

Green DySAM-based Modelling and Policy Support Simulations (Organic Agricultural Exports and Job Opportunities in Malaysia)

An output of the Green Jobs Malaysia Project and a brief prepared for the International Workshop on Employment Implications of Environment and Climate Change-Related Measures and Policies (Crafting Malaysia's Roadmap to a Green(er) Economy, 5-6 May 2015.¹

Introduction

This brief presents the preliminary findings from simulations vis-à-vis increased organic agriculture exports and their job creation impact in Malaysia from 2005-2011 based on DySAM. It offers the empirical evidence for the answers to the following questions:

- (1) Could the increase in organic (green) agricultural exports create enough jobs to absorb the job losses resulting from a decrease in non-organic (brown) agricultural exports?
- (2) To what extent should green agricultural export be promoted to minimize the adverse impact resulting from a reduction in brown agricultural exports?
- (3) What is the impact of a change in the composition of green/brown agricultural exports on gender employment and the type of occupations?

An Overview of Organic Exports in Malaysia

The share of food crops in Malaysia Gross Domestic Product (GDP) has shown a decreasing trend from 0.21% to 0.13% over the period 2005 to 2011. However, in 2009, the share surged to a peak (0.28%) with relative contributions of 70% from organic exports and 30% from non-organic exports. It was reported that the EU absorbed 71% of the farm exports of developing countries worth approximately €59bn in 2008-2010. Furthermore, the 2008-09 food crises and the reform of EU's Common Agricultural Policy (CAP) has led to the increase of organic agricultural products to the EU (becoming the major market for organic agriculture) and the rest of the world. In recent years, meeting the international standard of the EU has become the major challenge for Malaysia's organic exports together with the domestic supply constrains factors such as:

- Having less than 0.1% of land devoted to organic agriculture;
- Meeting the full criteria of the Malaysian Organic Scheme (SOM) due to absence of an independent audit mechanism for SOM;
- Achieving the high international standard requirements (especially the EU standards);
- Limited incentives in term of land and loans;
- Labour shortages;
- Little difference in net farm income between organic and non-organic farming; *and*
- Unwillingness to invest extra funds to meet compliance with SOM standards.

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Analysis of Simulation Results

1) Scenario Set-up

Scenario 1: High global demand for organic agricultural products would prompt Malaysia to take advantage by fostering organic agricultural exports. At the initial stage, it is assumed that there is an increase of 5% in organic agricultural exports while maintaining the same level of non-organic agricultural exports.

Scenario 2: the assumption is varied to an increase of 10% of organic agricultural exports along with a decrease of 5% of non-organic agricultural exports. Farmers aim for land optimisation, and improvements in animal rearing and planting interactions.

Scenario 3: Serves as a sensitivity analysis scenario where uncertainty arises (from trade regulations and procedures) and causes the increase to be restricted to 5% of organic agricultural exports along with a decrease of 5% of non-organic agricultural exports.

2) Results

The overall results from the simulation show that the **number of job created by the increase in organic agricultural exports outweigh the job losses** resulting from the corresponding decrease in non-organic agricultural exports.

The results suggest that the losses from a 5% decrease in the exports of non-organic agricultural products could be more than compensated by a 10% increase in organic agricultural exports. Under this situation, the results also show that most of the other non-agriculture economic sectors would experience some induced job creation albeit with only small impacts. **The results appear to indicate that organic agriculture production could be quite labour-intensive, implying the need for ensuring that the right skill sets of the workforce for fostering organic agriculture would need particular attention. The export promotion of the organic agricultural sector create could also create additional jobs in related sectors such as green transport and communications, green food processing & preservation of seafood and other green chemicals & chemicals products sectors.**

By gender employment creation for males in the skilled agricultural and fishery sub-sector topped the list followed by jobs for plant and machine-operators and assemblers. For females, skilled agricultural and fishery sub-sectors also topped the list followed by jobs for clerical workers. It is notable that only few jobs are being created for professionals. This reflect the initial low creation of professional level jobs in the green agriculture sector (e.g., in the absence of an independent audit of SOM, jobs for professional assessors and researchers are not generated.).

Table 1: Number of jobs created for organic and non-organic agricultural sector from 2005 to 2011

Year	2005	2006	2007	2008	2009	2010	2011
Scenario 1							
Organic agricultural	327	235	158	207	1041	225	189
Scenario 2							
Organic agricultural	624	449	300	393	2009	428	361
Non-organic agricultural	-346	-194	-168	-107	-77	-96	-70
Scenario 3							
Organic agricultural	296	213	142	186	968	203	171
Non-organic agricultural	-358	-201	-173	-111	-89	-100	-73

Conclusion

Although the agro industrial “Green Revolution” model would offer greater job opportunities, the lack of appropriate skilled workers especially for promoting the efficiency of post-harvest handling and processing activities for meeting the required exports international standards is crucial for sustained expansion. Moreover, there is also a need to improve organic agricultural practices and put in place enhanced policies to promote organic export agriculture activities.

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