Role of agricultural research on food security and rural development in Palestine

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Introduction

Increasing agricultural production and productivity and improving livelihoods of small-scale farmers’ are major goals of the Palestine National Authority. These goals are given high priority in the Agriculture Sector Strategy “A Shared Vision” 2001-2013. Despite the gradual decline of agricultural share in the GDP, its value increased from US$ 297 million in 2004 to US$ 346 million in 2011, while the share of agriculture in the GDP declined from 7.1% in 2004 to 5.5% in 2011. Moreover around 12% of the labor force employed in agriculture and 23% of the national export is coming from agriculture (Agriculture Sector Strategy 2014). Concerns over agricultural production, and specifically the future of food security, persuaded global donors to fund agricultural projects through the Food Security Initiative. The concerns have come at a time when the agricultural sector has been forced to adapt in response to increases in agricultural trade, expanded processing of food commodities, and greater requirements for producers to meet grades and standards. These changes in the agricultural economy, brought about by globalization, have created a range of new challenges for the sector in general, and smallholders in particular (IDB 2011). This concerns can be overcome by agricultural research. Agricultural research has undergone a number of paradigms shifts over time, which have had serious implications for the way agricultural research is conceived, designed, implemented, and evaluated, as well as how the results are disseminated and utilized to generate innovations (Anandajayasekeram 2011). Unfortunately, there is not yet any well-designed agenda for investing in research and technology in Asian countries. The entire research sector in still suffers from various political and economic issues such as underinvestment, poor infrastructure, and inadequate flow of qualified researchers and remain greatly dependent on foreign innovation and funds. The number of total agricultural researchers decreased by around 6 percent (S. Gert-Jan and R. Michael 2012). Support by international research partners such as FAO (food and agriculture organization), IFAD (international fund for agricultural development), CGIAR (consultative group on international agricultural research), and IFPRI (international food policy research institute) is helping to minimize the lack of regional research facilities and contributing to the provision of policy advices, research funds, and leveraging agriculture and rural development programs (Bishwajit 2014). This paper aims at looking into the key factors influence the role of agricultural research on food security and rural development in Palestine.

Methodology
Institutional questionnaire

The questionnaire was developed based on ASTI requirements. Question about number and type of researchers, infrastructure, research fund, incentives, research output and research restrictions. The data was filled eight agriculture colleges and research centers.

Researcher questionnaire

Sampling and Data collection
The current study was carried out through plant production and protection society in Palestine, in March 2019 to July 2019 to evaluate the perspective of the researcher in the agriculture colleges and research centers about the role of agricultural research on food security and rural development in Palestine and to examine the factors influencing access to the information. Data was collected from all agriculture colleges and research centers which cover more than 60% of the total researchers. In total 83 researchers were interviewed through questionnaire. The questionnaire was developed and pretested to remove all ambiguities before finalizing for the actual data collection to ensure the high-quality data for the analysis.

The questions in the questionnaire in the first part was about information of the researchers, the relation with extension, farmers, infrastructure, gender, type of researches, publication, research restrictions. The second part was a five-point likert scale as follows: very low (1), low (2), medium (3), high (4), and very high (5). This part constructed by four axes: production and risk, social role, local and international coordination, conservation of genetic and natural resources and farmer resilience.

Methods of Analysis

Descriptive statistics were used to present the characteristics of the searchers. Weighted average for the research restrictions was used. One-way Analysis of Variance test (ANOVA) and student’s t-test were used to examine significant differences to the axis. Finally, multiple regression was employed to examine the factors influencing research in Palestine.

Results and Discussion

Institutional questionnaire
The ASTI data for show that there are wide differences among countries in the proportion of expenditures that go into 1) Salaries, 2) Operating Costs, and 3) Capital Investment. No formula that dictates what percentage should go into each category; that is a function of many country-specific factors: size, agro-ecological diversity, research mandates, and composition of staffing. However, when salaries go above 75% of total expenditure there appear stresses in operating budgets or degradation due to lack of reinvestment in equipment (Anandajayasekeram 2011).
Data show, almost 50% of the research institutes are NGOs, 59% of researchers are master degree, 80% of the fund is came from local returns and projects, 42% of researcher’s specialization is natural resource. 49% of research restrictions is lack of fund and 55% of research partners is local partners (figure 1-6).

Figure 1: percentage of type of the institute.

Figure 2: percentage of researchers degree.
Figure 3: percentage of research fund.

Figure 4: percentage of researchers fields.
Influence of the type of research institute on research priority

Non-significant variation was found for the relation of the type of research institute with research restrictions. This mean that all types agreed on the same way.

**Table 1: Analysis of variance for the relation of the type of research institute with research restrictions.**
<table>
<thead>
<tr>
<th>Item</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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<tbody>
<tr>
<td>Salaries</td>
<td>0.452</td>
<td>1</td>
<td>0.452</td>
<td>0.053</td>
<td>0.819</td>
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<tr>
<td>Fund</td>
<td>0.111</td>
<td>1</td>
<td>0.111</td>
<td>0.013</td>
<td>0.91</td>
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<tr>
<td>Infrastructure</td>
<td>0.005</td>
<td>1</td>
<td>0.005</td>
<td>0.001</td>
<td>0.978</td>
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<tr>
<td>Incentives</td>
<td>0.175</td>
<td>1</td>
<td>0.175</td>
<td>0.017</td>
<td>0.896</td>
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<td>Administrative problems</td>
<td>0.545</td>
<td>1</td>
<td>0.545</td>
<td>0.063</td>
<td>0.802</td>
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<tr>
<td>Occupation</td>
<td>0.001</td>
<td>1</td>
<td>0.001</td>
<td>0</td>
<td>0.985</td>
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<tr>
<td>Teaching load</td>
<td>7.518</td>
<td>1</td>
<td>7.518</td>
<td>0.904</td>
<td>0.344</td>
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<tr>
<td>Berocracy</td>
<td>0.883</td>
<td>1</td>
<td>0.883</td>
<td>0.135</td>
<td>0.714</td>
</tr>
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References