International Trade & Finance

Review of Competitive Advantage Measurements: The Case of Agricultural Firms

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INTRODUCTION AND RESEARCH PROBLEM

Competitive advantage is an important factor in retaining the long-term prosperity of a nation (Porter, 1990). At the level of individual firms, competitiveness is the ability of a firm to survive and prosper. Creating and sustaining competitive advantage hence requires firms to always stay ahead of competition (Hoefter, 2001).

Competitiveness of global agribusiness has raised concerns among economists and policy makers about the need for competitive advantage in the agribusiness sector of developing countries (Dziwornu, 2014) such as Sri Lanka. A better understanding of the measurements of competitive advantage in agriculture products hence provides the necessary framework to enhance competitiveness in both domestic and global markets.

The agricultural sector plays an important role in the development of any nation's economy (Nwachukwu et al., 2014) while contributing significantly to its exports, employment opportunities, and expansion of its production base of any nation. In view of the Sri Lankan economic structure, as at independence in 1948 agricultural product exports - tea, rubber and coconut - contributed more than 92 percent of total export earnings. Currently, 24.8 percent of total export earnings derive from agricultural sector exports. The contribution of agricultural sector towards country's gross domestic product (GDP)

is 12.1 percent. Further, it accounts for 35.6 percent of employment (Central Bank of Sri Lanka, 2014).

With that much of contribution, it is required pay close attention to competitive advantage in the agricultural sector. Towards this end, it is necessary to adopt a valid and reliable measure of competitive advantage (Sigalas et al., 2013). Hence, this study attempts to critically review the measurement criteria of competitive advantage and to develop an operational definition of competitive advantage and a measure at agricultural firm-level.

LITERATURE REVIEW

Competitive Advantage Definitions

Prior definitions of competitive advantage most commonly focused on indicators such as profitability, productivity, and market share (Kennedy et al., 1997). Competitive advantage is regarded as part of the foundation for high level performance (Ismail et al., 2010). A firm's ability to improve the quality of its products, reduce costs, or enlarge market share or profit is known as competitive advantage (Grupe and Rose, 2010). Porter (1990) defines competitive advantage at firm-level as productivity growth that is reflected in either lower costs or differentiated products that charge premium prices. Smith (2013) indicates that competitive advantage is the extent to which firms in a specific region can compete with firms elsewhere. Newbert (2008) defines competitive advantage as the degree to which a firm explores its opportunities, neutralizes threats, and reduces cost. However, Sigalas et al. (2013) argue that exploring opportunities, neutralizing treats and reducing costs represent the degree of *competitiveness* of a firm.

From the above definitions, competitive advantage appears to be relative. As concluded by Esen and Uyar (2012), competitive advantage is a situation defined and measured as against a

competitor. As such, there is no common definition of the term competitive advantage, either in theory or in practice (Grupe and Rose, 2010). Piatkowski (2012); Sigalas and Economou, 2013; and Sigalas et al. (2013) highlight that the term competitive advantage does not have a uniform definition in national or international literature. The theory of competitiveness is constantly developing.

After having reviewed the constructed definitions, the study composes its operational definition of competitive advantage. This definition of competitive advantage can be expressed as a specific way of using resources available and other precise activities to keep firms separate from their competitors as well as to keep them active and growing. From the given definition, competitive advantage consists of three characteristics: (Meutia and Ismail, 2012) namely; survival, difficulty to imitate, and difficulty in identification. However, this definition should be viewed as a generic rather than a specific guide to future studies. The lack of a uniform theoretical and operational definition of competitive advantage causes an unclear operationalization of the concept.

Measurements of Competitive Advantage

In concert with the concept of competitive advantage, there is a rich foundation for measurements of competitive advantage in relation to different sectors or industries (Kiel et al., 2014). Competitive advantage can be analyzed by using past performance indicators or potential competitiveness indicators, for example: market share, productivity (Farole et al., 2010, Kortelainen and Karkkainen, 2011); product cost, gross margin, returns on assets, net income, unit cost ratio (Toit et al., 2010); total factor productivity (Yee et al., 2004); Revealed Comparative Advantage (RCA) (Balassa, 1977); Domestic Resource Cost (DRC) and Social Cost Benefit Ratio (SCB) analysis (Nivievskyl and von Cramon, 2008); financial performance (profit, sales growth, returns of investment), non-financial performance (customer satisfaction, employees growth (Rahman and Ramli,

2014); and benchmarking, balanced scorecard (Kozena and Chladek, 2012).

In order to measure competitiveness at the firm level, the assessment should include determinants from firm level factors (Porter, 1990). Productivity, market share, and profitability are traditional economic indicators to measure competitive advantage. In fact, studies by Delgado et al. (2012), Farole et al. (2010), Frohberg and Hartmann (1997), Kortelainen and Karkkainen (2011), Rahman and Ramli (2014), Sagheer et al. (2009), and Voulgaris et al. (2013) have concluded that in order to measure a firm's competitive position, market share is an important indicator. Delgado et al. (2012), Farole et al. (2010), Kortelainen and Karkkainen (2011), Kozena and Chladek (2012), Nivievskyl and von Cramon (2008), Notta and Vlachvei (2011), Petrovic et al. (2008), Voulgaris et al. (2013), Yee et al. (2004) have utilized productivity as a measurement indicator of competitive advantage. Similarly, the studies of Dziwornu (2014), Grant (2001), Notta and Vlachvei (2011), Omerzel and Gulev (2011) use profitability as a measurement indicator.

DISCUSSION

Measurement of competitive advantage of the agriculture sector is concerned with relative market share, productivity, profitability, and RCA indices. The RCA index is widely used to measure competitive advantage in agricultural sector (Bojnec, 2003; Gaytán and Benita, 2014; Ferto and Hubbard, 2003; Kumar and Rai, 2007; Thamiem et al., 2011; Zhemoyda and Gerasymenko, 2009). However, Latruffe (2010) claims that the RCA measures competitive advantage at aggregate level rather than firm level. In order to measure competitiveness at the firm level, an assessment should include determinants from the firm level factors.

The study of Notta and Vlachvei (2011), use market share, profitability, and productivity as measurement indicators of competitive advantage for the food and beverage manufacturing industry. Kozena and Chladek (2012) measure competitive advantage of agricultural sector utilising productivity as a ratio indicator. Woodford et al. (2003) use productivity to assess competitiveness of the dairy farming sector. In addition, Toit et al. (2010) employ profitability to measure competitiveness of commercial milk producers in South Africa, while Yee et al. (2004) utilize total factor productivity of agricultural firms in South-eastern States.

However, there are certain limitations to productivity and profitability measures: among them the lack of availability and reliability of data, and failure to measure quality (Voulgaris et al., 2013). Any measurement indicator of a firm's competitiveness should take into account a long- rather than short-term orientation. The concept of profitability may be ambiguous because it requires the definition of a period of time over which the measurements are carried out (Depperu and Cerrato, 2005). Productivity in the agricultural sector can be defined in different terms, namely land productivity, labour productivity and capital productivity. There is no universally accepted criterion: Notta and Vlachvei (2011) use labour productivity, whilst Kozena and Chladek (2012) employ land, material and labour productivity.

In addition, Fischer and Schornberg (2007) claim that both profitability and productivity are taken as determinants of competitive advantage. Acknowledging that claim, Wijnands et al. (2008) insist that labour productivity is a determinant of competitive advantage and Woodford et al. (2003) find that productivity is a determinant of competitive advantage. Hence, Latruffe (2010) concludes that competitive advantage could be measured through firm level concepts such as, price/cost, net income, time, flexibility, sales growth, and employee growth.

Similar to the limitations of productivity and profitability dimensions, lack of availability and reliability of financial data on total market sales keep market share away from the dimension of competitive advantage measurement. While competitive advantage is often observed through changes in market share, a firm or country may hide its competitive weakness by manipulating price or exchange rate (Farole et al., 2010). This limitation becomes more severe in the agricultural sector because many farms operating in the sector are family-owned and are mostly small and medium scale enterprises (SMEs). As such, although market share is one indicator that a firm can use to measure its competitive advantage (Fischer and Schornberg, 2007), it may be problematic when analyzing aggregates.

In order to measure small scale firms' competitive advantage, previous studies used non-financial performance indicators than financial performance indicators. The main reasons behind the selection of non-financial performance indicators are that small-scale firms lack human resources to establish performance measurement and there is no appropriate culture of collecting data for the decision making process (Heilbrunn et al., 2011). Therefore, subjective measurement indicators are frequently used to measure SMEs' performance (Sidik, 2012 in the form of sales growth and employee growth.

Wilson and Thompson (2003) to conclude that indicators which are used to measure competitive advantage are uncertain due to difficulties in defining it. Therefore, it is a complicated task to reach consensus on methods of measuring competitive advantage in the agricultural sector. A unique measure of competitive advantage in agriculture sector hence provides supplementary value for enhancing competitive advantage.

CONCLUDING REMARKS

Competitive advantage is adopted as a management or economics idea that is superior to the traditional economic indicators such as profitability, productivity, or market share (Voulgaris et al., 2013). However, traditional indicators can only reflect the historic quantitative facts. Depperu and Cerrato (2005) argue that a single explanatory factor of firm performance is not an adequate indicator of competitiveness. Therefore, competitive advantage is considered a multidimensional construct, including a number of indicators jointly adapted to measure the concept.

Considering prior studies' proposed measurements of competitive advantage and their limitations, the studies of Awwad (2011), Sukati et al. (2011), and Thatte (2007), operationalize the competitive advantage construct using price/cost, delivery dependability, and time-to-market dimensions. In order to overcome the limitations of data availability and reliability when measuring market share and profitability in assessing the competitive advantage of the agricultural sector, subjective measurement indicators like sales growth and employee growth need to be utilized.

After developing the inclusive operational definition, it is required to construct valid and reliable measurements of competitive advantage of agricultural sector firms. Thus, based on levels of measurement classified as Awwad (2011), Sidik (2012), Sukati et al. (2011), and Thatte (2007), the variable will be firm competitive advantage. The items included in five dimensions of the competitive advantage will number fifteen, and be derived from their operational definitions. The values of the items depend on whether the items are measured through scale or ratio (Sigalas et al., 2013). Firm competitive advantage is an unobservable construct (Sukati et al., 2011) and hence, measurement will be carried out by a latent variable (Sigalas et al., 2013). The values of the items will be based on scale and the

selected scale is the five-point Likert scale. The measurement level of firm competitive advantage is shown in Figure 01 (Annexure 01).

The proposed measure of competitive advantage of an agricultural sector firm needs empirical assessment with respect to the respondents who represent the agricultural sector. The assessments of content validity, convergent validity, discriminant validity, predictive validity, concurrent validity, reliability, inter-rater reliability, and test-retest reliability need to be carried out in order to develop a reliable and valid measure of competitive advantage. In so doing, the scholarly community will have an empirically tested measure of competitive advantage. Hence, the newly developed measure of competitive advantage could be used for valid measurements in future empirical studies, especially in agribusiness sector. Further, review of comprehensive operational definitions for competitive advantage could enhance practitioners' attentiveness to establish competitive advantage of their firms' physical and human resources, capabilities and market.

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ANNEXURE

Figure 1: The Measurement Level of Competitive Advantage of Firm

Variable	Dimensions	Items
Competitive Advantage	Price	Offer competitive price
		Price lower than competitors
		Offer at low price
	Delivery Dependability	Deliver orders on time
		Provide dependable delivery
		Deliver products needed
	Time to Market	First in the market
		Lower time-to-market
		Delivering product quickly
	Sales Growth	Able to increase the number of product sold
		Able to sell new customers
		High sales growth relative to competitors
	Employee Growth	Able to increase part-time employees
		Able to increase full-time employees
		High employment growth relative to competitors