

Challenges to dairy sector and role of media: a case study of Pakistan (1975-2015)

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Abstract

For the aimed objective on one end country inaugurate assistance to raise gross domestic production while on the other end introduces many trade reforms to get benefit of globalization via export earnings. Among the potential sector, dairy sector of Pakistan is among the ranking of top 4 countries of world for its milk production. But still the sector is not seemed to contribute its true potential in export earnings and gross domestic product of country. There are many challenges that hinder the farm holders' yield in the sector. These challenges could be addressed while giving awareness to small farm holders and for the purpose media can be the best source. Thus this paper is aimed to discuss the opportunities and challenges faced by dairy sector in current era of globalization along the role of media in resolving the issues faced and opportunities that could be exploited by sector. Further to check the influencing factors to competitiveness of dairy sector in Pakistan data has been taken for the period of 1975-2015. Here variables are taken milk output, agricultural value added services, import and export are discussed under descriptive analysis,

*unit root testing and Toda Yamamoto Granger
Causality analysis respectively.*

Keywords: dairy sector, milk production, supply chain, export earnings, globalization and media.

Introduction

21st century recognized as an era of globalization where goods, services, culture, information, technology, ideas and people become mobile around the world. Globalization is an opportunity for developing nations of the world to demonstrate their potential in *survival of the fittest* in global economy. Yes the survival of a nation is not enough to remain safe inside its geographical boundaries but to exist in world market through sharing its abundance and scars. The benefits and harms of globalization for developing countries remains the debate topic since decades. Since the theories of comparative advantage and absolute advantage in economics, literature is enriched to discuss the opportunities and issues that could hinder the developing nations. While going through previous literature, researchers still advocates globalization as a remedy to cure poverty and yet it has proven to an extent when a country enables to achieve maximum utilization of its specialized resources. Pakistan having a prominent geo-political position enjoys an ideal climatic and natural environment. For having such potential the country has aimed to achieve a prominent self-dependency and export exposure in its vision 2030.

In order to address its aimed objectives, country introduces different reforms to raise its gross domestic production. Among the other potential sector, its dairy sector is contributing a larger share to total output of country.

In fact, Pakistan, as an agricultural based economy, is famous due to its milk production which puts it among the top 5 countries in the world (Economic Survey of Pakistan, 2015). Its dairy sector is not only famous for its milk production but also for livestock

specie and population. Such specialty opens many ways for the country's development around the globe. But despite of recognition for best specie of livestock and larger milk production along many signed agreements of trading blocs still the country is not enjoying the potential export earnings from sector even is not self-dependent in production of milk - the ultimate source of hygienic requirement for children as well as for adults. This situation raised many questions about the competitiveness and productivity of sector. Thus this paper is aimed to discuss the opportunities and challenges faced by dairy sector in era of globalization along the role of media in resolving the issues faced by sector and opportunities that could be exploited.

Research Objectives

The present research is aimed to explore:

- i. The connection between media and globalization,
- ii. the interconnection between media, globalization and socio-economic development,
- iii. The role of globalization on dairy sector's performance of Pakistan,
- iv. Issues hindering the dairy industry in Pakistan and
- v. Solution to the hindering issues to dairy sector of Pakistan through providence easier access to latest information.

Research Hypothesis

In order to address the above aimed objectives the following hypothesis has been designed to test through econometric approach.

H:"There is a relationship between dairy sector's performance and globalization friendly measures"

Literature Review

A review of literature will be helpful for present study to explore the interconnection among the globalization and socio-economic development along the role of media in that scenario that media can play its role in responsible and effective manner while communicating the masses.

Role of media in promoting socio-economic development and globalization

Christopher. C and Leeson.P (2004) while discussing the role of media in development of a country included that role of media must be considered as supporting and intermediary policy while designing developmental strategies in a country. Media provides interconnectivity among the suggestions, procedure and implications of growth strategies (McQuail, Dennis, 2006). Christopher. C and Leeson.P (2004) termed media as coordination-enhancing mechanism that helps in uplifting the developmental policies. In that study many past cases has been researched for attributing fruitful economic development, for instance cases of Hungary and Poland where media played well to promote development while on the other hand there is also the historical case of Ukraine where it did not work. Actually media provides a platform to convert the conflicts into coordination among the governmental, political, policy makers and common masses that will lead the economy to flourish prosperously (Chowdhury, 2004). As explained by Christopher. C and Leeson.P (2002), *“not only has the media played a role in transforming situations of conflict into coordination, but also access to information has allowed politicians and the populace to coordinate on good conjectures leading to economic progress.”*

Along economic benefits to country it also support on political ground as well. And this support is also leading to economic growth. It is evident that countries encountering higher political risk could attain instability through responsible media strategy. In

2011, a statistically supporting research conducted in Sub-Saharan Africa suggests that the freedom of media provides an easier access to authentic knowledge leading to a declining political (Yusuf, 2011).

It is also evident that if masses are magnetized at standard level of literacy, access to knowledge and social equality then their participation becomes higher in reducing the ecological deteriorating practices. Bimonte (2002) researched the 35 countries of Europe and CIS. In this research he obtained a cross-sector data of Bulgaria, Croatia, Hungary, Macedonia, Russia, Slovenia, and Ukraine by finding that number of newspapers by 1000 persons could be a good determinant to reduce environmental degradation and stated that the level of economic growth that do not bring harmlessness to ecological scenario can be achieved through information accessibility. There is only one way to sustainable development which is the participation of masses. Thus to move on a stable developmental path a country has to ensure the information sharing among the people.

SMEDA Pakistan stated in its report of 2013 that many entrepreneurs at small and large scale remain behind due to hurdles in order to access the information required for financial assistance, technical knowledge, operational and managerial tasks. It is suggested in report that by providence an easy access to rural population can enfold them into a productive participating circle of economy.

For removal of poverty from economy media can also play its role via introducing innovative ways to commercial sector. Jagadeesh B. (2011) argued that poverty can be reduced by involving women on commercial grounds through intimating them the authentic knowledge of doing business. However media played its helpful role in awaking women to take participation in economic progress (Yusof et.al. 2012).

The above review is enough to highlight the role of a responsible media. That can help in flourishing the democracy and political satiability (Besley and Burgess, 2002), that ultimately influence not only domestic investor but also foreign direct investment in country. Moreover it can also help in improvement of a better access to information either on financial grounds or technical that can lead the economy to bear more domestic output (Khan and Khalique, 2014). Along these all it also helps to maintain an eco-friendly business environment that ultimately leads the country towards sustainable development (Wilson and Wamock, 2007).

Role of globalization in promoting development

Globalization has blessings for developing economies or harms, is an enriched debate topic. Actually we found it as a mix bag of blessings and harms. As we go through different researchers' work we found advocates as well as arguers for it.

The world as being a global village bears many opportunities but according to Birdsall, (2001) these all opportunities are not for all. Here are many regulations that hinder back the developing nations in order to abiding the compelled rules and regulations of global institutions without considering the contrast socio-economic situations prevailed in different regions. Birdsall (2001) argued the policies of globalization as unfair and unjust. Rodrick (1999) stated that globalization cannot fetch up the blessing to an economy until and unless there is no coordination among different macro-economic policies.

Mellor and Ranade, (2006) attributes the globalization helping in dimaying the poverty level in country by boosting up the growth rate in long run, but it also argued by some researcher in prior literature that unequal income distribution are fetching up by promotion of globalization in developing countries. According to Ben-david et.al. (1999) the interconnection of poverty alleviation and globalization is in a ratio of poor in fold of employment. Because globalization increases the labor demand that leads the

industry to higher wages scenario as well as higher employment ration.

In order to emphasizing the globalization, maintenance of macro-economic stability framework is complementary if equal distribution of relevant benefits among the population's strata is desired. If the whole framework of macro-economic stability is not formulated flexibly the lower standard of living of poor further again hit via raising prices in spite in the presence of free trade routes (Baghwati & Srinivasan, 2001).

It is also argued against the globalization of friendly measures does not ensure the positive growth of economy. The poor countries often seemed fail to well manage the measures and its after affects resultantly adversely affect the rate of growth (Stiglitz J., 2004). The efforts done in Pakistan are argued as, being an active member of World Trade Organization, does not facilitate the need of effective utilization of aid that will give robust effects on poverty reduction. The improvement of investment climate, strengthening the human capital, well management of social protection is complementary if a cut down in poverty incidence is desired through globalization (Malik, 2006).

Trade literature is enriched for a debate on blessings and harms of globalization to economic development. Some researchers argues against it as the force legging behind the poor nation in economical war and some advocates it by calling it as a pulling up force in pace of development. However it is found that globalization is as essential in current era and it does not remain possible for a nation to remain itself economically isolated in world.

Major issues hindering the dairy sector's productivity in Pakistan

Pakistan remained in rank of top 5 countries accounted for largest milk yield in the world. Despite of specialization in its livestock

species country is still unable to meet its domestic requirement for milk. It is marked that country has been spending its foreign exchange for import of different forms of milk on its border every year. There are many reasons behind this in competitiveness of sector, as discussed below:

- 3.1. Issue of supply chain management
- 3.2. Issue of manageability of production season
- 3.3. Issue of electricity load shedding
- 3.4. Issue of improper extension services
- 3.5. Issue of ineffective specie in herd composition
- 3.6. Issue of ineffective governmental support
- 3.7. Issue of threatening situation to environment

3.1. Issue of supply chain management

In Pakistan it is found that the hindering situation while addressing the domestic milk requirement arises due to ineffectiveness in its supply chain. This ineffective supply chain causes billion of rupees losses every year (SMEDA, 2018) in country. Improper infrastructure limits the small farm holder to access the market on time and resultantly it leg behind in contribution to gross domestic production and personal commercial gain. Even if somehow that small farm holder reaches the market its nutrients does not remain in quality (Amed et.al. 2012). Dairy sector faces millions of liter wastage of milk on daily basis just because of ineffective and obsolete processing and value addition procedures. If an effective and proper infrastructure is introduced in country especially to the regions that are involved in production then transportation, storage and other marketing activities could be done on quality standards and sector could be able to flourish in terms of its production and foreign exchange earnings (Khan et al. 2013).

3.2. Issue of manageability of production season

Another issue faced by industry is manageability of production season. Dairy sector has two seasons in production of milk.

i. Flush season

Flush season is the season when milk supply is very rich in quantity as this season enjoys larger fodder. This season is a great opportunity to collect the milk on time from farm holders so the processing and value addition could be done with required standard effectiveness but here unawareness of small farm holders and difficult access to market the ideal production got wasted either in terms of its nutrients or in terms of financial losses (i.e. lower retail prices)

ii. Lean season

Lean season is attributed for lesser milk quantity. This season also lacks in fodder.

3.3. Issue of electricity load shedding

Pakistan faces billions of dollar loss every year in small and medium scale industry just because of power and energy crisis. Same hinders the dairy sector as after lactation milk is required to keep at specific temperature so its nutrients could not be wasted. But unfortunately due to electricity load shedding small farm holder is unable to preserve milk and further its standardized value addition and processing.

3.4. Issue of improper extension services

Farm holders are unaware about advanced herd keeping ways and practice the old and discarded methods leading to lesser milk yield. They are also not familiar to the ways of keeping herds productive for longer period of time and to make them adaptive with accordance of regional climate. Another obsolete feature of dairy sector is traditional milking method instead of robot milking as

practiced by developed dairy industry in rest of the world, which also attributed for lower milk yield (Khan Et.al. 2013). In fact adoption of advanced extension services program may prove as an accelerator tot the growth of dairy industry due to its easy to be understand and practice for farm holders (Sarwer et.al.(2002) and Bindlish and Evenson (1997)). Currently different awareness programs are introduced by private sector but due to lack of national guardianship its magnitude is not wider in effects.

3.5. Issue of ineffective specie in herd composition

Dairy farmers are not well aware about herd composition. Their choice of specie of livestock in herd they keep is often dominated to have buffalos as these are perceived best for more milk yield while cows are being neglected to keep for comparatively lower milk yield but the period of productivity is longer in cows against buffaloes. Secondly this specie also consumes more feed than cow and if comparison is done then net benefit will be to have cows. Such practices are leading an annual loss of \$62620.2 million (Qureshi, 2000). Moreover herd size also affects the milk yield. Pakistan has a lower herd size consisting on average of 10 animals than rest of the world.

3.6. Issue of ineffective governmental support

Livestock is contributing a prominent share to gross domestic production of country with an increasing annual growth rate even in the regime when overall agriculture growth rate has a declining trend. Such a potential demonstrating sector is not enjoying the proper governmental support. Rather milk has been excluded from zero- rating regime that raises the direct taxes by 45% leading to higher cost of production. In fact it is necessary to introduce some incentive programs for farm holders to motivate them for adaption of advanced and latest ways in dairy farming (Idrees et.al. 2007). However programs like introducing Pakistan Dairy Development Council (PDDC) will be very fruitful to raise the productivity and competitiveness of sector (Ahmed et.al. 2012).

3.7. Issue of threatening situation to environment

It is fact that environmental degradation is a serious matter to be cared at overall level of production in world. Livestock is perceived among the top 3 factors to negatively influence the ecosystem. Actually keeping larger herd size needs land as pasture and for other activities that cause deforestation along more water usage with a heavier production of greenhouse gas (Steinfeld et.al. 2006)

1. Dairy sector productivity and composition along media usage among the population

Pakistan's dairy sector plays its role very significantly and demonstrates its potential in foreign exchange earnings as well. The contribution from livestock to agriculture sector and to total Gross domestic production of country is higher than other subsectors of agriculture as 58.55% and 11.61% respectively (see Table 1),while its annual growth rate is also increasing even in the regimes when overall agriculture sector has a declining growth trend (see Table 2).

Table 1: Production contribution of subsectors of agriculture

Sub Sectors of agriculture	Contribution to Agriculture sector	Contribution to total GDP of country
Wheat, rice, maize, sugarcane and cotton	23.55	4.67
Other crops	11.36	2.25
Livestock	58.55	11.61
Forestry	2.06	0.41
Fisheries	2.17	0.43

Source: Pakistan Bureau of Statistics 2016

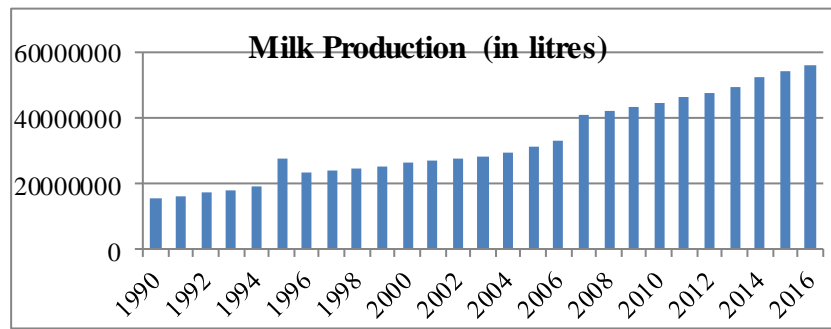
Table 2: Annual growth percentages of overall agriculture sector and its subsector livestock (Base=2005-06)

Sector	2009- 1 0	2010- 1 1	2011- 1 2	2012- 1 3	2013- 1 4	2014- 1 5	2015- 1 6
Agriculture	0.23	1.96	3.62	2.68	2.50	2.53	-0.19
Livestock (sub sector)	3.80	3.39	3.99	3.45	2.48	3.99	3.63

Source: Pakistan Bureau of Statistics 2016

Pakistan dairy industry has only 17 firms enlisted with Pakistan Stock Exchange (see table 3). There is still the numbers of small scale firms that are not officially registered and procedure in industry as cottage industry. The lack of availability of data from such firms also hinders the researchers to limit their research to explore true exposure of industry in terms of gross domestic production and value addition. However annual milk production in country is showing an increasing trend (see Figure 1) that is the possible reason that milk itself is contributing in a higher ratio to gross domestic production of country as compared to sum total of major crops of agriculture.

Figure 1: Annual milk production in Pakistan



Source: Pakistan Bureau of Statistics, 2016.

Table 3: List of stock exchange enlisted dairy companies working in Pakistan

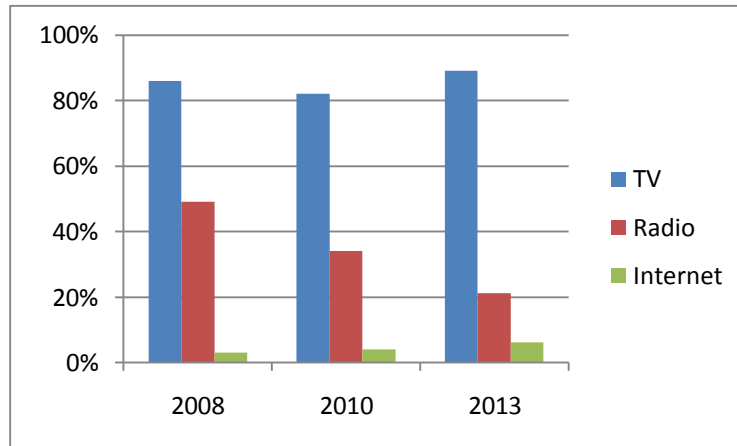
Sr. No.	Name of dairy companies
1	Adam's Milk Foods (Pvt.) Ltd.
2	Americana Dairy
3	At-Tahur (Pvt.) Ltd. (Prema Milk and Products)
4	Dairyland (Pvt.) Ltd.
5	Engro Foods Limited
6	Gourmet Foods
7	Haleeb Foods Limited
8	JK Dairies (Pvt.) Ltd (Avt Farm Fresh Milk and Products)
9	Millac Foods (Pvt.) Ltd.

10	Nestle Milkpak Ltd.
11	Noon Pakistan Limited (Norrpur Milk and Products)
12	Pakola Products Limited
13	Premier Dairies
14	Prime Dairies Ltd.
15	Shakarganj Food Products Limited (Goodmilk Milk and Products)
16	Sharif Dairies (Anhaar Milk and Products)
17	Yummy Milk Products (Pvt.) Ltd.

Source: Pakistan Stock exchange, 2015

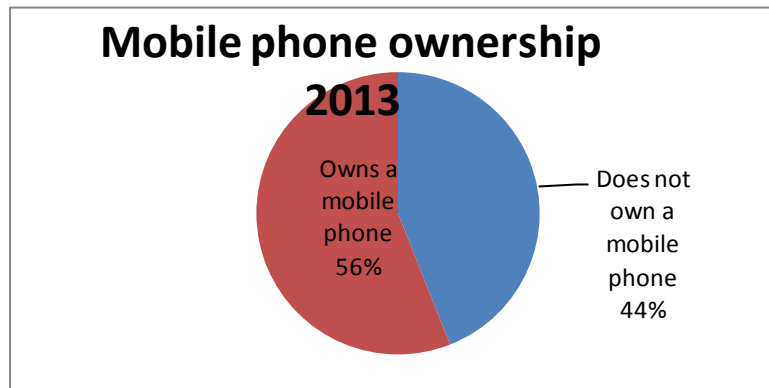
Besides all the flourishing trend of dairy sector it lag behind in promoting easier access to latest information about the domestic and international trends of market. There is a serious need to provide a platform for latest information to small farm holders of industry. As the current era is of globalization where ideas among the world people must be shared, in Pakistan we found non familiarity of internet especially mobile internet that people can have an easier access to be informed about the market prices, latest ways to preserve milk, and other value addition tasks. However the situation of sharing the different media sources in Pakistan is also not globalization friendly as the quickest and latest service provider source that is internet is still below 10% in usage (see Figure 2). In Pakistan only 56% of population owns a mobile phone while other 44% could not avail the mobile internet services as they don't own a mobile phone (See Figure 3).

Figure 2: Media usage in Pakistan



Source: BBC Media Action & BBC Marketing, Communications and Audiences Pakistan Media Survey 2013; Agency: Oasis International

Figure 3: Mobile phone ownership



Source: BBC Media Action & BBC Marketing, Communications and Audiences Pakistan Media Survey 2013; Agency: Oasis International

Empirical Findings

Here is some empirical research also done to elaborate the situation of dairy sector with its trade flow across the border and to address the hypothesis on econometric approach.

An econometric model has also been developed to check the causality of dairy sector productivity.

Productivity = f { agricultural value added services, import, export }

At first, for the purpose a descriptive analysis has been done (see Table 4)

Descriptive Analysis

The selected data set comprises of 41 years of annual observations from the period of 1975 to 2015. Table - 01 represents the results of descriptive statistics, which exhibits that the average of AGRIVALUEADDED is 2.861924 with standard deviation of 2.245169, the average of Export is 1.67E+09 with standard deviation of 8.76E+08, the average of Import is 3.12E+08 with standard deviation of 3.83E+08, the average of ISR is 33.5588 with standard deviation of 12.176, and mean value of MILKOUTPUT is 4E+07, with standard deviation of 1E+07. Jarque Bera Test represents the normality of variables, by exhibiting Table - 7.1., corresponding probability value of variables AGRIVALUEADDED, Export, and MILKOUTPUT shows normally distributed data while Import is not normally distributed. Skewness and Kurtosis are describing the shape and trend of variables, Table -01 represents that AGRIVALUEADDED, Export and MILKOUTPUT are negatively skewed /skewed left, while Import is positively skewed / skewed right. The value of Kurtosis represents that AGRIVALUEADDED

and Import are leptokurtic or long-tailed / higher peak trend in data while variables like Export and MILKOUTPUT are Platy kurtic short-tailed/ lower peak having a smaller deviation from their mean values.

Table 4: Descriptive Analysis

	AGRIVALUEADDED	EXPORT	IMPORT	MILKOUTPUT
Mean	2.861924	1.67E+09	3.12E+08	4E+07
Median	2.675037	1.86E+09	2.17E+08	4E+07
Maximum	6.482853	3.22E+09	1.74E+09	5E+07
Minimum	-2.177328	2.44E+08	39251143	2E+07
Std. Dev.	2.245169	8.76E+08	3.83E+08	1E+07
Skewness	-0.253352	-0.05458	3.252541	-0.212
Kurtosis	3.074184	1.78519	12.80572	2.004
Jarque-Bera	0.185762	1.053773	98.08166	0.83
Probability	0.911302	0.590441	0	0.66

Source: Authors' desk

Unit Root analysis

After a descriptive analysis Unit root test has also been done to check the stationarity of data studied (see Table 5). Unit root of all the series is tested. The result of Augmented Dicky Fuller at level and at 1st difference, where agriculture value added and import are found to be stationary at level and milk output and export are found stationary at 1st difference that leads us to test the causality relationship via Toda Yamamoto Granger Causality Analysis

Table 5: Unit Root analysis

Variables	LEVEL	1st Difference
AGRI_VALUE_ADDED	0	
EXPORT	0.9995	0.0355

IMPORT	0.0003	
MILKOUTPUT	0.9761	0.0000

Source: Authors' desk

Toda Yamamoto Granger Causality Analysis

Toda Yamamoto Granger Causality analysis also has been done and found supporting result to hypothesis (see Table 6, 7 and 8). As variables selected for the study are mixed series of I(0) and I(1), hence Toda Yamamoto granger causality test is suitable to checkout causality relationship of variables (Wolde-Rufael, 2005).

Table 6: Dependent variable: IMPORT

Excluded	Chi-sq	df	Prob.
AGRI_VALUE_ADDED	7.214817	2	0.0271
EXPORT	9.230068	2	0.0099
MILK_PRODUCTION	13.27863	2	0.0013

Source: Authors' desk

Table 7: Dependent variable: MILK_PRODUCTION

Excluded	Chi-sq	df	Prob.
EXPORT	19.00747	2	0.0001
IMPORT	30.50679	2	0.0000

Source: Authors' desk

Table 8: Dependent variable: EXPORT

Excluded	Chi-sq	df	Prob.
IMPORT	6.907398	2	0.0316

Source: Authors' desk

Conclusion

Globalization widens the door for developing nations to share world's advancements and media can help the masses to be aware of new opportunities. This is the only way to have development in a country as without involving the mass population in economic production the desired level of development could not be sustained. In Pakistan, the dairy industry is a competitive one in economy and could help to attain the desired objectives as aimed in Pakistan Vision 2030. It is found that farmers in country are not well aware about the issues and solution to these issues. Most of the time solutions exist in their range but due to improper knowledge and complicated procedures they lag behind. There is found a serious need of national assistance for providence of latest updates to farm holder at every scale of production as it is observed that majority of small farm holder are remained unaware of opportunities to be exploited for their financial gain. Moreover a policy introducing incentives to small farm holders also bring them in the line of economic progress.

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