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TRENDS IN SEASONALITY OF NATURAL RUBBER PRODUCTION IN MAJOR PRODUCING COUNTRIES: A DISAGGREGATE LEVEL ANALYSIS

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This paper examines the seasonality in the production of natural rubber (NR) and whether it has changed in the major producing countries like Thailand, Indonesia, Malaysia and India in the context of fall in the production and productivity of NR. Using the monthly data on production of NR and the technique of change-point analysis, the trends in seasonality at aggregate level (over period) and disaggregate level (within months) was examined for the 23 years period from 1991 to 2013. At aggregate level,seasonality in NR production remained the same in these countries over the period. At disaggregate level also the pattern remained the same in Thailand and Malaysia when it displayed significant changes in India and Indonesia since 1998. Changes in production at disaggregate level are indicative of impending changes in the seasonality of NR production in India and Indonesia. Hence, it is imperative to initiate a multidisciplinary investigation to explore the underlying factors for ensuring the sustainability of commercial cultivation of NR in these countries.

Key words: Change-point analysis, Climate change, Natural rubber, Production, Seasonality

INTRODUCTION

To a large extent, farm management decisions, prices of agricultural commodities and public policy on market interventions are dependent on seasonality in the production of crops (Lele, 1971; Tomek and Robinson, 1981; Goetz and Weber, 1986; Gilbert, 2006). However, compared to annual crops, seasonality in production assumes critical importance for perennial crops like natural rubber (NR) due to its long gestation period and a life cycle of more than 25 years. In the recent past, the pivotal role of weather and climate change effects on production and productivity of agricultural commodities across the countries has attracted wider attention (Rosenzweig and Parry,1994; Olesen and Bindi, 2002; Parry *et al*., 2004; IPCC, 2007; Mark *et al*, 2008; Teixeira *et al*., 2013). Rosegrant *et al.* (2010) highlighted some of the direct impacts of climate change on agricultural system as: (a) seasonal changes in rainfall and temperature which could impact the agro-climatic conditions, altering growing seasons, planting and harvesting calendars, water availability, pest, weed and disease populations; (b) alteration in evapotranspiration, photosynthesis and biomass production; and (c) alteration in land suitability for agricultural production.

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