



Ready to Drink Milk as a Nutritional Tool for Human Capital Development of Thailand

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Abstract Ready to drink milk is one of the nutrient food for Thais as a way for human development in the long run. The research objectives were to 1) study the generality of ready to drink milk as a nutritional tool for human capital development of Thailand, 2) forecast the quantity of ready to drink milk for Thai consumers, and 3) find out the factors affected on consumers' demand quantity for Thais. The secondary data were collected as time series data gathering from Food Intelligence Center of Thailand from the year of 1987 to 2014, the Office of Agricultural Economics Office, Ministry of Agriculture and Co-operatives, Department of Internal Commerce, Ministry of Commerce, Bank of Thailand. Data analysis was applied descriptive statistics which comprised of arithmetic mean, standard deviation, linear forecasting, and growth rate while inferential statistics composed of multiple linear regression analysis in the form of double natural logarithm, T-test, F-test, the Coefficient of Determination (R²) and Durbin-Watson (DW). The research results revealed that 1) ready to drink milk as a nutritional tool as human capital development of all Thai. There obviously trended to get the high potential nutritional consume for Thai as a nutrient food for people of Thailand with the increasingly demand. 2) For ready to drink milk forecasting, quantity demand for ready to drink milk of Thai consumers has been significantly increased as a high nutrient quality drink of essential protein and calcium for Thais. 3) factors affected on ready to drink milk were comprised of its retail prices, quantity of consumer, income per capita as well as the advertising expenditure of ready to drink milk venders. Due to the research results, Thai government should strongly promote ready to drink milk as a tool for human capital to develop both physical and dietary for Thai as a tool for human capital sustainable development.

Keywords ready to drink milk, nutritional tool, human capital development

INTRODUCTION

ASIA is no doubt flexing its muscles as a global milk producer. Recent statistics from the United Nation's Food and Agricultural Organization of the United Nations (FAO) show that the region currently supplies 37 percent of milk worldwide. Thailand is well positioned in all this as its dairy market is valued at \$850 million, with UHT milk and culture yoghurt as main drivers. Although there is a growing demand for cheese mostly from urban dwellers, cheese products continue to take a small bite into Thailand's dairy market. Working against it is the local consumers' lack of familiarity of cheese variety and benefits. In fact, most Thais tend to associate the product as a source of fat and a cause of obesity (www.industrysourcing.com).

In Thailand, the long-running School Milk Programme subsidised by the Royal Thai Government is also fueling milk consumption amongst the young. The project daily provides 200-ml milk carton to more than eight million students below the age of 12 years. Estimated cost to finance the project this year stands at \$432.6 million, with some 80 dairy companies and cooperatives being roped in to process 1,252 tonnes of raw milk daily. FAO estimates the project to account for more than 30 percent of the total liquid food market (www.industrysourcing.com).

According to FAO data, a precursor to the national School Milk programme was introduced in the mid-1980s to provide an outlet for locally produced milk. By doing so, it hoped to introduce milk nutrition into the diets of young people especially those outside of the urban and semi-urban region. A more long-term goal was for the programme to develop in students a lifelong taste for milk. And acquiring the taste for milk they did. Statistics show that from a low 2-litre milk per capita milk consumption in 1984, the rate has risen to as high of 23 litres by 2002. The dairy market has likewise increased from a 290-million-litres-a-year business in the early 1990s to a 1,146-million litres market by 2003. The ascent continues. Whilst milk production within Thailand has grown 30-fold in close to three decades and average dairy consumption in the Thai diet has more than quadrupled for the same period, experts say demand still exceeds local production (www.industrysourcing.com).

Almost 30 years, the Royal Thai Government launched the national school milk programme as a nutritional tool for human capital development of Thailand. More than 90 percent of consumers in this programme consume ready to drink milk as a nutritional food for diet in order to develop both physical and healthy human capital. Ready to drink milk in Thailand comprised of 3 main different types which are pasteurized milk, sterilized milk, and ultra-high temperature milk or ultra-heat treated milk (UHT) (www.ku.ac.th).

In this research paper, the researcher tried to study and examine the situation of ready to drink milk consumption through the national school milk programme as the Royal Thai government provides students as a nutritional tool for human capital development. Also, the research tried to forecast the quantity of ready to drink milk for Thai consumers as well as find out the factors affected on consumers' demand quantity for Thais.

OBJECTIVE

The research objectives are to:

- 1) study the generality of ready to drink milk as a nutritional tool for human capital development of Thailand,
- 2) forecast the quantity of ready to drink milk for Thai consumers, and
- 3) find out the factors affected on consumers' demand quantity for Thais.

METHODOLOGY

Data collection: The secondary data were collected from Food Intelligence Center of Thailand from the year of 1987 to 2014, the Office of Agricultural Economics Office (AEO), Ministry of Agriculture and Co-operatives, Department of Internal Commerce, Ministry of Commerce, Bank of Thailand.

Data analysis: Data analysis was applied descriptive statistics which comprised of arithmetic mean, standard deviation, linear forecasting, and growth rate while inferential statistics composed of multiple linear regression analysis in the form of double natural logarithm, T-test, F-test, the Coefficient of Determination (R²) and Durbin-Watson (DW).

RESULTS AND DISCUSSION

The research results are expressed corresponding to the 3-research objectives as below.

1) The Generality of Ready to Drink Milk as a Nutritional Tool for Human Capital Development of Thailand

The Royal Thai Government implemented the national school milk as a nutritional tool for human capital development of Thailand especially for children. The establishment of the National Milk Drinking Campaign Board (NMDCB) by the Cabinet decision in 1985 stems from the farmers protests of 1984 on unsold milk. A pilot programme was implemented in selected areas of Bangkok and Chiang Mai for parents to purchase milk at 25 percent less the normal priced milk through monthly coupons for their children in Primary and Kindergarten schools. This programme was the origin of the national School Milk Programme of Thailand. Over the years, the programme was later expanded and today all school children in public schools are provided with 200 ml of free milk.

Today, the operation of the Thai school milk is carried out by the Ministry of Agriculture, Livestock Bureau. As per the cabinet consensus in 2003, ready to drink milk, only plain milk in both UHT and pasteurised format are provided. The success of school milk in Thailand stems is not just measured in terms of nutritional benefits, in previous International FAO sponsored school milk conferences. (School milk conferences, www.fao.org/economic/est/est-commodities/dairy/school-milk/school-milk-conferences.) The economic benefits and the support in national development is less known. Without school milk to provide a stable platform by which to support the growth of the Thai dairy industry, the Thai dairy will definitely not have experience such growth.

2) Forecast the Quantity of Ready to Drink Milk for Thai Consumers

The quantity forecasting of ready to drink milk consumption of Thailand is expressed in Fig. 1 and Table 1 as follows.

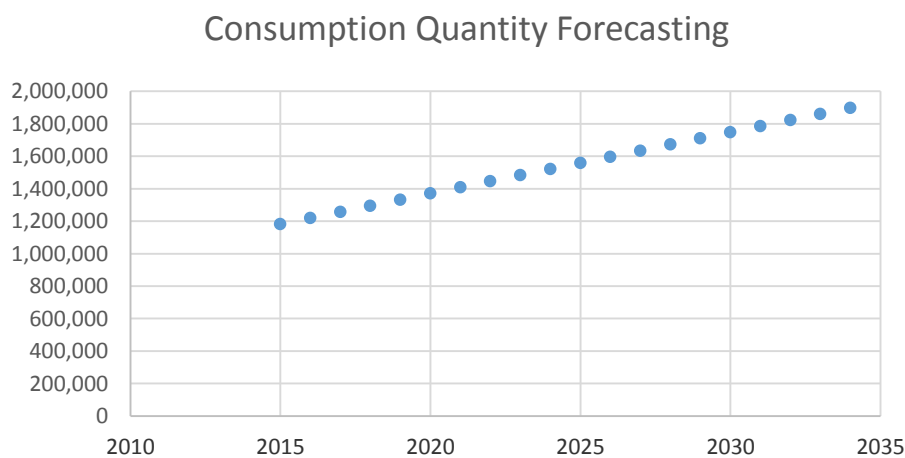


Fig. 1 The quantity forecasting of ready to drink milk consumption of Thailand

Source: Calculated from the data base of the Office of Agricultural Economics, Ministry of Agriculture and Co-operatives, The Royal Thai Government

According to the research results, from the year of 2015 to 2034, the Quantity Forecasting of Ready to Drink Milk Consumption of Thailand would be increased over time with the average 1,540,402 tons a year, standard deviation of 223,007 tons a year, and growth rate of 2.46 percent a year.

Table 1 The quantity forecasting of ready to drink milk consumption of Thailand

Year	The quantity forecasting of ready to drink milk consumption of Thailand	Growth rate (%)
)Unit : Tons(
2015	1,182,299	
2016	1,219,994	3.09
2017	1,257,689	3.00
2018	1,295,384	2.91
2019	1,333,079	2.83
2020	1,370,774	2.75
2021	1,408,469	2.68
2022	1,446,165	2.61
2023	1,483,860	2.54
2024	1,521,555	2.48
2025	1,559,250	2.42
2026	1,596,640	2.36
2027	1,634,640	2.31
2028	1,672,335	2.25
2029	1,710,725	2.20
2030	1,747,725	2.16
2031	1,785,421	2.11
2032	1,823,116	2.07
2033	1,860,811	2.03
2034	1,898,506	1.99
Average	1,540,402	2.46
Standard Deviation	223,007	

Source: Calculation from the Data Base of the Office of Agricultural Economics, Ministry of Agriculture and Cooperatives, the Royal Thai Government, 2016.

3) Factors Affected on Consumers' Demand Quantity for Thais

According to the research results, the factors affected on ready to drink consumption in Thailand were expressed as follows.

$$\text{LnQt} = -7.88 - 0.084 \ln(\text{Price})_t + 1.015 \ln(\text{GDPH})_t + 0.207 \ln(\text{Pop})_t + 0.486 \ln(\text{Advt})_t + e$$

$$(-2.406)^{**} \quad (-14.42)^{**} \quad (35.71)^{**} \quad (42.14)^{**} \quad (36.62)^{**}$$

$$R^2 = 0.97, F = 328.91^{***}, D.W = 1.86$$

Where (Price) t: Ready to drink milk retail price, (GDPH) t: Income per capita, (Pop) t: Number of population, (Advt) t: Advertising expenditure, e: error term, **: Statistical significance at 99 percent.

Factors affected on ready to drink milk were its retail price, income per capita, number of population and advertising expenditure. The increasing in retail price by 1 percent led to the decreasing in ready to drink milk by 0.084 percent while the increasing in income per capita, number of population and advertising expenditure by 1 percent led to the increasing in ready to drink milk by 1.015, 0.207 and 0.486 percent respectively.

CONCLUSION

Ready to drink milk as a nutritional tool for human capital development of Thailand through the national school milk programme launched by The Royal Thai government to develop human capital by promotion the ready to drink milk consumption for Thai young students in schools throughout Thailand. The successfulness of this programme brought to Thai young students develop both physical and healthy human capital. ([www.fao.org/school milk programme in Thailand](http://www.fao.org/school_milk_programme_in_Thailand)) From 2015 to 2034, the quantity forecasting of ready to drink milk in Thailand has been increased significantly. Due to the research results, factor that has biggest influenced on quantity demand of ready to drink milk in Thailand was advertising expenditure because Thai ready to drink milk market structure has been

and still be the oligopoly. The national school milk of the Royal Thai government applied ready to drink milk as a nutritional tool for human capital development of Thailand especially Thai young students all over Thailand. In terms of nutrition, ready to drink milk is one of the diets which rich of protein, calcium, and other necessary nutrients for young students as a tool for human capital development.

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REFERENCES

- Kasetsart University. 2017. Milk and dairy products in human nutrition. <http://www.ku.ac.th>
- Milk Information. 2017. www.industrysourcing.com/food-beverage (retrieved).
- The Office of Agricultural Economics. 2017. Ready to drink milk. The office of Agricultural Economics, Ministry of Agriculture and Cooperatives, The Royal Thai Government.
- The Office of Agricultural Economics. 2017. School milk conferences. <http://www.fao.org/economic/est/est-commodities/dairy/school-milk/school-milk-conferences/en/>, The Office of Agricultural Economics, Ministry of Agriculture and Cooperatives, The Royal Thai Government.