Hochschule für
Wirtschaft und Recht Berlin
Berlin School of Economics and Law

Institute for International Political Economy Berlin

South Asian Free Trade Area and Food Trade: Implications for Regional Food Security

Authors: Megan Ward, Hansjörg Herr, Jennifer Pédussel Wu

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Megan Ward
Australian Communications Consumer Action Network
megan.ehw@gmail.com

Hansjörg Herr
HWR Berlin
Hansjörg.herr@hwr-berlin.de

Jennifer Pédussel Wu[1]
HWR Berlin
Jennifer.pedussel-wu@hwr-berlin.de

Abstract

This paper explores the impact of the South Asian Free Trade Area (SAFTA) agreement on food security by using a gravity model to examine the regional changes in trade in agricultural products. This is followed by a discussion of how this might affect the four dimensions of food security, availability, access, stability and utility. While coordination between SAFTA members has provided some positive food security attainment, institutional uncertainty and conflicts have prevented the full potential benefits from being reached.

Key words: International Trade, Food Security, South Asia Free Trade Area, Development, Agriculture.

JEL Codes: F02, F1, F15, O13, Q18

[1] Corresponding author. The authors thank Petra Dünhaupt for helpful comments.

Abbreviations

AFTA – ASEAN Free Trade Agreement

AMU – Arab Maghreb Union

APEC – Asia-Pacific Economic Cooperation

ASEAN – Association of Southeast Asian Nations

CACM – Central America Common Market

CENSAD – Community of Sahel-Saharan States

COMESA – Common Market for Eastern and Southern Africa

EAC – East African Community

ECCAS – Economic Community of Central African States

ECOWAS – Economic Community of West African States

EU – European Union

IGAD – Intergovernmental Authority on Development

LAIA – Latin America Integration Association

MERCOSUR – Mercado Común del Sur (Southern Common Market)

NAFTA – North American Free Trade Agreement

PTA – Preferential Trade Agreements

SA – South Asia

SAARC – South Asian Association for Regional Cooperation

SADC – Southern African Development Community

SAFTA – South Asia Free Trade Area

SAPTA – South Asia Preferential Trade Area

1.0 Introduction

In 1996, the World Food Summit was held in response to the growing concern of widespread undernutrition and hunger, where the target to halve the number of undernourished people by 2015 was decided (FAO, 1996). Additionally, one of the Millennium Development Goals was to half the proportion of undernourished people by 2015 (United Nations, 2019). South Asia[2] has not managed to achieve either of these targets; it continues to be the sub region with the biggest problem with hunger in the world (FAO, 2015). Furthermore, South Asia is one of the regions that is highly susceptible to climate change (Mukherji, Agricultural trade liberalisation for food security in South Asia, 2014); coupled with the fact that the population is continuously growing in the region, more must be done to combat hunger in South Asia to prevent the situation from worsening. Good nutrition, through enhancing mental and physical development, improves productivity and is fundamental to sustainable development (Hawkes, 2015). Not only does food security allow for economic growth but it also plays a role in political stability. This was highlighted by the food price crisis and subsequent food riots in 2007 and 2008 (Jones et al., 2013). Above all, the right to food is a human right, something which has intrinsic value beyond economic and political importance.

Since the 2008 food price spikes, there has been a renewed interest in the effects of trade on food security (Diaz- Bonilla, 2015). Trade policy is becoming more prominent in the international development literature as the United Nations regards trade policy, particularly trade liberalisation, as an instrument for growth (Hawkes, 2015). In recent decades, regional trade agreements (RTAs) have proliferated compared to multilateral agreements; preferential trade agreements have increased from 50 in 1990, to 280 in 2015 (Ruta, 2017). The South Asian Free Trade Area (SAFTA) is an agreement between Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka. The agreement was signed in 2004 and came into force by 2006. Most studies focusing on RTAs look at the relationship with trade and welfare but do not explicitly analyse the links with food security. This paper seeks to answer two questions, 1) what is the impact of SAFTA on trade in agro-food products within the region and 2) what are the resulting implications on regional food security?

[2] The South Asia region consists of Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka.

Despite South Asia (SA) making up 23% of the world's population, it produces less than 3% of GDP worldwide, and contains 36% of the globes' undernourished population (Chand, 2012). In all South Asian countries, the share of agriculture in employment is larger than its share in output (Chand, 2012). Latest figures from the World Factbook (2020) show that agriculture contributes in India 14.4% to GDP, but 47% to employment. Figures for Pakistan are GDP contribution 24%, employment contribution 42.3% and for Bangladesh GDP contribution 14.2% and employment contribution 42.7%.[3] As agriculture is the largest employer in the region, it is expected that the impact of SAFTA on the agricultural sector will have an effect on the general level of food security in the region. However, there may also be big effects on the volume and structure of employment in the agricultural sector.

This paper is separated into two parts, the first half aims to answer the question, what impact has SAFTA had on trade in agro-food products within the region? This is answered by first describing how the agreement has been implemented in section two. In section three, the existing literature on RTAs and trade in agro-food products will be reviewed. Section four covers the empirical details of the study; a description of the model and data will be provided, followed by the results. The second part of the paper then discusses what implications the RTA has had on food security in the region. This is examined in section five by considering how each aspect of food security, availability, accessibility, stability and utility, may have been affected by the RTA. The final section concludes with policy recommendations and suggestions for future research are given.

This paper's main findings are that trade in meat and meat preparations became more regionalised following the SAFTA agreement, which may have contributed to the increased supply of protein. The trade in cereals became less regionalised, which has had negative consequences in regard to food security. The high level of protection cereals received within the agreement has not encouraged specialisation and investment. As a result, supply has been unable to keep up with growing demand, pushing prices of cereals up. This has negatively influenced food security in the region. This paper calls for more cooperation amongst the SAFTA countries if the Sustainable Development Goals are not to be missed. Yet, there is also recognition of the issues faced from liberalising trade which should not be understated.

[3] GDP contribution (employment contribution) of industry in India is 23% (22%) and for services 61.5% (31%). For Pakistan the numbers are for industry 19.1% (22.6%) and for services 56.6% (35.1%) and for Bangladesh for industry 29.2% (20.5%) and services 56.6% (36.9%) (World Factbook 2020). See also Rahman & Iqbal (2012).

2.0 The South Asian Free Trade Area

Regional economic cooperation in South Asia began in 1985 with the South Asian Association for Regional Cooperation (SAARC), involving India, Pakistan, Bangladesh, Nepal, Sri Lanka, Bhutan and the Maldives (Chand, 2012). Following this, a regional trading bloc was founded in 1993 called the SAARC preferential trading area (SAPTA) (ibid.). SAPTA was operational by 1995 with trade preferences given on a product-by-product basis (Rodriguez-Delgado, 2007). In 2004, the SAARC countries and Afghanistan signed the South Asian Free Trade Area (SAFTA) agreement; it came into force in 2006.

SAFTA uses a negative list approach; this means that all goods' tariffs were reduced unless stated on a sensitive list negotiated by the members (SAARC, 2004). The sensitive list is reviewed, with the aim of reducing the number of items, every four years or earlier depending on the SAFTA Ministerial Council (ibid). According to Weerakoon (2010) this obligation is vague as there is no binding provision for the list to be reduced. As shown in Table 1, a high proportion of what is imported and exported from the SAFTA countries remains protected by the sensitive lists. Since 2010, the proportion of trade protected by the sensitive list has decreased but continues to remain high (compare Table 2).

Table 1 Trade restrictions under South Asia Free Trade Area (SAFTA) 2010

	Value of imports from SAFTA subject to sensitive list (%)	**Value of exports to SAFTA subject to sensitive list (%)**
Bangladesh	65.0	22.0
India	38.4	56.6
Maldives	74.5	57.6
Nepal	64.0	46.4
Pakistan	17.2	34.0
Sri Lanka	51.7	47.0

Source: Weerakoon (2010)

Table 2 Trade restrictions under South Asia Free Trade Area (SAFTA) 2015

	Value of imports from SAFTA subject to sensitive list (%)	Value of exports to SAFTA subject to sensitive list (%)
Afghanistan	-	14.7
Bangladesh	45.6	2.9
Bhutan	11.6	5.6
India	6.2	39.1
Maldives	15.5	48.1
Nepal	36.1	0
Pakistan	20.2	38.8
Sri Lanka	44	23.2

Source: Kathuria (2018)

Table 3 gives the proportion of items on the sensitive lists that fall under the categories: animal products, vegetable products, oils, prepared food and beverages. Cereals feature on nearly all countries sensitive list to varying extents. For India, Sri Lanka and Afghanistan cereals are particularly protected by the list.

Table 3 Proportion of Phase 2 sensitive list items which are food and drink (%)

	Proportion of sensitive list tariff lines which are food and drink (%)
Afghanistan	44
Bangladesh	12
Bhutan	69
India for NLDCs	22
Maldives	28
Nepal	11
Pakistan	6
Sri Lanka for NLDCs	48

Source: Government of Pakistan Ministry of Commerce (n.d), authors' calculations.

3.0 Review of Empirical Literature

The impact of an RTA on trade can be separated into two effects; trade creation, where trade increases due to the lowering of trade barriers, and trade diversion, where low cost imports from the rest of the world are replaced by high cost imports from member countries (Cabalu and Alfonso, 2007). Generally, there are three methods used to analyse the impacts of RTAs, the computable general equilibrium (CGE) approach, descriptive studies, and econometric approaches. An example of a descriptive study comes from Cabalu and Alfonso (2007) who use a shift and share analysis to look at the changing patterns and values of commodity groups among AFTA countries and the rest of the world. The descriptive tool compares the level of trade that member countries have with each other and the rest of the world, before and after the formation of AFTA. It shows that ASEAN 6 created trade between AFTA members, instead of diverting it from the rest of the world (ibid.). As there are multitudes of factors that can alter trade, it is difficult to isolate the cause and effect of trade agreements with descriptive analysis. CGE models also have their disadvantages, as Cabalu and Alfonso (2007) point out, CGE models are sensitive to the data, assumptions and parameters used. They also take a prospective, not retrospective approach with outdated policy information, making the results questionable (Jayasinghe & Sarker, Effects of regional trade agreements on trade in agri-food products: Evidence from gravity modelling using disaggregated data, 2007a). Because of these issues with descriptive and CGE approaches, this paper will use the gravity model approach. Furthermore, as gravity models are the most commonly used approach in the literature, it will allow for a comparison of results with the existing research.

Frankel and Wei (1995), Finger et al. (1998), Baier and Bergstrand (2007) are amongst the many studies that examine the effects of RTAs on trade using the gravity model. However, there are fewer econometric studies that utilise the gravity model to assess the impact of RTAs on agricultural or food products. Grant and Lambert (2005) study the effects of trade agreements on agricultural trade, examining the impact of 8 RTAs on 9 specific agricultural commodities. A pooled cross-sectional time series was used 1985-2002 where they removed all non-trading countries, those with zero values. Country specific fixed effects and time dummies are included to pick up country specific factors not included in the model, together with other factors which might influence world agricultural trade. The general findings are that RTAs are an effective way to promote multilateral free trade as they are trade creating. For NAFTA, the expansion of the EU to 15 members, MERCOSUR, APEC, CER, the African and the Andean Pact showed significant trade creation amongst member countries for most of the commodities. Interestingly, AFTA

countries showed a decrease in agricultural trade among themselves following the agreement, and trade diversion was non-significant. This is possibly due to the fact that member countries do not specialise much in agricultural production.

Grant and Lambert (2005) also provide an alternative specification, where they restrict the model to bilateral trade amongst RTA members only, making the estimation results larger in magnitude which is to be expected as the dummy variables are related to average world trade flow.

Korinek and Melatos (2009) use a panel data set to examine the trade effects of the AFTA, COMESA and MERCOSUR for 55 agricultural products between 1981 and 2006. They conclude that all three trade agreements have increased trade in agricultural products between member countries and that there is no robust evidence of trade diversion from outside the region. They estimate that agricultural trade in AFTA increased by 60% due to the agreement. These findings contradict those of Grant and Lambert (2005). Korinek and Melatos (2009) highlight the fact that membership alone is not enough as logistics and transportation are important factors affecting agricultural trade.

Jayasinghe and Sarker's (2007a) study explores the trade creation and diversion effects of NAFTA on trade in 6 agri-food products by using pooled data in an extended gravity model, covering the time between 1985-2000, they do not measure fixed or random effects as they say it is problematic in measuring their variable of interest, openness to trade. Using the generalised least squares method for three-year intervals they show trade amongst NAFTA countries has grown whilst displacing trade from non-members. A limitation of this study is that they do not include bilateral trade among non-members because the data was not available for the selected commodities. Jayasinghe and Sarker (2007a) call for future research to estimate the impact on both exports and imports separately, as well as panel data estimations which include time-invariant and country-specific effects, which is what this paper intends to achieve.

Meike et al. (2012) examine 30 PTAs to find the effect on the trade of 8 commodity sectors for 1990, 1995, 2000, and 2005; the model is estimated by Ordinary Least Squares (OLS) and removing zero trade flows.[4] The effects of PTAs on agro-food trade is positive, statistically significant, varies across sectors and is relatively large for all sectors. They also calculate the effect

[4] Zero trade flows can occur for various reasons, such as the size of the countries being too small, or the transportation costs between them too large. Additionally, when trade is measured in thousands of dollars, or when data is sectoral it may be rounded to zero.

of PTAs whilst accounting for the selection bias created once zero trade flows are included. When this is considered the effects of the PTAs on member's trade is lower compared to the previous estimates. Meike et al. (2012) highlights the fact that previous estimates of the effect of PTAs on trade that ignore zero trade flows could be biased.

Ejones' (2015) study looks at 5 products in 168 countries, over the period 1988-2009 to examine the impact of the East African Community on trade. He uses the Poisson estimation method to account for unobserved trade data and conclude that the EAC bloc creates trade among members, 5 percent on average more than without the agreement. However, there is also export diversion of 19 percent on average. Nega (2015) also uses a Poisson method to estimate an extended gravity model in order to investigate the effects of RTAs on 9 strategic agricultural products in Africa. The study shows that CENSAD, ECOWAS and IGAD exhibited net diversion effects, that means trade with the rest of the world decreased, whilst COMESA, ECCAS, EAC and SADC showed trade increasing amongst members, AMU showed neither. When looking at specific agro-food commodities, the results were mixed. Nega's (2015) study is one of the only papers that explicitly links changes in the level of agro-food trade to levels of food security. By also analysing production variability and intraregional trade potential, Nega (2015) concludes that the instability index[5] is lower at the regional level than on a country level, which could improve stability of food supply, enhancing food security.

Kennedy et al. (2006) use the gravity model to look at 24 western hemisphere countries where only NAFTA and LAIA showed positive trade creation for agricultural goods for member states in case of regional trade agreements, whilst AC, MERCOSUR and CACM all had negative, but non-significant, effects. NAFTA also showed positive external trade effects whilst in all other cases these were negative. Jayasinghe and Sarker (2007b) estimated a regression using generalised least squares for three-year intervals between 1985 and 2000 and revealed, using a pooled cross-sectional time series, that the EU has increased agri-food trade significantly amongst members. Some of this increase came at the expense to non-members as the EU diverted trade away from the rest of the world to intra-EU channels.

There are a few studies which focus on the effect of SAFTA on total trade however there is no consensus within the literature. As Weerakoon (2010, p.73) states "*despite a number of*

[5] The Cuddy Della Valle Instability index is used, it is based on the coefficient of variation corrected by the fitness of a trend function.

empirical studies that have looked at the prospects for regional integration in South Asia, the results remain inconclusive". For example Moinuddin (2013) estimates the impact of SAFTA using a panel least squares model, and then a model with fixed and random effect. For the least squares estimation, the coefficient for the SAFTA variable was slightly positive but not statistically significant which implies a slight increase of trade among member states, and for the fixed and random effects model the results were negative. Rodriguez-Delgado's (2007) study attempts to capture the effects of the tariff reduction program of SAFTA only. Using generalised least squares with random effects a gravity model was estimated, where only limited effects on regional trade flows were found, only the smallest countries experienced any significant increase of trade flows. Rodriguez-Delgado (2007) also examines the effect on customs revenue and found similarly that the smallest countries were affected the most negatively. Lastly Rahman et al. (2006) explore the effect of SAPTA, by using a gravity model with country pair specific and year specific fixed effects, and two-stage estimation. They found that SAPTA showed intra-bloc export creation, however net export diversion occurs, and compared to other RTAs examined in the study, the impact of SAPTA was much lower.

The overview about the empirical literature shows that regional trade agreements do not have clear effects for agricultural trade both for trade among member states of trade agreements and for trade with the rest of the world.

4.0 Empirical Analysis

Gravity models are a robust empirical method to examine trade between countries taking into account distance and size. The general gravity model examines bilateral trade flows and was first applied by Timbergen (1962). The general model is given as:

$$T_{ij} = A\frac{Y_i Y_j}{D_{ij}^2}$$

Where T denotes total trade; Y is the size of the country given by GDP; D denotes distance between countries and A is a constant.[6] To empirically examine trade in 5 food groups, total trade and total food trade to examine the effect of SAFTA on trade in food products, we choose to apply the gravity model. The results that are statistically significant show that trade in meat and meat

[6] For expanded explanations of the gravity model see e.g., Anderson & Van Wincoop (2003), Chaney (2018) or Evenett & Keller (2002).

preparations increased in the region compared to the rest of the world, whilst trade in cereals decreased in the region compared to trade with the rest of the world.

4.1 The gravity model

We extend the general gravity model in the following manner:

Equation 1 Extended gravity model with fixed effects:

$$X_{tij} = exp[\pi_{it} + \chi_{jt} + \mu_{ji} + Comcur_{ijt} + SAFTA_{ijt}] + \varepsilon_{tij}$$

We extend *the general gravity model in the following manner:*

Equation 1 shows the extended gravity model used in this study. X_{tij} is the dollar amount of imports and exports between country i and country j for year t. π_{it} denotes the set of time-varying exporter dummies used to control for outward multilateral resistances, GDP and any other observable and unobservable exporter specific factors which may impact bilateral trade. χ_{jt} denotes the set of time-varying importer dummy variables used to account for inward multilateral resistance, GDP and any other observable and unobservable importer specific characteristics (Yotov et al., 2012). Anderson and Van Wincoop (2003) argued that relative trade costs must be accounted for in order to create an accurate model, this is because "*trade between two regions depends on the bilateral barrier between them relative to average trade barriers"* (Anderson & Van Wincoop, 2003, p.176). Thus, multilateral trade resistance (MRT) terms are introduced to reflect the relative trade costs of two countries. Inward MRT signifies the ease at which importers can access the market, and outward MRT measures exporters' ease of market access (Yotov et al., 2012).

The time varying importer/ exporter effects will capture all determinants of global trade that are not bilateral in nature, thus variables such as GDP and population will be absorbed by this variable (ibid.). μ_{ji} captures country-pair fixed effects, this captures time invariant bilateral trade costs by absorbing all time-invariant gravity variables, such as distance, among any unobservable determinants of trade costs (Yotov et al., 2012). The $SAFTA_{ijt}$ dummy variable takes a value of 1 if both countries are in the agreement at time t. The coefficient of this variable represents the change in trade amongst SAFTA countries relative to trade with non-member countries compared to if the agreement had not been signed. The variable $Comcur_{ijt}$ is a dummy variable which takes 1 if the countries share a common currency at time *t,* the coefficient on this variable represents how much international trade has changed due to countries sharing a currency. It is assumed here that a common currency reduces transactions costs and stimulates trade. Using country-pair fixed

effects absorbs variables which may be in the error term, ε_{tij}, Yotov et al. (2012) state that the fixed effects structure increases confidence that ε_{tij} represents the true measurement error.

4.2 Data

Bilateral trade data comes from UNCTAD statistics website (UNCTAD, 2018a). The data covers the years 1995-2015, and provides 203 country pairwise import and export values in thousands of USD to allow for the comparison of trade between SAFTA countries and the rest of the world. The data covers 7 different product groups and the totals; total trade, total food trade, meat and meat preparations, dairy products and birds' eggs, cereals and cereal preparations, vegetables and fruits and sugar, sugar preparations and honey. Following the World Bank classification the SITC codes for the groups are shown in the appendix in Table A1. Data for the gravity variables comes from the CEPII website (CEPII, 2018). Summary statistics for all dependent variables are shown in Table A2.

4.3 Method

The estimation method used in this study is the Poisson pseudo maximum likelihood (PPML) technique. As trade is often characterised by heteroskedasticity, this study will use this technique as it is the most robust approach as shown by Santos Silva and Tenreyro (2006). If estimated by OLS, the parameters of log-linearized models will be biased under heteroskedasticity. This is because if the errors are heteroskedastic, the transformed errors will be correlated with the covariates (ibid.). Additionally, observations where the dependent variable is zero poses a problem for log linear estimation; as the log of zero is undefined, zero trade flows will be dropped out of the estimation (Bacchetta et al., 2012). This could lead to selection bias, such as that shown in Meike et al. (2012)'s study. Unobserved heterogeneity of countries is captured using fixed effects, which helps to proxy other country specific factors not included in the model as done by Grant and Lambert (2005). The country-time fixed effects must be included to account for multilateral resistant terms. Therefore, this paper does not separate out the two effects, trade creation and trade diversion, instead examining the relative difference in trade between member countries and non-member countries following the agreement.

Lastly, Yotov et al. (2012) emphasise endogeneity issues in attaining reliable estimates for the effect of RTAs on trade, thus the SAFTA dummy may be correlated with unobservable cross-sectional trade costs. The agreement may suffer from reverse causality because a country may be more likely to form a trade agreement with a country with which it already trades a substantial

amount (ibid.) and using country-pair fixed effects accounts for unobservable linkages between the endogenous RTA and the error term.

4.4 Results

The percentage effects of the coefficients on the dummy variables can be calculated using $((e^{\beta}) - 1) * 100\%$. Table 4 and Table 5 show the regression results for exports and imports. In regard to sharing a common currency, the effect on total food exports and meat imports and exports is positive and statistically significant. The positive sign on this variable is as expected as it means that countries which share a currency trade more on average compared to countries which do not share a currency; operating in the same currency may reduce transaction costs and uncertainty, thereby promoting trade. For most of the product groups, the results for the SAFTA variable are insignificant; however, for meat and meat preparations, the results show that there has been a 189.79% increase in exports between SAFTA members relative to non-member countries due to the regional trade agreement. For meat imports, this was a 142.3 % increase in imports amongst SAFTA members relative to non-members. The results show that overall, both imports and exports in meat and meat preparations became more centred in the RTA due to the agreement.

Table 4 Poisson Pseudo Maximum Likelihood Regression results, exports

	Total products	**Meat**	**Dairy**	**Vegetables**	**Cereal**	**Sugar**	**Total Food**
Common currency	0.0259	2.582***	-0.0707	-0.00564	0.0348	0.0561	0.126**
	(0.0357)	(0.0611)	(0.110)	(0.0765)	(0.117)	(0.121)	(0.0512)
SAFTA	0.0890	1.064***	0.216	-0.0897	-1.328***	-0.415	0.00257
	(0.216)	(0.302)	(0.397)	(0.240)	(0.356)	(0.389)	(0.206)
Obs	470,634	81,056	91,388	180,037	135,382	113,829	315,148
R^2	0.992	0.604	0.990	0.990	0.914	0.955	0.984
Country pair FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses; FE = fixed effects. *** p<0.01, ** p<0.05, * p<0.1

Table 5 Poisson Pseudo Maximum Likelihood regression results, imports

	Total products	Meat	Dairy	Vegetables	Cereal	Sugar	Total food
Common currency	-0.0157	0.256**	-0.152	-0.0670	-0.0542	0.114	0.0398
	(0.0333)	(0.130)	(0.110)	(0.0730)	(0.111)	(0.121)	(0.0521)
SAFTA	0.0448	0.885**	0.0738	-0.201	-1.247***	-0.334	0.0183
	(0.174)	(0.374)	(0.274)	(0.245)	(0.304)	(0.357)	(0.193)
Obs	493,824	85,574	100,047	198,170	147,756	126,141	333,762
R^2	0.989	0.975	0.988	0.987	0.911	0.952	0.980
Country pair FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses; FE = fixed effects. *** p<0.01, ** p<0.05, * p<0.1

For trade in cereal, the coefficient on the SAFTA variable is negative. For exports, there has been a 73.5% decrease in exports amongst SAFTA members compared to non-SAFTA members. For imports, the decrease was 71.26 %. It can be concluded that SAFTA did not encourage a regional market for cereals and cereal preparations. For the other product groups, it is not possible to reject the null hypothesis that SAFTA had no effect on trade in the region.

4.5 Discussion of results

The results of this study show that for the case of cereals, SAFTA decreased trade between members relative to the rest of the world. This is not entirely unexpected considering that cereals feature on the sensitive lists of all SAFTA countries with the exception of the Maldives. In the case of meat and meat preparations, the market became more regionalised. Whilst meat products do feature on some country's sensitive lists (Afghanistan, Sri Lanka and India), it is not ubiquitous. The tariff liberalisation of these products encouraged trade within the region. Additionally, the growing trend to consume meat by the middle class in South Asia is likely to contribute to the growth in intraregional trade for meat products.

The results are unable to reject the null hypothesis that SAFTA has had no effect on trade for some of the food groups and total trade. There are many possible reasons why SAFTA has not produced the expected result of encouraging total trade growth within the region. Potentially the mix of

countries producing similar goods creates limited trade growth. Furthermore, the region continues to face tensions where the conflict in Kashmir is unlikely to foster strong trade relations.

Kathuria (2018) highlights "paratariffs" as one of the reasons behind SAFTA's underperformance. Such tariffs are essentially import duties in disguise, which apply to a wide range of products traded within SA (Ibid.) Additionally, he cites port restrictions diminishing the advantages of shared land borders, meaning bilateral trade is predominantly carried out by sea route. Raihan (2012) argues that trade facilitation is vital to enhancing trade flows amongst South Asian countries, however indicators of trade facilitation currently remain low, in comparison to other regions as can be seen in Table 6.

Table 6 Logistics Performance Index (LPI), 2018

	LPI Score	Customs	Infrastructure	International Shipments	Logistics Competence	Tracking & Tracing	Timeliness
Europe & Central Asia	3.24	3.04	3.13	3.14	3.21	3.27	3.65
East Asia & Pacific	3.15	3.01	3.05	3.03	3.13	3.18	3.49
Middle East & North Africa	2.78	2.54	2.76	2.73	2.68	2.79	3.19
Latin America & Caribbean	2.66	2.47	2.47	2.69	2.59	2.68	3.05
Sub-Saharan Africa	2.35	2.21	2.11	2.36	2.33	2.31	2.77
South Asia	2.3	2.06	2.07	2.28	2.32	2.32	2.73

Source: World Bank (2019a)

The LPI is a summary indicator of logistics sector performance. The index ranges from 1 to 5 and is based on six indicators 1) the efficiency of customs and border management clearance. 2) the quality of trade- and transport- related infrastructure. 3) The ease of arranging competitively priced international shipments. 4) The competence and quality of logistics services. 5) The ability to track and trace consignments. 6) The frequency with which shipments reach consignees within the scheduled or expected delivery time (World Bank, 2018). South Asia's performance is the worst in all categories except Tracking and Tracing and has the lowest LPI score of all regions.

5.0 Implications for Food Security

Originally, the sole focus of food security was on the quantity of food available. However, the debate has developed over time to become multifaceted in order to capture the reality of the food security. The Food and Agriculture Organisation (FAO) provides the most recent, widely agreed upon, definition of food security, stating that:

> *"Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2018b, p.159).*

Diaz- Bonilla (2015) describes how the definition of food security is multidimensional. The first dimension, ***availability*** of food, depends on the supply. The second dimension is economic ***access***, this reflects Sen's Entitlements Theory, and can be affected by factors such as income, employment, inflation and food price (Sen, 1982). ***Stability*** means that individuals have physical and economic access to food at all times (Diaz- Bonilla, 2015). Lastly, ***Utilisation*** refers to the nutritional quality and variation in food, and how it is metabolised (Jones et al., 2013).

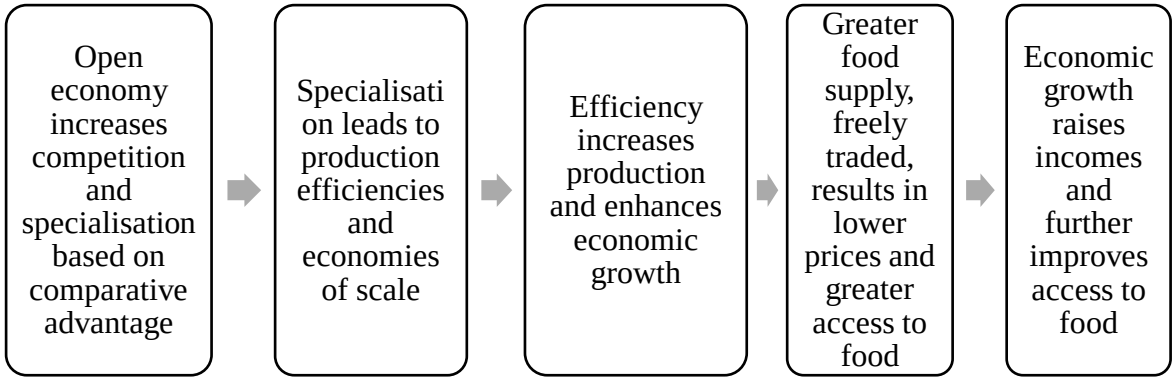
Availability

At a national level, a country is food secure when the food supply and effective demand is continuously able to cover the requirements of the population (Applanaidu et al., 2013). Iqbal and Amjad (2012) cite the factors which affect availability of food as production, processing, storage, distribution, marketing systems and technologies. Whilst trade may affect all of these factors, this section mainly focuses on production.

Not all countries can be self-sufficient as it may not be practical or feasible for environmental and resource availability reasons (Clapp, 2015). Trade or food aid will be the only way for these countries to provide enough food for their populations. Theoretically the removal of trade barriers will encourage specialisation, determined by the natural endowments of each country, the countries that have the lowest opportunity cost in producing particular crops will produce them, increasing efficiency and ultimately increasing supply (Clapp, 2015). Maasdorp (1998) contends that in promoting regional markets, FTAs allow the most efficient producers to take advantage of economies of scale in production. Additionally, there could be gains from lowering administrative barriers, technology transfer and greater competition. Furthermore, the increased competition from an RTA would encourage firms to invest and upgrade their technologies (Ghazalian, 2013). These factors could result in an increase in agricultural

production. Thus, an RTA is expected to increase agricultural productivity, which would then result in the increased availability of food, this argument is summarised by Figure 1. To what extent it is possible and desirable for SAFTA countries to increase international competition in order to boost productivity in agriculture is a key question.

Figure 1 Pro-trade perspective on comparative advantage, trade and food security



Source: Clapp (2015).

The results of the gravity model are not able to confirm whether SAFTA had an impact on the total food trade in the region. In support of this, Malaga et al. (2013) conclude that SAFTA has not created increases in agricultural production growth in Sri Lanka. If SAFTA has no significant impact on total food trade in the region, it would not influence agricultural production. Table 7 shows the agriculture growth rate from before the SAFTA agreement came into force (2003), and since it has been implemented (2016). Over this period the average GDP growth rate has been 5.54% however agriculture has grown on average 3.24%. Despite agriculture as a share of GDP shrinking, 47.3% of South Asia was still employed in agriculture. Overall, the performance of the agricultural sector in the SAFTA countries has been relatively poor. Carrasco and Mukhopadhyay (2012) state that productivity in agriculture has either been stagnant or declining due to limited investment in agriculture.

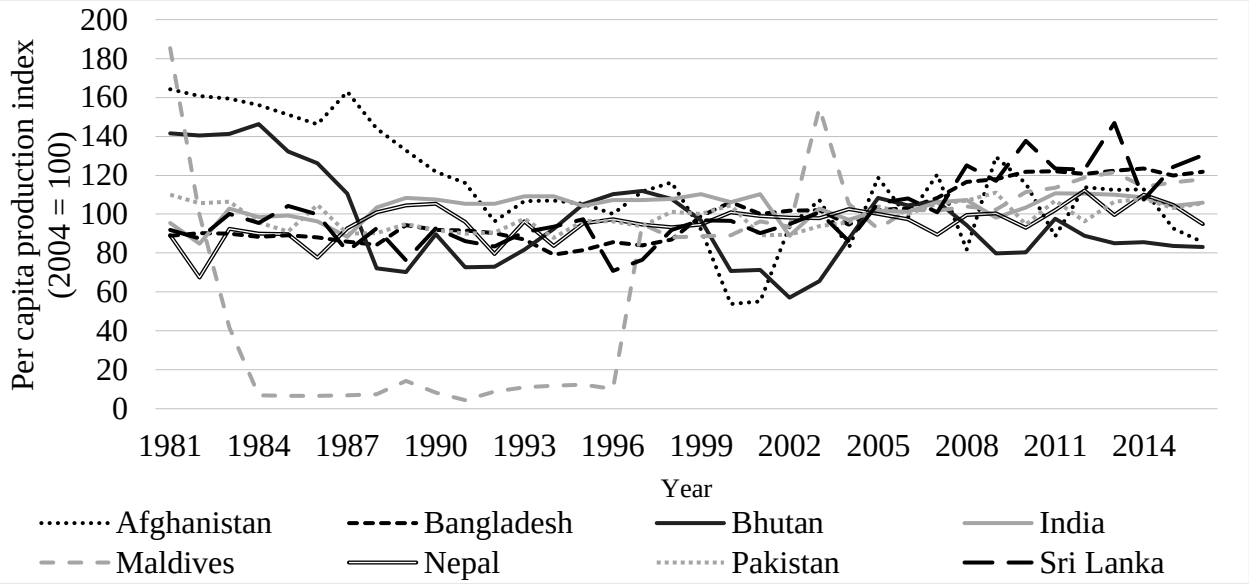
Table 7 Agriculture development, SAFTA, 2003-2016

Year	GDP Growth (Annual %)	Agriculture Growth (Annual %)	Agriculture, Value Added (% of GDP)	Agriculture Employment
2003	6.27	4.01	22.06	52.56
2016	6.77	2.51	16.90	42.82
Mean	5.54	3.24	18.76	47.35

Source: Liu et al. (2020).

Figure 2 shows the per capita production index of cereals, since the signing of SAFTA, where there have been no consistent improvements. As this sector has remained highly protected by SAFTA's sensitive lists and regional trade has decreased, specialisation and increased competition in this sector has not occurred and there have been little improvements in production. The theory regarding competition and specialisation does manifest itself as trade in cereals amongst SAFTA countries decreased and producers remain protected and as a result the availability of cereals has not been improved by the agreement.

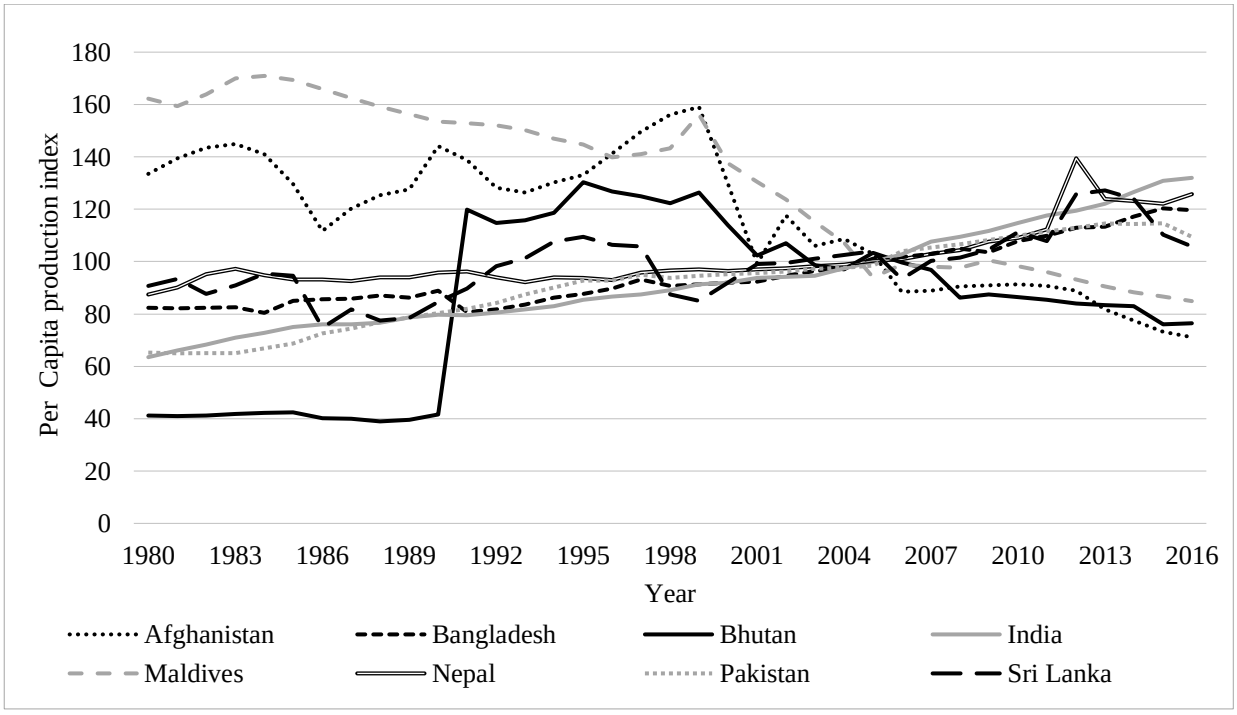
Figure 2 Per capita production index (2004 = 100): cereals, 1981-2014



Source: FAO (2019a)

For livestock, the situation is different, for Pakistan, India, Sri Lanka, Nepal and Bangladesh, the per capita production index in livestock has increased, whilst for the other countries in SAFTA production decreased, as shown in Figure 3. As the results of the gravity model show that trade in meat and meat preparations has become more regionalised, certain countries have specialised and are producing more in this sector. As the production index has increased in livestock, it is not surprising that amount of protein available in the region has generally increased over the last decade. Table 8 shows that, with the exception of Afghanistan, the average protein supply per person per day increased from 1990-2013.

Figure 3 Per capita production index (2004 = 100): Livestock, 1980-2016



Source: FAO (2019a).

Table 8 Average protein supply of animal origin (grams/ capita/ day), 1990-2013

	1999-01	2000-02	2001-03	2002-04	2003-05	2004-06	2005-07	2006-08	2007-09	2008-10	2009-11	2010-12	2011-13
Afghanistan	14	13	13	13	13	12	12	11	11	11	12	12	12
Bangladesh	6	6	7	7	7	8	8	8	8	9	9	9	9
India	9	9	9	9	9	10	10	11	11	11	11	12	12
Maldives	69	70	66	61	59	57	60	57	63	69	75	80	82
Nepal	9	9	9	9	9	9	9	9	10	10	10	11	11
Pakistan	22	22	22	22	23	23	24	24	25	25	25	26	26
Sri Lanka	13	13	13	13	13	12	13	13	13	14	15	16	16

Source: FAO (2018a).

Accessibility

The dimension of economic access relates closely to the work of Amartya Sen (1982), who argued that food entitlement is the key to food security. Sen (1987, p.200) states that "*people's ability to avoid starvation will depend both on their ownership and the exchange entitlement mapping that they face*". Exchange entitlement mapping, or E-mapping, refers to the transactions that allow individuals exchange entitlements, the bundles of commodities that a person may acquire through production, trade or a combination of the two (Sen 1987). The key point Sen (1987) makes in regard to E-mapping (the way in which people acquire commodities) it is not simply affected by the supply of food, but also things such as food prices, employment possibilities and the cost of factors of production (ibid.). Therefore, it is important to go beyond the supply of food, which focuses only on the availability dimension of food security and explore how people access food. Access to food will depend on all the entitlement relations mentioned above. As accessibility through trade is a key part of Sen's entitlement approach, trade can play an important role in food security (Rahman & Iqbal, 2012).

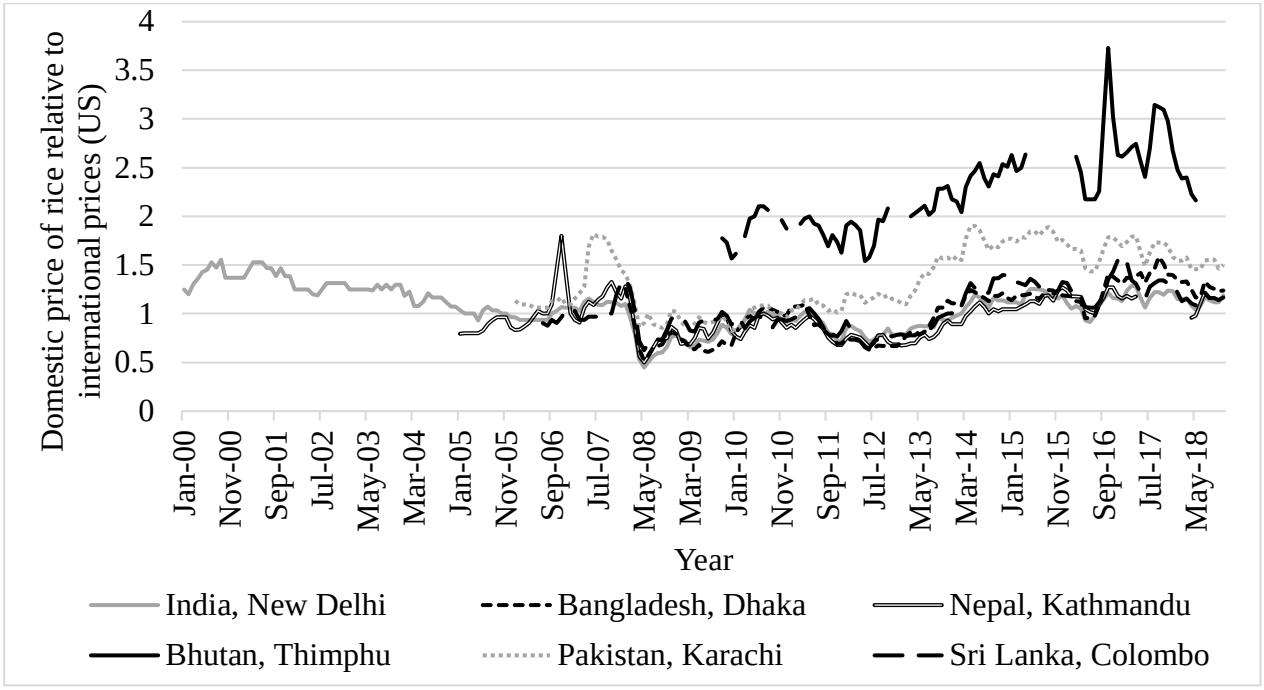
Although there have been some improvements in the supply of food in South Asia, the region has still not managed to achieve its Millennium Development Goals (MDG) in regard to hunger (FAO, 2015). To understand how SAFTA has possibly altered access to food this paper will mainly focus on how trade can affect food prices, and then incomes, although it should be noted there are other ways in which trade can alter entitlements. Iqbal and Amjad (2012) argue

that for South Asia, the issue of access is a key factor in explaining why, with improved food availability, indicators for malnutrition remain disappointing.

According to the FAO (2003) trade liberalisation will lower domestic food prices. If the domestic food price is high due to tariffs and trade barriers, Bezuneh and Yiheyis (2014) state that an FTA that lowers domestic food prices for an importing country will increase the quantity of food consumed. For those who are net buyers of food, lower food prices will likely improve their food security situation (Ivanic & Martin, 2015); the exchange entitlements these individuals receive will be larger due to the decrease in price. However, for producers of food, the net sellers, they will experience a decrease in their income and falling food prices may decrease their exchange entitlements, making them more food insecure. Competition against cheaper imports may adversely affect individuals whose income depends on agriculture. Ivanic and Martin (2015) state that the likely effect of price changes on food security can only be known by examining data on income sources and expenditure patterns of households as it is not enough for the net food buyers to simply outnumber the net sellers, but also the depth of each households' buying, and selling must be considered.

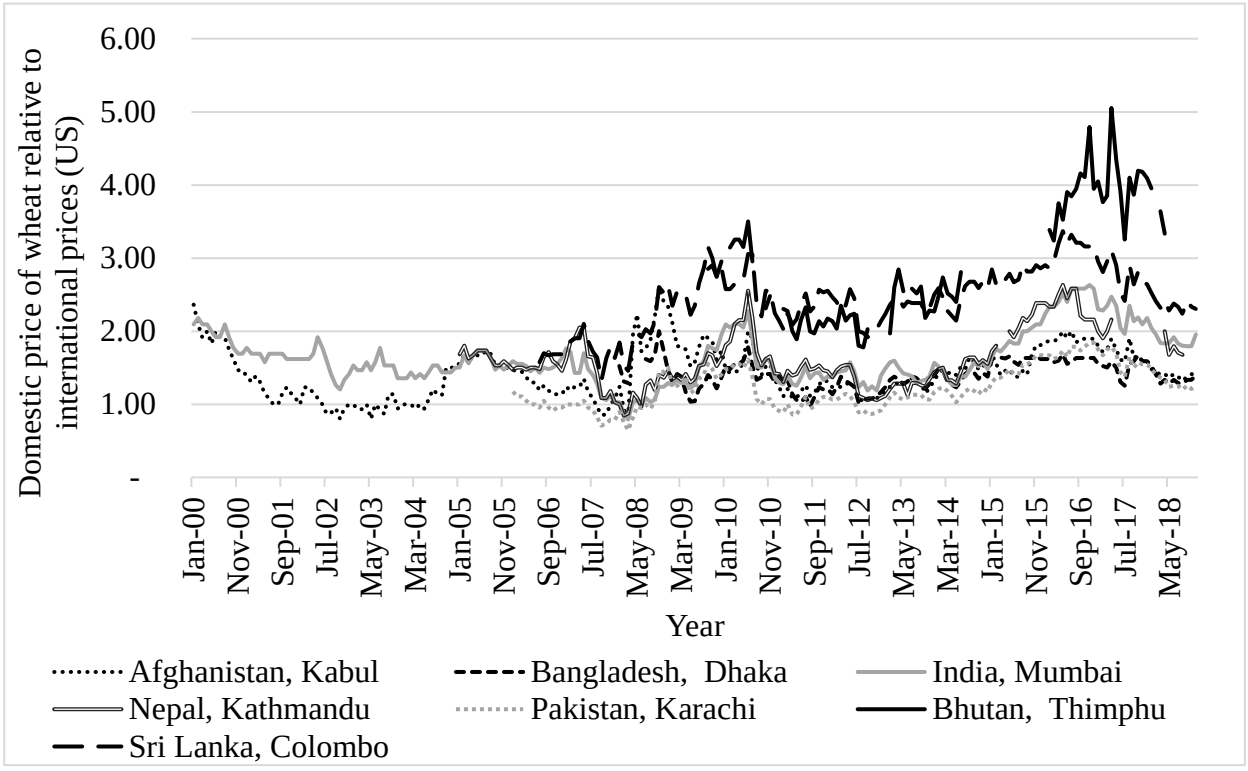
Figure 4 and Figure 5 show for SAFTA members the domestic price of rice and wheat relative to international prices. The graphs illustrate that even when international prices changes are considered; the price of these cereals have slowly been increasing in the past decade. This is consistent with the view that because cereals have remained highly protected by the RTA, and regional trade for cereal has decreased there have been no efficiency gains, and thus no fall in prices.

Figure 4 Domestic price of rice relative to international prices (US), 2000-2018



Source: FAO (2018c), authors calculations.

Figure 5 Domestic price of wheat relative to international prices (US), 2000-2018



Source: FAO (2018c), author's calculations.

In support of this view, Bouet and Corong (2009) show that despite the agreement, consumer prices in the region continue to rise. They predict that the influence on the consumer price index from SAFTA is small, thus SAFTA could only marginally alter domestic food prices in the region (Bouet & Corong, 2009). Hence the commodity price impact of SAFTA has been rather limited. Even if SAFTA increased food trade in the region, the price effects might not be as predicted. Raihan (2012) highlights concerns that reducing tariffs for member countries might not lead to a fall in prices in the domestic market if that market becomes a 'captive market', for example if Indian exporters find a captive market for their exports in Bangladesh, the Indian exporter will be able to raise prices to the same amount as the products brought from the rest of the world (Raihan, 2012).Additionally, alternative factors can influence prices such as wages, exchange rate and taxes.

SAFTA's inability to counter the factors which are pushing the price of food up has negative consequences for food insecurity. Vokes and Jayakody (2010) state that because food expenditure makes up a large proportion of total household expenditure food price inflation has very negative effects for the poor. In Afghanistan and India, the poor spend up to 75% of income on food and 63 % in Sri Lanka (Vokes & Jayakody, 2010). Carrasco and Mukhopadhyay (2012) demonstrate that rising food prices increases poverty, with Sri Lanka being the least affected, and India, particularly rural areas and Bangladesh being the most affected. Carrasco and Mukhopadhyay (2012) argue that for SAFTA to have influence in reducing domestic food prices, it must reduce the number of items on its sensitive list and address non-tariff barriers.

In a situation where incomes increase due to an RTA, it can improve access to food, as Bashir et al. (2012) state access to food is dependent on purchasing power. It is important to note that even when incomes rise due to an RTA, income increases do not accrue to everyone equally as trade liberalisation will have distributional effects. The impact on incomes will differ between small scale and commercial farms, rural non-farm producers and urban consumers (FAO, 2003). Clapp (2015) contends that any increase in profits brought about by an FTA will mainly accrue to transnational corporations (TNCs) rather than farmers within the country of production. Generally, agri-food global value chains are dominated by a couple of TNCs (Clapp, 2015). These large TNCs take the benefits of comparative advantage and economies of scale due to their monopsony position (FAO, 2003).

For specialization to occur according to comparative advantages, labour and capital must be flexible. However there are costs from moving factors of production. New employment

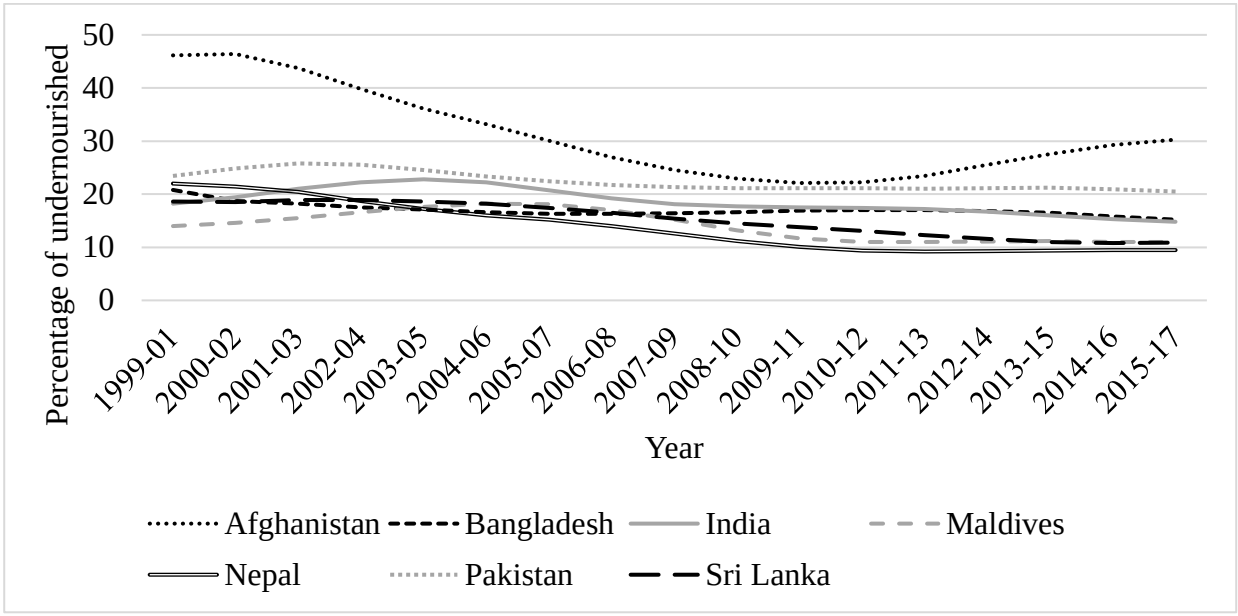
opportunities may be scarce, particularly in developing countries with higher proportion of unskilled labour. Because of these inflexibilities, shifts between sectors can be very difficult in the short run and safety nets may not be available. Therefore, individuals who lose their source of income because of structural changes brought about through shifting patterns of trade may become food insecure. It is important to note that a large proportion of the population work in agriculture in South Asia, and therefore any structural changes occurring would have economy-wide effects (Clapp, 2015).

The effect of SAFTA on both average and individual incomes is still largely unknown. The studies discussed in this paper's literature review, and the gravity model estimated are inconclusive of the effect SAFTA has had on total trade, therefore no conclusions can be drawn about the impact on incomes and growth. One study by Bouet and Corong (2009) uses a CGE model to predict that by 2020, SAFTA will have created marginal real income gains for all countries in South Asia; with the exception of Bangladesh which will experience a real income loss of 0.03%. Sri Lanka is predicted to receive the largest real income gain of 0.29%, Pakistan 0.13%, India 0.04% and the rest of the region experiencing 0.06% (ibid.). Gains are small and it is an open question whether the poor belong to the losers coming from structural changes. There are also high uncertainties about the future growth impacts of an RTA and the long term dynamic potential growth for single countries. Whilst there are productivity gains for specialisation, a country may be stuck producing low value goods or tasks, such as raw commodities like unprocessed cacao, coffee or cotton, where it is difficult to begin producing high value manufactured products and upgrade in value chains (Dünhaupt & Herr, 2020; Dünhaupt et al. 2020). This refers to declining terms of trade, which occur because world prices of primary commodities exported falls over time in comparison to the manufacture goods that are imported (FAO, 2003).

Often tariffs constitute a large source of tax revenues for the government. Reducing tariffs may result in a decrease in revenues. If there is an increase in trade brought about by an RTA large enough to compensate the lower tariff, then tax revenues may not be adversely affected or could even improve (FAO, 2003). Rodriguez-Delgado (2007)'s study shows the impact of SAFTA on annual customs revenues in the period 1988 to 2004. The smallest countries were most adversely affected. Bhutan experienced a decline of 2.5% of GDP, the Maldives of 1.5% and Nepal 1.0%. India, Bangladesh and Pakistan were not much affected. Decreasing revenues could negatively affect access to food as government budgets can affect household incomes as well as infrastructure, which will affect both economic access and physical access to food.

The prevalence of undernourishment is often used as an indicator of access to food.[7] Figure 6 shows that for all of the countries, the percentage of undernourishment had decreased over the time period shown after 1999, data was not available for Bhutan. However, for the Maldives and India this decrease was only about 3% which over a 15-year time period is disappointing. Whilst the prevalence of undernourishment has fallen, it is unlikely that this is a result of SAFTA as evidence suggests that the RTA did not induce food prices to fall enough to counteract rising food price pressure. In addition to this, despite predictions of real income increases by 2020, the effect on incomes requires a disaggregated analysis of the economy to understand who benefits from the RTA. Although the prevalence of undernourishment has declined, the region has still missed its MDGs, and it is possible that SAFTA, which had the potential to improve access, has not helped move South Asia towards this goal.

Figure 6 Prevalence of undernourishment, %, SAFTA countries, 1999-2017



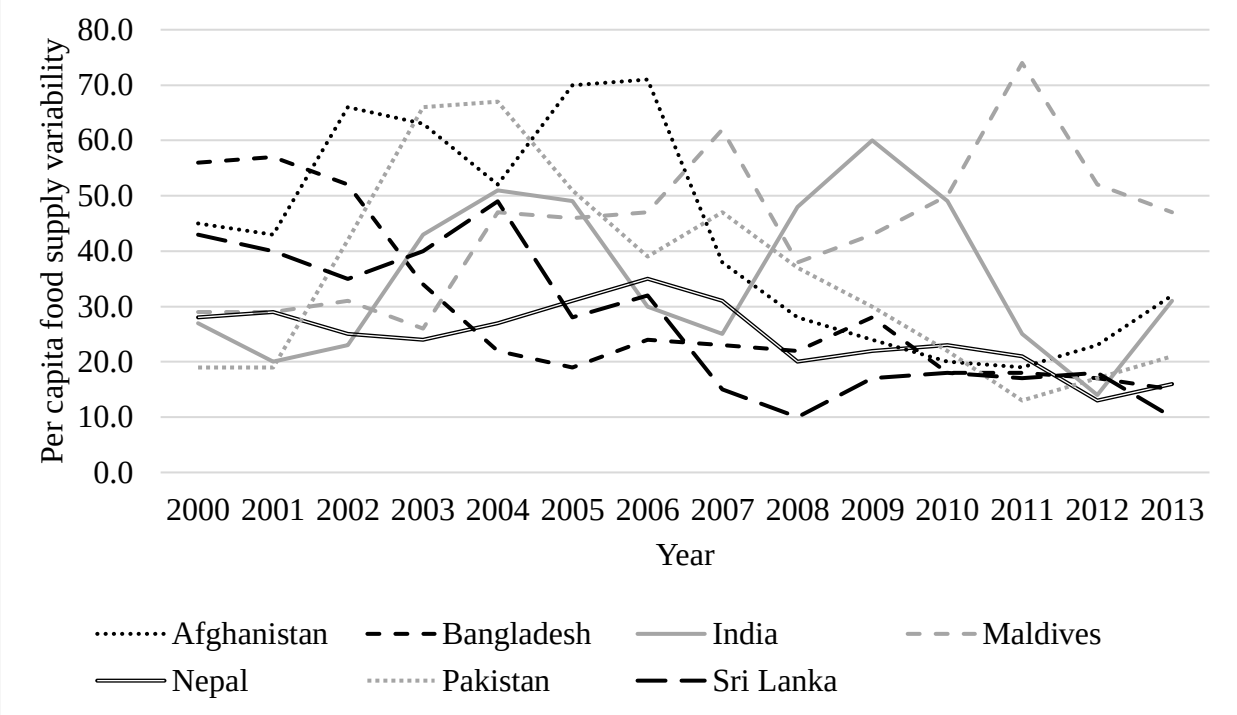
Source: FAO (2018a).

[7] The indicator used is the probability that a randomly selected individual consumes mot the calories required for an active healthy life (FAO, 2018a).

Stability

Bezuneh and Yiheyis (2014) point out that reducing trade barriers may lessen the variability of staple food supply as it helps to offset domestic supply shocks. Reducing the variability of supply will reduce price fluctuations. For producers, price uncertainty makes it difficult to make decisions in how much and what they should produce which could ultimately prevent long term planning and investment (Martins- Filho & Torero, 2016). Trade advocates state that price volatility and supply shocks are less frequent in the case of international markets compared to domestic ones (Clapp, 2015). Furthermore, trade prevents dependence on domestic stocks, which are an expensive alternative to stabilising supply and domestic consumer prices (FAO, 2003). However, the FAO (2003) states that variability will only be reduced in the context of stable international markets and there is some evidence that trade liberalisation is associated with increased volatility in prices and production, for example caused by speculation in future markets, which leaves prices beyond the control of producers. Not only would producers be unable to influence prices but food importing countries are also vulnerable to external shocks (Clapp, 2015).

Figure 6 Per capita food supply variability, Kcal/capita/day, 2000-2013



Source: FAO (2018a)

In the context of SAFTA, the Asia Development Bank (ADB, 2015) argues that if both deficits and surpluses of a particular good exist in the region, the free movement of food items across countries is critical to balance the deficits of one country with the surpluses in another. Thus, trade will be beneficial to stability of supply, if supply shocks between countries in the region are negatively correlated or independent of each other (Kohnher & Kalkuhl, 2016). As SAFTA has not been instrumental enough in increasing trade amongst member countries, the potential benefits of stability will not be achieved. Figure 7 shows the variability of per capita food supply, 2000-2013. By 2013, the Maldives, India, and Pakistan had higher variability compared to 2000. As it cannot be confirmed that there have been significant changes in regional trade amongst the SAFTA countries for total food, it is not surprising to find that the variability has not shown a decreasing trend**Fehler! Verweisquelle konnte nicht gefunden werden.** and, as was shown in Figure 5, price movements are also unstable.

Utility

Access to food is necessary, but not sufficient, to ensure that food security exists, thus the fourth dimension, utilisation, reflects "*differences in the allocation of food within households, the nutritional quality of that good and variation*" (Jones et al., 2013, p. 483). As utility reflects food absorption, which is affected by clean water, adequate food, sanitation and health care, it exhibits both educational and public health dimensions (Iqbal & Amjad, 2012). Educational and public health aspects are determined by the state and households, and thus government expenditure. And poverty feed largely into food utility. As SAFTA reduces government revenues, it has the potential to negatively impact food utilisation in the region.

Anthropometry measures, such as body measurements, are usually used to measure food utilisation (Jones et al., 2013). Bodily measurements are not only influenced by food intake but also of an individual's health status as well as hygiene and sanitation environment. The prevalence of children affected by stunting and wasting is given in the appendix in Table A3. For some countries, Afghanistan, Bangladesh, India, and Sri Lanka, the development of these indicators is disappointing with increases in prevalence compared to the initial rates.

Grebmer et al. (2018) state that the child wasting rate in South Asia increased since the year 2000, which according to UNICEF et al. (2018) constitutes a critical public health emergency. This poses a vital question, why if every country in South Asia, with the exception of Afghanistan, has seen an increase in their food supply, are indicators for utilisation decreasing? Table 11 shows for disposable income the Gini coefficient and the ratio of the average income of the richest 20

percent of the population to the average income of the poorest 20 percent. For the Gini index, four out of seven countries (Bangladesh, India, Pakistan, Sri Lanka) showed higher inequality in recent years compared to in the 1990's. For the quintile ratios, three countries show worsening inequality (India, Maldives and Sri Lanka). Data was not available for Afghanistan. Besides the Maldives, all the countries which showed worsening inequality indicators also experienced higher rates of child wasting and stunting. If rising inequality increases food insecurity, it is essential that policies be put in place to ensure that SAFTA does not increase inequality in the region.

Table 9 Gini Index and Quintile income ratio (top 20/ bottom 20), South Asia, 1990s and most recent.

			Gini Index disposable income		Top 20/ bottom 20 disposable income	
	Initial year	**Most recent year**	**Initial year**	**Most recent year**	**Initial year**	**Most recent year**
Afghanistan	-	-	-	-	-	-
Bangladesh	1991	2016	27.6	32.4	5.2	4.8
Bhutan	2003	2017	40.9	37.4	7.4	6.6
India	1993	2011	32.7	35.7	4.6	5.5
Maldives	2002	2009	41.3	38.4	7.2	7.0
Nepal	1995	2010	35.2	32.8	5.6	
Pakistan	1990	2015	33.2	33.5	5.2	4.8
Sri Lanka	1990	2016	32.4	39.8	4.8	6.8

Source: World Bank (2019b).

6.0 Conclusion

UNICEF et al. (2018) argue that the recent estimates in child wasting and stunting suggests that the sustainable development goals for 2030 are likely to be missed. It is evident that the recent progress towards reducing hunger in the region has not been sufficient – and this even before the Covid-19 crisis. This paper has shown that SAFTA has made the trade in meat more regionalised, encouraging specialisation amongst certain countries, and potentially increasing the supply of protein. This development has coincided with growing demand for meat from the middle class in South Asia. The opposite effect for cereals has been found. As cereals remain highly protected on

SAFTA's sensitive list, there have not been consistent improvements in production or supply of cereals. Supply has not been able to keep up with demand for cereals, resulting in price increases.

As a result of trade liberalisation, structural change may result in unemployment of particular sectors, transnational corporations may take advantage of their monopsony position and consequentially captive markets might appear. It is important to note that even if income growth occurs due to SAFTA, this may not result in improved food access for all. Due to improperly functioning tax systems, the reduction in tariff revenue may mean that health and education services will be reduced, which could adversely affect food utilisation. Furthermore, the effects of terms of trade must also be considered. Lastly the debate surrounding stability of food supply and food prices and trade is still ongoing; however, there is scope for coordination with the aim of improving stability in supply and prices in the region.

Coordination amongst the SAFTA countries provides potentially larger benefits in regard to food security in the region than the potential costs created, if those costs can be mitigated or even eliminated for affected groups. If the participating countries want to increase their chance at reaching sustainable development goals, further cooperation, trade facilitation and a reduction of the sensitive lists is required as one element of the development strategy. However, with continuing political conflict, and growing concern over national autonomy in food supply in the context of the COVID-19 crisis, it is unlikely that SAFTA will be able to reach its potential in the near future.

Further analysis of how SAFTA affects incomes of different earners within the population is required to have a deeper understanding of who might be affected by SAFTA, in which way, and what policies can be used to offset potential problems. Future research should examine the effect of SAFTA on the trade of specific commodities as opposed to aggregated groups, as well as examine the individual and historic effects of the different phases of SAFTA.

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Appendix

Table A1 List of food groups and SITC codes

Group	SITC codes
Total Trade	All SITC codes
Total food items	0 Food and live animals 1 Beverages and tobacco 22 Oil seeds and oleaginous fruits 4 Animal and vegetable oils, fats and waxes
Meat and meat preparations	011 Meat of bovine animals, fresh, chilled or frozen 012 Other meat and edible meat offal 016 Meat, edible meat offal, salted, dried; flours, meals 017 Meat, edible meat offal, prepared, preserved, n.e.s.
Dairy products and birds' eggs	022 Milk, cream and milk products (excluding butter, cheese) 023 Butter and other fats and oils derived from milk 024 Cheese and curd 025 Birds' eggs, and eggs' yolks; egg albumin
Cereals and cereal preparations	041 Wheat (including spelt) and meslin, unmilled 042 Rice 043 Barley, unmilled 044 Maize (not including sweet corn), unmilled 045 Cereals, unmilled (excluding wheat, rice, barley, maize) 046 Meal and flour of wheat and flour of meslin 047 Other cereal meals and flour 048 Cereal preparations, flour of fruits or vegetables
Vegetables and fruits	054 Vegetables 056 Vegetables, roots, tubers, prepared, preserved, n.e.s. 057 Fruits and nuts (excluding oil nuts), fresh or dried 058 Fruit, preserved, and fruit preparations (no juice) 059 Fruit and vegetable juices, unfermented, no spirit
Sugar, sugar preparations and honey	061 Sugar, molasses and honey 062 Sugar confectionery

Source: UNCTAD (2018b).

Table A2 Summary statistics, dependent variables

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Total imports	493,823	271729.3	2753198	0	2.68e+08
Total food imports	333,762	31497.02	242982.3	0	2.21e+07
Meat imports	85,591	11872.59	77706.67	0	2472514
Dairy imports	100,049	7560.294	60336.75	0	4137513
Cereal Imports	147,765	8274.45	49279.75	0	2252040
Vegetable imports	198,174	8677.629	68277.91	0	3988485
Sugar imports	198,174	3533.498	25455.53	0	1902739
Total exports	470,637	286016.2	3027342	0	3.84e+08
Total food exports	315,161	33033.58	271995.9	0	2.63e+07
Meat exports	81,059	13250.23	85218.25	0	2797035
Dairy exports	91,394	8436.726	68722.24	0	3860485
Vegetable exports	180,053	9231.246	81070.89	0	6110633
Sugar exports	113,850	3822.055	26750.02	0	1858999

Table A3 Children under the age of 5 affected by wasting and stunting, %

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Percentage of children under the age of 5 affected by wasting																	
Afghanistan					8.6									9.5			
Bangladesh	12.5	12.7	12.4	12.5	14.6	11.8	11.9	17.5				15.7	9.6	18.1	14.3		
Bhutan									4.7		5.9						
India							20.0								15.1	21.0	
Maldives		13.4								10.2							
Nepal		11.3					12.7					11.2			11.3		9.7
Pakistan		14.2										14.8	10.5				
Sri Lanka	15.5							14.7		11.8			21.4				15.1
Percentage of children under the age of 5 who are stunted																	
Afghanistan					59.3									40.9			
Bangladesh	50.8	53.2	51.4	47.8	50.5	45.9	45.1	43.2				41.4	42.0	38.7	36.1		
Bhutan									34.9		33.6						
India							47.9								38.7	38.4	
Maldives		31.9								20.3							
Nepal		57.1					49.3					40.5			37.4		35.8
Pakistan		41.5										43.0	45.0				
Sri Lanka	18.4							17.3		19.2			14.7				17.3

Source: FAO (2018a).

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