

The Ripple Effects of Genghis Khan Barbecue Cuisine on Hokkaido's Economy

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ABSTRACT

Under the recent conditions of fiscal deficit and sluggish economic growth, it is very important to devise methods to energize the economy without government funding. This paper considers the ripple effects in Hokkaido that would result from residents consuming an extra Genghis Khan (Mongolian mutton barbecue) meal per year, and outlines an effective example of the theory of comparative advantage. The reasoning behind this thought is that the ingredients of a Genghis Khan meal consist of mutton that is 99% imported from Oceania and vegetables that are 100% Hokkaido.

The related research assumed a Hokkaido population of 5.63 million people and an expenditure of US\$12.25 (\$1 = ¥100) per person per year on Genghis Khan Cuisine. Estimation using these figures indicated an annual increase in personal income by US\$17.42 per person and the creation of 1,118 jobs as a result of the theoretical extra consumption.

It was found that the promotion of Genghis Khan Cuisine would be an effective regional policy under the benefits of comparative advantage without the need for government finance.

Keywords: ripple effects, input-output, theory of comparative advantage

1. Introduction

With today's sluggish economy and ballooning government expenditure, it is imperative to devise economic revitalization measures that are independent of taxpayer funding.

An applicable example of such measures is seen in the efforts made to energize the regional economy by attracting the Hokkaido Nippon-Ham Fighters professional baseball team to base itself in the prefecture's Sapporo City. The team's victory in the league has been much talked about again this year, and various estimations have been made about economic ripple effects generated by such events.

The basic approach to this kind of estimation involves the inter-industry relations analysis technique developed by Leontief.

When a new economic program or measure is implemented, its effects can be estimated as long as numerical data (such as regional input-output tables) are available.

Using this inter-industry relations analysis, the present paper aims to clarify the effectiveness of increased consumption of Genghis Khan barbecue (a type of cuisine that has become part of Hokkaido's food culture) meals by locals in revitalizing the economy and creating jobs as a measure that requires no taxpayer funding.

The main ingredient of a Genghis Khan Barbecue meal is mutton, which is predominantly imported from Australia and New Zealand¹. The amount of mutton produced in Japan accounts for only about 1% of total domestic consumption for this kind of meat. However, despite the fact that the main ingredient is mostly imported, it is also true that this style of cuisine plays an important part in regional food culture. This may be a typical case for which David Ricardo's theory of comparative advantage holds. At least from the viewpoint that our affluent lifestyles have benefited from global trade, the dish can be considered a good example of something that plays a major role in regional food culture and contributes to local community revitalization despite being largely based on imported ingredients. To clarify, the authors aim to reveal through analysis of this economic effect that, regardless of its reliance on imported meat, the dish contributes greatly to local community revitalization.

To be specific, this paper seeks to identify the economic ripple effects and employment influence of Genghis Khan Barbecue cuisine based on the Hokkaido Input-Output Table for 2000 as issued by the Hokkaido Regional Development Bureau to explore the possibility of regional vitalization using the dish. It should be noted, however, that these economic effects were estimated based on fairly rough numerical data, meaning that calculation using more detailed data may yield slightly different results.

In the following sections, problems with real data collection are examined (Section 2), the

¹ Trade statistics compiled by the Ministry of Finance in 2004 show that mutton imported from Australia and New Zealand accounted for 55.8% (15,835 tons) and 43.8% (12,435 tons), respectively, of Japan's consumption. The remaining countries were Iceland with 0.4% (approx. 110 tons) and Norway (approx. 1.7 tons). According to the Food Balance Sheet compiled by the Ministry of Agriculture, Forestry and Fisheries (<http://www.kanbou.maff.go.jp/www/fbs/dat/2-1.xls>) and information released by the Tokyo Genghis Khan Club (<http://www.to-jin.com/tgc.html>), just 1% of all mutton consumed in Japan in 2003 (27,000 tons) was domestically produced, while the corresponding figures for beef, pork and chicken were 40% (1.24 million tons), 52% (2.42 million tons) and 68% (1.24 million tons), respectively. This means that per-capita consumption was 0.4 kg for mutton, 8 kg for beef, 15 kg for pork and 11 kg for chicken. Compared with the per-capita consumption of mutton in Australia (17.5 kg) and the UK (6.4 kg), the figures for production and consumption of mutton in Japan are extremely low.

method of data estimation for the input-output table is outlined (Section 3), and the results of estimation regarding economic ripple effects and employment effects are discussed (Section 4).

2. Problems with real data collection²

A variety of problems were considered in regard to the data necessary for estimation, as outlined below. We looked at ratios by category based on ingredient costs for several restaurants examined in our research.

2-1. Data on mutton

Obtaining data on mutton, which accounts for 66% of the ingredients used in Genghis Khan Barbecue, is a major problem. First of all, the amount of mutton produced in Japan is negligible as a percentage of total consumption. However, due to its high price, most of it is shipped as an exclusive French cuisine ingredient.

The recent Genghis Khan fad has increased the amount of mutton consumed in such barbecue dishes, but no statistical data were available to clarify the actual situation. In addition, although data on imported mutton could be obtained from customs clearance figures, no reliable data could be extracted because customs makes no distinction between mutton for ordinary cooking and that used as an ingredient in pressed ham.

However, rough data on mutton used for Genghis Khan Barbecue meals could be obtained through communication with specialized traders and others, although it was not possible to distinguish between Genghis Khan mutton and meat used at regular Korean barbecue restaurants from this data in terms of consumption in Hokkaido. It was also impossible to ascertain the volume of mutton transported from Honshu (mainland Japan).

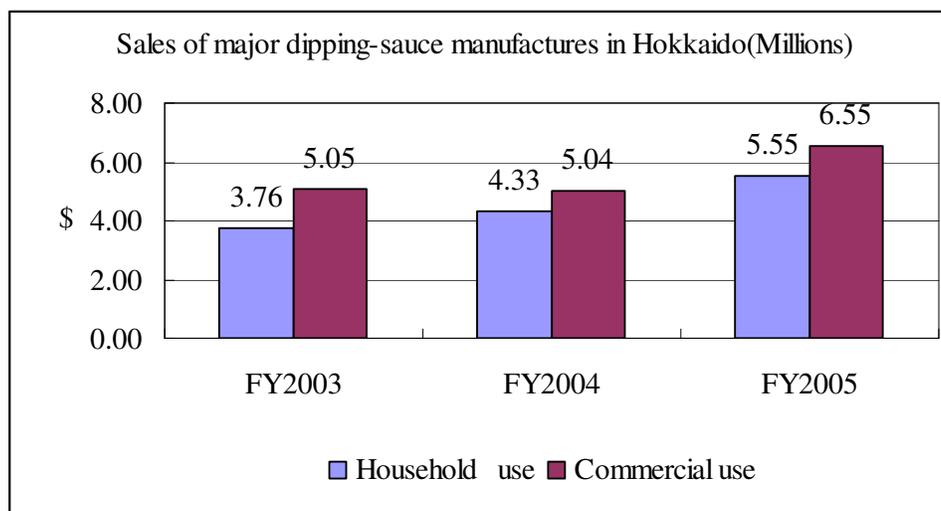
2-2. Data on vegetables

Vegetables make up roughly 20% of the ingredient costs of a Genghis Khan Barbecue meal. A wide variety of vegetables are used, and prices differ significantly by season and district of production. In addition, since different shops and households use different vegetables in the dish, we were unable to collect data by identifying production districts and vegetable types.

2-3. Data on dipping sauce

Dipping sauce accounts for 14% in terms of value. Restaurants, households and butcher's shops dealing in mutton for Genghis Khan Barbecue make their own original sauces, and we were unable to obtain data on these. However, we assumed that sauce produced by sauce manufacturers is used as the base for original sauces, which enabled approximate estimation of the total amount of sauce consumed. Consequently, we were able to produce relatively accurate time-series data with the cooperation of sauce manufacturers. A graphical representation of the most recent data is given below.

² Data were collected primarily from publicly available materials and hearings. The authors also gratefully acknowledge the generous cooperation of Asahi Beer Hall, Bell Shokuhin Co., Ltd., Big House Sumikawa Store, Co-op Sapporo Sumikawa, Matsuo Genghis Khan, Ohgane Chikusan, Sapporo Grand Hotel Service Corporation, Sorachi Co., Ltd. and Tokyu Store's Jieitai-mae branch. Any related discrepancies are the responsibility of the authors.



2-4. Data on beverages

While data relating to beer, wine, oolong tea, juice and ice cream were available, no corresponding figures for Japanese sake, Japanese distilled liquor (known as shochu), whisky and beverages other than those mentioned above could be obtained. Accordingly, the percentage of beverages drunk by Genghis Khan Barbecue diners is not 100% accurate.

However, beverages make up 76% of ingredient costs and 12.8% of sales. At Genghis Khan Barbecue restaurants, approximately 50% of customers order drinks, with an average spend of a little over \$4.³ This is a significant expenditure relative to the average amount spent on Genghis Khan Barbecue per customer (\$18) and the average ingredient cost expenditure per customer (\$3).

2-5. Data on rice, miso soup, pickles, etc.

Rice, miso soup, pickles, etc. are common accompaniments to Genghis Khan Barbecue meals at home and in restaurants, but no relevant data were available for this survey.

Since people generally consume these accompaniments regardless of the type of meal, they were not taken into consideration in our survey on the assumption that the amounts consumed do not vary in relation to Genghis Khan Barbecue figures.

2-6. Labor costs, overheads, profits

Labor costs, overheads, profits, etc. relating to Genghis Khan Barbecue meals served at Genghis Khan restaurants and elsewhere were estimated based on average figures provided by the dining establishments in our survey.

2-7. Household ingredient costs

For ingredient costs in household consumption, we investigated the retail prices of ingredients on the assumption that they would be bought at supermarkets and that the same

³ An exchange rate of US\$1 = ¥100 was assumed here for simplicity.

vegetables and meat as those consumed at restaurants would be used. Specifically, we investigated the prices of the cheapest vegetables produced in Hokkaido, raw mutton imported from Australia, and dipping sauce produced by major manufacturers (such as Bell Shokuhin Co., Ltd. and Sorachi Co., Ltd.) at different supermarkets in Sapporo on December 17, 2007. Based on these prices, we calculated the average unit prices of ingredients and estimated per-capita ingredient costs according to the composition ratio of ingredients for commercial use.

3. Method of estimating data for the input-output table

The data obtained from restaurants showed that the consumption ratios of the ingredients listed in 2-1, 2-2, 2-3 and 2-4 showed stability without significant changes over the past five years.

Given this situation, we looked into the sales data of the restaurants cooperating in our survey for the past five years, investigating the consumption amounts and values of vegetables produced in Hokkaido, vegetables harvested in Honshu, mutton, sauce, beverages (beer and wine) and ice cream, labor costs, overheads and profits.

Figures on the total amount of mutton used for Genghis Khan Barbecue meals and other necessary data were unavailable. The authors therefore estimated economic ripple effects and employment effects based on relatively accurate time-series data on sauce as outlined below.

- (1) We calculated the overall composition ratios from data on ingredient costs (Hokkaido/Honshu vegetables, mutton and sauce), the costs of beverages (beer and wine) and ice cream, labor costs, overheads and profits among the total sales of the monitored restaurants. The magnification factors per unit of sauce were 1.14 for Hokkaido vegetables, 0.33 for Honshu vegetables and 4.69 for mutton. Next, on the basis of these ingredient costs (with ingredient costs as a base of 1), we calculated factors of 0.76 for beverages, 2.12 for labor costs, 1.49 for overheads and 1.36 for profits.
- (2) We estimated growth rates for the shipment values of sauce based on time-series data provided by sauce manufacturers on quantities and prices of sauce shipped for commercial use and for household consumption. Based on data covering the past five years, the growth rate of sauce for commercial use since 2005 was 21.7%, and that of sauce for household consumption was 15.1%.
- (3) On the basis of FY (Fiscal Year) 2005 figures, we assumed the market would expand with the same growth rate as that for sauce. Furthermore, by considering sauce manufacturer market share figures for FY 2005 (50% for commercial use, 70% for household consumption), we estimated increased ingredient costs in both commercial use and household consumption for the market expansion scenario described in (2) above. The ingredient cost increases for commercial use were \$1,283,000 for Hokkaido vegetables, \$370,000 for Honshu vegetables, \$5,300,000 for mutton and \$1,130,000 for sauce. The corresponding values for household consumption were estimated to be \$483,000 for Hokkaido vegetables, \$1,530,000 for mutton and \$970,000 for sauce.
- (4) The increase of beverage sales in commercial use was \$7.44 million, while the increases in labor costs, overheads and profits were \$20.64 million, \$14.545 million and \$13.255 million, respectively. The increase in household beverage costs was calculated as \$2 million based on average expenditure in restaurants (\$2.153 per capita).

- (5) The data items for which increases were input to estimate the economic ripple effects were crop farming, livestock agriculture, other foods and the service industry.

Crop farming: \$1.77 million (Hokkaido vegetables for commercial use and household consumption)

Livestock agriculture: \$6.83 million (mutton for commercial use and household consumption)

Other foods: \$11.91 million (Honshu vegetables for commercial use, beverages for commercial use and household consumption)

Service industry: \$48.44 million (labor costs + overheads + profits for commercial use)

4. Results of estimation of economic ripple effects and employment effects⁴

The size of the market for dipping sauce (particularly post-grill dipping sauce as opposed to pre-grill marinade) was assessed to obtain a rough estimate of the related economic ripple effects. Specifically, if it is assumed based on 2. and 3. above that the final expenditure increase calculated with 2005 as a base was \$68.95 million, then:

- (1) The combined ripple effects of production inducement amounted to \$98.05 million, and the magnification ratio (the value of production induced divided by the final expenditure increase) was 1.42.
- (2) The direct ripple effect produced \$77.17 million in terms of the value of production induced, a magnification ratio of 1.12, \$33.60 million in induced intermediate consumption, \$43.57 million in induced gross value added, and \$22.31 million in induced employee income.
- (3) The indirect ripple effects produced \$20.88 million in induced production, a magnification ratio of 0.30, \$7.64 million in induced intermediate consumption, \$13.24 million in induced gross value added, and \$6.26 million in induced employee income.
- (4) The effects of employment inducement⁵ produced 1,188 jobs.

⁴ For these estimations, we referred to the following resources with the permission of Asahikawa City Government: “Asahikawa Input-Output Table, 1995” compiled by the Policy Coordination Division of Asahikawa City Government’s Planning Division (2001), March 2001; “Zoo-related Impacts on the Regional Economy” by Asahikawa City Government (2002), March 2002. The characteristics of these resources include the use of convergence calculation, marginal propensity to consume, etc. In our survey, we identified the average propensity to consume (as opposed to the marginal propensity to consume) for convergence calculation. Accordingly, the resulting estimations may contain some degree of exaggeration. To identify the average propensity to consume, the consumption expenditures and disposable incomes in “Table 2 Average Annual Monthly Household Incomes and Expenditures by Urban Class/Region (Workers’ Households) in Hokkaido” and “Annual Report on the Family Income and Expenditure Survey” from 2000 to 2004 were used.

⁵ To estimate employment inducement effects, Hokkaido’s estimation method (employment coefficient = number of employees ÷ value of production, value of employment induced = employment coefficient x value of production induced) was used (“Report on Preparation for Input-Output Tables by Subprefecture in Hokkaido” issued by the Economic Survey Division of the Hokkaido Government’s Department of Comprehensive Planning (2002) in May 2002, p. 29). For the number of employees, we made the Japan Standard Industry Classification correspond to the categories of the input-output table, and the number of employees for FY 2002 in “Annual Economic Calculation Report for Hokkaido Citizens” (issued by the Hokkaido Government’s Department of Comprehensive Planning) was used. For the value of production, “Hokkaido

From the results outlined above, it can be considered that Genghis Khan Barbecue cuisine constitutes an example of something that has a significant impact on regional revitalization based on popular food culture.

The results of this study's estimations indicate that an increase of approximately 18% in the average consumption of Genghis Khan barbecue meals among households and in commercial environments will lead to the creation of roughly 1,000 new jobs and an additional annual income of \$17.42 for each of Hokkaido's 5.63 million citizens. To achieve these economic ripple and employment effects, consumers who eat Genghis Khan Barbecue five times a year need to be induced to eat the dish one more time. However, if locals increase their consumption of Genghis Khan barbecue cuisine, consumption of other dishes (e.g., sushi, soup curry and ramen noodles) will fall, and this must also be taken into consideration. Since this report does not consider such related reductions, it will be necessary in the future to identify channels outside Hokkaido to compensate for the shortfall. As an example, measures to attract tourists to Hokkaido may take on increased importance.

Genghis Khan Barbecue consists of a number of ingredients including mutton, vegetables and dipping sauce; the lamb and mutton used are primarily imported from Australia and New Zealand, while the vegetables and sauce are produced in Hokkaido. Many accompanying beverages such as beer are also produced in the prefecture. In this situation, David Ricardo's theory of comparative advantage holds. While benefiting from international trade, the prefecture protects and promotes its food culture. Our survey revealed that this not only helps to promote the use of local products but also creates economic ripple effects and employment effects. That is to say, Genghis Khan Barbecue can be positioned as a type of cuisine unique to Hokkaido – a place where local communities can enjoy revitalization while reaping the benefits of free trade.

We should appreciate the fact that Hokkaido has a wonderful food culture by which locals and visitors from outside the prefecture can contribute to the local economy and promote international exchanges through increased consumption of Genghis Khan Barbecue meals.

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