriculture, it is not possible for them to enrol for agriculture programmes because of the different entry requirements.

Purposive sampling was used to select the students studying agriculture and those pursuing other science based programmes. The sample was representative of year of study (for undergraduates) and included both undergraduates and post graduates. According to

documents on enrolment statistics, the population of students studying agriculture-related programmes at Zimbabwean universities in December 2014 was 1669. A sample representing 15 percent of these students (250) each university was selected. Such a representation allowed the researcher to undertake analyses that can be generalised across universities. A similar number of students (250) were selected from science based programmes in order to generate a ‘balancing’ effect.

A focus group was defined by Onwuegbuzie, Dickinson, Leech, and Zoran (2009) as a facilitated discussion involving a group of participants performed in order to collect comprehensive data on a particular subject simultaneously. Krueger & Casey (2000) assert that focus groups are user friendly and create conducive environment for discussing perceptions, opinions, ideas, beliefs and suggestions. The focus group discussions were structured in such a way that quality of information could be collected whilst affording each participant the opportunity to be heard as described by Gillespie (2001). Each focus group ranged from 10 to 15 students and the discussion took between 30 and 45 minutes.

3. Results

Twelve out of the 15 registered universities were offering a wide variety of agriculture-related programmes. Table 1 shows the nomenclature of the programmes offered and the number of universities offering the programme. Table 2 shows the universities that offer agriculture-related programmes and the Faculties or Schools which offer the programmes.

Table 1. Agriculture-related programmes offered and the number of universities offering the programmes

	Degree Programme Nomenclature	No. of Universities offering Programme
1	Agribusiness Management	3
2	Agricultural Engineering	3
3	Agricultural Management	1
4	Agricultural Science	1
5	Agriculture Education & Extension	2
6	Agricultural Economics (& Development/Extension/Management)	6
7	Agriculture & Natural Resources	1
8	Animal Production and Technology	1
9	Animal (& Wildlife) Science (& Rangeland Management)	6
10	Biotechnology (& Microbiology)	3
11	Crop Science/Production/Protection	6
12	Crop Science & Technology	1
13	Dairy Science & Technology	1
14	Environmental Science & Agroforestry/Forestry	2
15	Environmental Science (& Technology)	4

16	Environmental Health	3
17	Food Science & Nutrition/Technology	3
18	Forest Resources & Wildlife Management	1
19	Geography & Environmental Science	1
20	Horticulture	2
21	Irrigation Engineering	2
22	Land Reclamation & Conservation/Land & Water Resources	2
23	Land Resources Assessment for Development Planning	1
24	Livestock/Wildlife (Resources) & Rangeland Management	3
25	Natural Resources Management (& Agriculture, Agronomy/Horticulture)	4
26	Post-Harvest Science & Technology	1
27	Safety, Health & Environmental Management	1
28	Soil Science	1
29	Water Resources & Water Engineering	1

Table 1 shows that the 12 universities offer more than 29 different programmes. The brackets and forward slashes show the different permutations under which even programmes that appear similar are packaged differently.

Table 2. Universities that offer agriculture-related programmes and the Faculties or Schools which offer the programmes

	University	Faculty/School
1	Africa University	Agriculture & Natural Resources
2	Bindura University of Science Education	Agriculture & Environmental Science
3	Chinhoyi University of Technology	Agricultural Sciences & Technology
4	Great Zimbabwe University	Agriculture & Natural Sciences
5	Harare Institute of Technology	Industrial Sciences & Technology
6	Lupane State University	Agricultural Sciences
7	Midlands State University	Natural Resources Management & Agriculture
8	National University of Science & Technology	Applied Sciences
9	Solusi University	Science & Technology
10	University of Zimbabwe	Agriculture
11	Women's University in Africa	Agriculture
12	Zimbabwe Open University	Agriculture

The three universities that are not reflected in Table 2 namely: Catholic University in Zimbabwe, Reformed Church in Zimbabwe and Zimbabwe Ezekiel Guti University were not

offering agriculture-related programmes during the study period.

3.1 Trends in Student Enrolments in Agriculture-Related Programmes Offered in Zimbabwe?

Figure 2 illustrates the enrolments trends in agriculture-related programmes from 2009 to 2014.

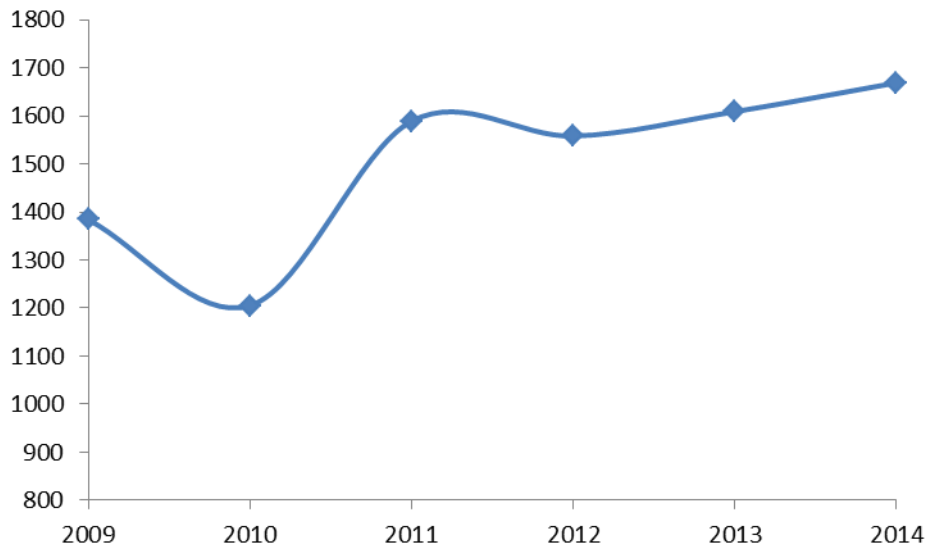


Figure 2. Enrolments trends in agriculture-related programmes (2009-2014)

Figure 2 shows that there was a dip in enrolments in 2010 and a slight upward trend from 2011 to 2014. Figure 3 shows the overall student enrolment trends from 2009 to 2014.

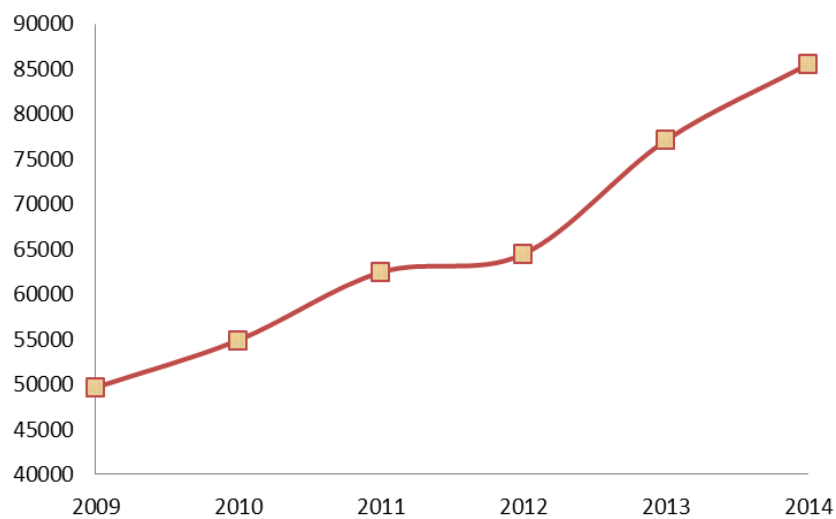


Figure 3. Overall enrolments trends in universities (2009-2014)

It can be observed from Figure 3 that there was an upward trend in student enrolments with almost exponential increase from 2012 to 2014. Figure 4 reflects the trends in the share of enrolments in agricultural programmes compared to overall enrolments in the 15 universities from 2009 to 2014.

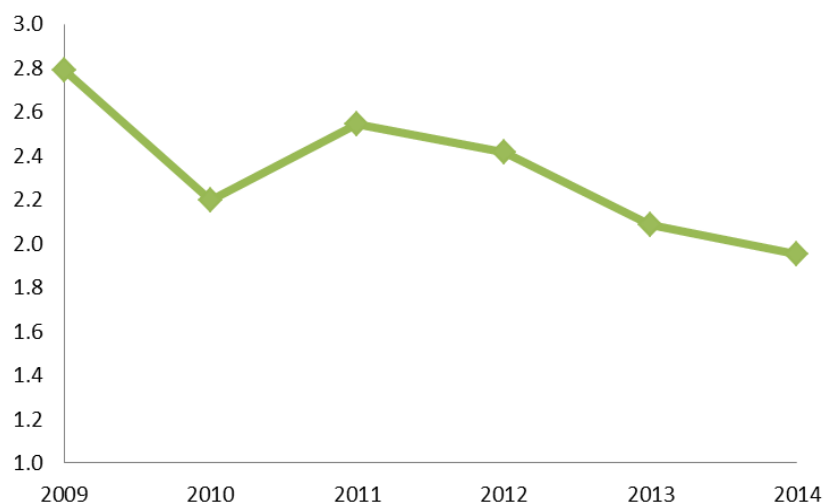


Figure 4: Trends in the share of enrolments in agricultural programmes compared to overall enrolments in universities (2009-2014)

Figure 4 shows that despite the increase in the number and variety of agriculture-related programmes, the share of enrolments in these programmes compared to overall enrolments shows a downward trend.

3.2 Factors that Motivate Students to Pursue Agricultural Careers?

Respondents argued that the major factors that demotivate students from studying agriculture include issues of poor employment prospects, the negative perceptions about agricultural jobs and the fact that whilst the other science based programmes offer better opportunities, remuneration and better conditions of service, the entry requirements into the programmes are similar.

3.2.1 Employment Prospects and Remuneration

Respondents submitted that careers in agriculture are characterised by intense physical labour, poor remuneration and are therefore inferior to white collar jobs. Agriculture is associated with rural and dull life away from civilization. This is made worse by the unkempt image portrayed by agricultural professionals. They do not seem capable of enjoying the delights of donning good clothes, owning beautiful and fast cars as well as the generally flamboyant life enjoyed by their colleagues in white collar jobs. As a result, agriculture is a neglected field and parents, society and industry put more emphasis in careers that they consider as attractive for example business, information and computing technology, engineering and medicine. This

agrees with the study by Jones and Larke (2001) found that students chose careers in other fields unrelated to agriculture because of the limited employment opportunities within fields of agriculture that suited their “ideal” career. Even though students acknowledged the diversity of programmes related to agriculture, they still indicated that “The poor investment in the agricultural sector made it difficult even for an agricultural or irrigation engineer to get remuneration packages comparable to their fellow engineers outside the agricultural profession. All I want is to be assured of a career that offers a steady and secure income.” Agriculture as a business is not taken seriously as exemplified by the fact that the loans and inputs given by banks and other financing institutions are often channelled to other non-agricultural projects where they are assured of getting quicker, more predictable and more lucrative returns.

3.2.2 Negative Perceptions about Agricultural Jobs

The morale of people working in the agricultural profession is low thereby discouraging prospective students from joining the field. Respondents mentioned that there were very few mentors and role models who have succeeded as agricultural professionals. “Most of the successful people with primary careers in agriculture abandon agriculture and eventually become famous in other professions such as administration, politics and banking.” Others said “At primary and secondary school, teachers used agricultural work as punishment for all serious offences committed by pupils. This form of punishment humiliates them as peers make a mockery of them. This aids in making people hate agriculture.”

At the family level agriculture is usually associated with failure for example, when a child refuses to attend school parents and guardians chide them and tell them that they better pull up their socks otherwise they will end up tilling the land. At university agricultural students are often frowned upon by their peers who will be pursuing programmes regarded as more prestigious. This reduces the determination to study agriculture and the will power to practice it after graduation.

3.2.3 Entry Requirements

Respondents contended that there are complex reasons for lack of interest in agricultural careers. For example, many mentioned a diminishing pool of students who study sciences at Ordinary and Advanced Level due to shortages of science and mathematics teachers, laboratory equipment as well as a high failure rate in science subjects. As a result, only a small share of secondary school graduates that go on to universities are eligible for entry into programmes that require science subjects as prerequisites. Others argued that in many cases admission of students into agriculture-related programmes is done as a fall-back option for students who fail to satisfy the minimum requirements set for their first and second choice programmes.

4. General Discussion

The decline in the share of enrolments in agriculture-related degree programmes was evident in this comprehensive study thus agreeing with findings by other researchers in African countries (Adebo & Sekumade, 2013; Beintema & Stads, 2011; Dramé-Yayé et al., 2011;

Khaled, 2008; Kruijssen, 2009) and elsewhere (Carter, 2008; Goecker et al., 2010; Jones & Larke, 2001; Kerin, 2012; Pratley & Leigh, 2008; Scott & Lavergne, 2004)

From the focus group discussions with students it was evident that careers in agriculture lack reputation due to lack of lucrative employment prospects as well as career progression. The primary motivation for one to pursue a degree programme is to acquire knowledge and skills required to secure employment in the corresponding profession (Okoh 2011). The results indicate that students have negative perceptions towards the agricultural career and thus opt for other more prestigious careers. These perceptions are well engrained in the society and they experience them at home, at school and even at university. A similar study by Outley (2008) identified career perceptions and prestige as obstacles to pursuing agricultural careers. Several researchers found that employment opportunities for agricultural graduates were limited to the civil service and a few private sector jobs (Temu et al., 2003; Vandenbosch, 2006) were remuneration is low (UNECA, 2003).

It was clear that issues of quality and relevance of programmes from the review of literature (ANAFE, 2011) and the assertion by The World Bank (2008) that most agricultural degree curricula offered in African universities are out-dated, inflexible, and lack relevance were not applicable to Zimbabwe. In fact each university in Zimbabwe is unique in the design and content of agricultural programmes as exemplified by the fact that more than 29 agricultural programmes were on offer and they are extremely diverse in nature. Gyimah-Brempong and Ondiege (2011) reported that the agricultural curricula in most countries in Africa lacked entrepreneurship courses resulting in universities churning out graduates who are unable to run their own businesses. This was not the case in Zimbabwean universities since most of the programmes are practical in nature and include entrepreneurship theory and practice.

What was unique in this study was that respondents attributed the decline in agriculture programme enrolments to the diminishing pool of students who study sciences at Ordinary and Advanced Level due to shortages of science and mathematics teachers, laboratory equipment as well as a high failure rate in science subjects. As a result, only a small share of secondary school graduates that go on to universities are eligible for entry into programmes that require science subjects as prerequisites.

5. Conclusion

Despite the importance of agriculture to Zimbabwe, the negative trends in enrolments in agriculture-related programmes will continue to worsen unless the negative perceptions and the limited high school science graduate base as well as the benefits of agriculture as a fulfilling career path are promoted. The study recommends a two-pronged approach involving government and universities. Government should put in place critical enabling factors in the agricultural value chain to increase motivation, profitability and success of agricultural enterprises. This will in turn improve the working conditions for agriculturalists. Government should also provide resources for research and endeavour to strengthen science education at primary and secondary school levels. Negative perceptions of agriculture by the public can be overcome through awareness campaigns by universities during career and open days.

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