

Shaping Bread as “Modern Food”: The Changing Baking Industry in Postwar Taiwan

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Introduction

Baking has been practiced in diverse cultures worldwide for thousands of years. However, industrialization in the modern era has had a major impact on the act of baking and the consumption of baked goods. The emergence of the baking industry in Europe in the 19th century triggered the mass production of baked goods and involved social changes such as new divisions of labor in cities, a large number of women entering the workforce, and the more efficient capitalist business model.¹ The birth of the baking industry involved the development of baking ovens, yeast, and temperature and humidity control technology. The historical study of the baking industry provides insights into how the development of machinery and technology has changed the baked goods we consume every day.

The historical analysis of everyday objects often reveals significant social transitions that served as driving forces for the production of those goods. For example, Weis examined the development of Mexico City's *panaderías* (bakeries) from a socio-historical perspective, noting that bakeries in Mexico City were a space where labor, livelihoods, and politics came together and that immigrants from the Basque region of Spain led the bakery-related trade in Mexico from the 1880s through the 20th century.² Bobrow-Strain focused on white bread in the United States, analyzing how industrialized, mass-produced, and soft-looking white bread became a symbol of hope in times of economic recession, war, and social unrest. Bobrow-Strain noted that differences in bread consumption have long marked social class strata and that the way bread is eaten has even defined the boundary between civilization and barbarism. A change in the definition of “good bread” as the symbol of an ideal society,

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¹ Bobrow-Strain, Aaron, *White Bread: A Social History of the Store-bought Loaf* (Boston, M.A.: Beacon Press, 2012).

² Weis, Robert, *Bakers and Basques: A Social History of Bread in Mexico*. (Albuquerque: University of New Mexico Press, 2012).

also indicates a change in the values that society esteems.³ Both of the aforementioned studies reveal that the study of bread involves various elements such as social class, cultural values, and economic conditions. Therefore, the history of bread is not only the history of a single food but is intertwined with political, industrial, and cultural history.

In East Asia, although noodles and other food items made of wheat flour had enjoyed a longer history, as Sheng's research has analyzed, bread is often viewed as a modern food originating from "the West."⁴ In the 16th century Portuguese traders and Christian missionaries brought bread into Japan, giving rise to the Japanese word for bread *pan* パン to come from the Portuguese term for bread, *pão*.⁵ Regarding "the West" as a symbol of civilization and modernization, the Japanese further linked bread with the implications of modernization along with other Western food. In Korea, bread, which was called *myeonpo* 麵麪, was brought by foreign missionaries along with "western rice cakes 西洋떡" and *seolgo* 雪餠 in the late 19th century. Later, the Japanese brought desserts such as *wagashi* 和菓子 sweets and Western confectioneries to Korea, and milling factories that process wheat flour were established in the late 1920s.⁶

Except for traders and missionaries, the expansion of colonialism led to the increase of bread consumption in Asia. In Hong Kong, bakeries and related industries were present by 1857 as a result of British rule since 1841, but modern-day local bread specialties of Hong Kong, such as lotus seed buns and pork buns, only emerged after the Second World War. Rapid industrialization and economic development after the Second World War were major impetuses for the popularity of bread in Hong Kong.⁷

In Taiwan, the baking industry can be traced to the Qing Dynasty (1636-1912). "Han pastries 漢餅" such as meat cakes, pineapple cakes, and cakes made of wheat flour played a key role in festivals and ceremonies. The main ingredients of "Han pastries" include flour, fat (usually lard), and sugar. The ingredients of the filling depend on the type of flavor, and are mostly comprised of green or white bean paste, meat, mushrooms, etc. In contrast, the main ingredients of bread are flour, yeast, and salt, and most of them need to go through the fermentation process, and while sugar and fats are also commonly used, they are inessential. From the above, it can be seen

³ Bobrow-Strain, A., *White Bread*.

⁴ Annie Sheng, "Forging ahead with Bread: Nationalism, Networks and Narratives of Progress and Modernity in Japan," in Andreas Niehaus and Tine Walravens eds., *Feeding Japan: The Cultural and Political Issues of Dependency and Risk* (Switzerland: Palgrave Macmillan, 2017), 191-224.

⁵ Shibata, Beisaku 柴田米作 (ed.), *Nihon no pan yonhyakunen shi* 日本のパン四百年史 (Tokyo: Nihon no pan yonhyakunen shi kankōkai, 1956), 3.

⁶ Cho Seung-hwan 조승환, *History of Korean Bread and Confectionery Culture* 한국빵과자문화사, (Hakmunsa, 2003), 41.

⁷ Tang Lai La, "Mihn Baau: The Localization and Consumption of Bread in Hong Kong" (Hong Kong: Master Thesis, Chinese University of Hong Kong, 2007).

that although both Han pastries and bread are flour baked products, they are different in terms of ingredients and production methods. At the end of 1975, the official definition of “breads” was set by the Ministry of Economic Affairs of Taiwan: “A product made of flour as the main raw material, mixed with water, yeast, salt and auxiliary ingredients such as fat, sugar, egg, milk or other raw materials, to which legal improvers or additives may be added, fermented and baked in a suitable shape, and may be decorated with other decorations.”⁸

The famous Han pastry shops that first appeared in the Qing Dynasty mostly imported their techniques from the masters in Fujian province. Although some Western-style cakes were also introduced, they were expensive foreign goods that only the upper class could afford to consume. During Japanese colonial rule (1895-1945), industrialization and colonization led to the development of the sugar industry. A steady sugar supply under colonialism encouraged the proliferation of Japanese *wagashi*, Western-style biscuits, and bread in Taiwan, where they were enjoyed by urban residents and the upper class. Compared with the elaborate and ritual-oriented Taiwanese Han pastries, the new confections with their novel flavors and non-festive function, came to be regarded as an everyday treat. They gradually entered the lives of Taiwanese people through Taiwan confectionery stores that originally sold only Han pastries.⁹

The baking industry in Taiwan developed rapidly in the postwar period, and the growth of bread consumption is of considerable significance. While having bread was only the experience of urban dwellers and upper-class consumers, the number of modern bakeries rose sharply in the 1970s. In a cookbook *Taiwan Family Cuisine* 臺灣家庭料理 published in 1967, the recipe of bread, sponge cakes, doughnuts, cream puffs, fruit cakes and oat cookies were all included, indicating the inclusion of bread into Taiwanese society.¹⁰

The purpose of this article is to examine the development of the baking industry and bread in postwar Taiwan, particularly during the period of U.S. aid (1951-1965), which was a key period of technological and institutional change in baking. The analysis focuses on the establishment of the wheat flour industry and new baking technologies, explaining how these technologies were introduced and how their de-

⁸ The Bureau of Standards, Metrology and Inspection (BSMI), MOEA, R.O.C CNS Online Service: https://www.cnsonline.com.tw/?node=detail&generalno=3899&locale=zh_TW.

⁹ About the development of bakery industry in Taiwan during the Japanese colonial period (1895-1945), see, Chen, Yu-jen 陳玉箴, “Han pastry, Taiwanese snacks, and bread: Formation of bakery industry and transformation of consumption culture in Japanese colonial Taiwan 漢餅、臺灣菓子、麵包：日治時期臺灣烘焙產業之形成與消費變遷,” *Taiwan Historical Research* 臺灣史研究 28:1 (2021), 43-86.

¹⁰ Huang, Lixiuxiang 黃李秀賢, *Taiwan Family Cuisine* 臺灣家庭料理, (Tainan: Zhongliu Publishing, 1970 [1967]), 57-68.

velopment influenced the baking industry. This article further explores how the progress of technologies shaped bread into a “modern food” and how the linkage with modernity affected the consumption of bread in Taiwan.

Establishment of the Flour Industry during the Japanese Colonial Period

Although Taiwan does not have a temperate climate and was thus not traditionally a wheat-producing region, historical archives show that the plantation of wheat had existed in Taiwan since the 17th century. Between 1633 and 1636, the Dutch in Taiwan recruited laborers from the coastal regions of China to cultivate land by providing cattle and buying the produce at a guaranteed price; the crops cultivated included sugar cane, cotton, hemp, rice, wheat, tobacco, etc..¹¹

In the Qing Dynasty, wheat cultivation continued in Taiwan despite the departure of the Dutch.¹² For the Han Chinese people, Barley and wheat could be grown as a supplemental food in winter and spring when the climate was not conducive to growing main crops such as rice or sugar cane. Wheat cultivation in Taiwan during the Qing Dynasty was centered in the north of present-day Chiayi, a county in the southwest of Taiwan. After the opening of Taiwan to commerce in the 1860s by the Qing government, Taiwan not only produced wheat, but also imported wheat and flour mainly from the Americas, resulting in the emergence of the flour industry.¹³

The growth of the flour industry in Taiwan from the late 19th century to the early 20th century should be considered against the backdrop of the developing global flour industry. At the turn of the 19th and 20th centuries, not only was a large amount of foreign wheat flour imported into Qing China, but industrialization led to the emergence of mechanized milling factories in major cities of China. This led to the widespread consumption of flour in central and southern China, areas in which rice had been the staple food. The international grain trade and industrialization gradually changed the consumption habits of city dwellers, and the development of the flour

¹¹ Chiang, Shu-sheng 江樹生 (trans.), *De Dagregisters van het Kasteel Zeelandia 熱蘭遮城日誌*, I-B/1631-09-05; IV-A/1656-03-20.

¹² Zhou, Zhong-xuan 周鍾瑄 (ed.), *Gazetteer of Jiayi County 諸羅縣志*. Taiwan Documentary Collection 臺灣文獻叢刊 Title 141 (1962 [1717]), 86-87.

¹³ Huang, Fu-san, Lin Meng-hong and Weng Jia-yin 黃富三、林滿紅、翁佳音 (eds.), *Archives of Taiwan Customs of Late Qing (1867-1895)* 清末臺灣海關歷年資料 (Taipei: Academia Sinica, 1997); Economy Research Team of Taiwan Bank (ed.), *History of Taiwan Economy 臺灣經濟史* (Taipei: Economy Research Team, *Taiwan wenxian congkan* 臺灣文獻叢刊 Title 54, 1952), 85-107.

industry and long-distance transportation under industrialization led to the emergence of machine-milled flour as a new source of food at the time, gradually altering the food choices of those who originally consumed rice.¹⁴

During the Qing Dynasty, flour and pastries had been consumed in Taiwan. For example, flour-making shops commonly ground wheat and sweet potatoes into flour, and the main use of flour was to make noodles and pastries for rituals or festivals.¹⁵ In addition, “flour tea” made of flour, peanuts, and sugar was a cheap, popular treat. Despite Taiwanese people being familiar with flour products, the amount of flour pastries was limited during the Qing period. As flour millers used human-powered stone mills as their main tool, the amount of flour produced was also limited.

Flour-made products increased with the development of the Japanese baking business in Taiwan during the colonial period. The era of large-scale flour processing began in 1909 with the opening of the Taichung Flour and Rice Refinery by Japanese businessman Tsutomu Fujitoshi 藤利勉. In 1914, the company raised its capital and purchased flour mills, rice refining machines, and water-powered engines. It expanded again and was renamed as Hainan Flour Company in 1919, transforming into the largest flour company in Taiwan.¹⁶ In addition to the main office in Taichung, the company had a six-story factory in Keelung, a major port city in northern Taiwan. Hainan Flour Company produced various flour brands. The company’s advertisements emphasized that it not only imported first-rate American flour-making machines but also used core parts from SKF, a company well known in Europe and founded in Sweden. The advertisement highlighted that “among all the flour-making factories in Japan, only Hainan Flour uses SKF.”¹⁷

The emphasis on high-quality machinery in the advertisements indicated that equipment had a substantial impact on the quality of the flour produced. Indeed, before the introduction of professional machinery, local flour mills often used the same machines to grind rice, sweet potatoes, and wheat, and the flour produced was often criticized for being of poor quality and mixed with rice flour or sweet potato flour.¹⁸ The introduction of professional machines greatly improved the quality of flour.

¹⁴ Chan, Kai-yiu 陳計堯, “The opening of ports, industrialization and changes in food consumption at ports of commerce in modern China 近代中國的開港、工業化與通商口岸之糧食消費的變遷 (1870-1936),” in Maritime History Series Editorial Board (ed.), *Maritime History Series 1 Port Cities and Trade Networks* (Taipei: Academia Sinica, 2012), 221-290.

¹⁵ Economy Research Team of Taiwan Bank 臺灣銀行經濟研究室 (ed.), *History of An-ping County 安平縣雜記* (Taipei: Economy Research Team, *Taiwan wenxian congkan* 臺灣文獻叢刊, Title 52, 1959), 83.

¹⁶ Agriculture and Woods Company 臺灣農林公司 (ed.) *Special Issue on Taiwan Flour Industry 臺灣麵粉工業特輯* (Taipei: Agriculture and Woods Company, 1955), 1-2.

¹⁷ Giichi Tsubakimoto 椿本義一 (ed.), *Overview on Keelung Port 基隆港大觀* (Taipei: Nanguo Publishing, 1922), 8.

¹⁸ An example of such criticism, see, “Sale of Tienguan Flour 天官粉之消售,” *Taiwan nichinichi shinpō* (Taiwan Daily News), 1906. 2. 11. (6).

According to statistics from the Hainan Flour Company, most of the raw materials used in the factory during the period of Japanese rule were imported from Japan, with a small amount from Australia and the northeastern provinces of China. The highest record of flour production was in 1934, when Hainan Flour processed 17,245 tons of wheat. As the profitability of flour production surged, small flour mills were also set up in Taichung, a wheat-producing area.¹⁹ Yet these factories could not continue in the 1940s because of the war. In short, although the consumption of flour products during the Japanese occupation period remained quite limited, a few industrialized flour factories were established, serving as an important basis for the further development of the flour industry after the Second World War.

The flour industry in Taiwan faced drastic changes along with other countries in East Asia because of the new international political order. After the outbreak of the Korean War in June 1950, the United States began to cultivate relationships with its allies in Asia. In 1951, the U.S. reorganized and reallocated aid under the Mutual Security Act, which allowed the U.S. government to allocate a portion of U.S. aid funds to purchase surplus U.S. agricultural products and sell them to recipient countries for local currency, and then gift or loan the funds to the recipient countries for various program purposes.²⁰ In 1954, the U.S. passed the Agricultural Trade Development and Assistance Act, known as Public Law 480, which authorized other friendly countries to purchase surplus U.S. agricultural products in local currency through U.S. aid channels.²¹ Through these channels, staples such as wheat, flour, beans, milk, and other agricultural products from the U.S. entered Taiwan, which was then ruled by the Nationalist government. Until the end of such aid in 1965, these agricultural products and economic aid influenced the production and consumption of daily food in Taiwan in a multitude of forms, including the increase in wheat foods and the baking industry.

By that time, the previous Japanese-owned Hainan Flour Company was taken over by the Taiwan Provincial Government and renamed the Keelung Flour Mills of the Animal Products Branch, Agriculture and Forestry Company. Asahi Flour Company was another company which was renamed as the Taichung Flour Plant of the Animal Products Branch, Agriculture and Forestry Company.²² These companies had priority access to wheat from the U.S. aid shipments. In the early postwar years, less than 20,000 tons of wheat were produced, half of which was fed to livestock or kept for

¹⁹ Agriculture and Woods Company 農林公司 (ed.), *Special Issue on Taiwan Flour Industry* 臺灣麵粉工業特輯, 2.

²⁰ Xu, Ruihao, Zhou Xiuhuan and Liao Wenshou 許瑞浩, 周琇環, 廖文碩 (eds.), *Yen Chia-kan and International Economic Cooperation* 嚴家淦與國際經濟合作 (Taipei: Academia Historica, 2013), 5-9.

²¹ Zhao, Jichang 趙既昌, *The Use of US Aid* 美援的運用 (Taipei: Linking, 1985), 33.

²² Agriculture and Woods Company 農林公司 (ed.), *Special Issue on Taiwan Flour Industry* 臺灣麵粉工業特輯, 2-3.

seeds, and less than half of which was available for flour production.²³ In 1951, Kee-lung Flour Mills transferred some of the imported wheat to private flour mills for joint processing, after which time the flour business in Taiwan began to prosper, and existing factories successively expanded their facilities.

Development of the Baking Industry with U.S. Aid

After the Second World War, the international agricultural and food markets began to be dominated by the United States. In response to agricultural overproduction in the United States, the U.S. government started to promote wheat-food consumption in East Asia, including Taiwan, substantially influencing the development of the baking industry.²⁴

In 1949, under the leadership of the U.S., 46 major wheat-exporting and importing countries signed the International Wheat Agreement (IWA). For wheat importing countries, the IWA guaranteed an agreed-upon quota for wheat imports and set price ceilings. It also guaranteed a floor price for wheat transactions for wheat-exporting countries.²⁵ Under this agreement, the volume and price of international wheat transactions stabilized, and the international market price of wheat was depressed, creating a market environment conducive to the export of wheat from the U.S.

In the early post-war period, the Chinese Nationalist Party government's agricultural policy aimed at increasing food supply under the goal of "Taking back mainland China from the Chinese Communist Party." Although some officials had suggested as early as 1953 that the public should be encouraged to eat more wheat foods and conserve rice in order to increase rice exports so that the government could earn foreign exchange for the country,²⁶ the Nationalist government was concerned about its dependence on U.S. food aid. Therefore the Nationalist government did not cooperate in promoting the wheat food campaign in the 1950s. However, in the early 1960s, there was a considerable turnaround. The price of rice rose rapidly after the floods in 1959, yet on the other hand, there was intensified pressure from the U.S. to

²³ Website of Ta Fong Flour Mill Company: <http://www.tafongflour.com.tw>. Retrieved on 2022. 1. 10.

²⁴ Solt, George., *The Untold History of Ramen: How Political Crisis in Japan Spawned a Global Food Craze* (Berkeley and Los Angeles: University of California Press, 2014), Liu, Zhiwei 劉志偉, "International Food Regimes and National Diet: The Political Economy of Taiwan's Wheatened Foods 國際農糧體制與國民飲食：戰後臺灣麵食的政治經濟學," *Chinese Dietary Culture* 7:1(2011), 1-59.

²⁵ "Commodities: The Wheat Agreement," *Time Magazine* April 20, 1953.

²⁶ Central Agency 中央社, "Eat more wheat less rice, save rice to export 多吃麵少吃米 省下米來賣給外國," *United Daily News* 聯合報 1953. 3. 25. (5).

absorb U.S. agricultural surplus.²⁷ Having provided U.S. aid to the Nationalist government since 1951, the American government became more active to develop their overseas market in East Asia, including Taiwan. Moreover, once the local flour industry was established in Taiwan, these flour factories requested continuous wheat exports to expand their businesses.

Under such a native and international situation, the Nationalist government in Taiwan began to cooperate with the U.S. government to promote the baking industry. In August 1962, the Executive Yuan Committee on the Utilization of U.S. Aid and the Taiwan Flour Association jointly contributed funds to establish the Executive Committee on the Promotion of Flour and Wheat Food in Taiwan (ECPFW). Those members included the chairman of the National Federation of Industry and Commerce, the chairman of the Flour Association, and many members of the food industry, such as the CEO of Tatung company, which to this day remains the largest local manufacturer of rice-cooker and food machines in Taiwan. In addition to the ECPFW, another related institution was established: the Steering Committee on the Promotion of Flour and Wheat Food in Taiwan, which included 18 government sectors.²⁸ These initiatives highlighted the importance that the government attached to the promotion of wheat-based foods.

With the establishment of the ECPFW in 1962, the government adopted various methods to cultivate the demand for bread and Western pastry products. The most effective method was the opening of an institution that offered baking classes to teach pastry baking techniques. Financed by the American Wheat Association and the ECPFW, the Baking Training Institute (BTI) was established in Taipei in 1967. Before its establishment, two teachers were selected from Taiwan and trained in Chicago in 1966 to lead the institute. The BTI was situated next to the Lianhua Flour and Grain Mill, one of the largest flour producers in Taiwan. In 1988 it expanded and reorganized into the China Grain Products Research & Development Institute. Today, it remains the most prominent institution in the development of baking skills and technology in Taiwan.

To promote baking businesses, the BTI provided professional baking classes for free, offering not only accommodation and food during the course, but also petty cash. Such classes attracted many traditional bakers and young people. The first batch of trainees was composed of military personnel, and the army sent 22 bakers

²⁷ Liu, Zhiwei 劉志偉, "International Food Regimes and National Diet: The Political Economy of Taiwan's Wheat Foods 國際農糧體制與國民飲食：戰後臺灣麵食的政治經濟學," *Chinese Dietary Culture* 7:1 (2011), 22-26

²⁸ Liu, Zhiw 劉志偉, *Revolution of Taiwanese Food: Wheat Food Culture and Baking Industry* 台灣飲食革命：麵食文化與烘焙產業 (New Taipei: China Grain Products Research & Development Institute, 2012), 60-63.

to receive training. For the second batch of trainees, the BTI began to receive technicians and bakers recommended by flour companies and pastry associations, mostly owners and professionals employed at pastry and bakery shops.²⁹

In 1970, the BTI began to train high school students and vocational students who had no former baking experience. From November 1967 to the end of August 1983, the BTI held a total of 100 baking classes and graduated more than 3,550 students. The BTI often invited teachers and baking experts from Europe and the United States to hold baking technique demonstration seminars in different localities, each time with 60-70 students.³⁰ Many of the students established their own bakeries after completing their courses and thus became the first generation of local bakers specializing in bread, cakes and “western snacks” in Taiwan. Compared with Han pastry chefs before the 1960s, these new bakers needed to learn the process of baking novelty goods, and likewise had to learn how to operate new baking equipment. The unfamiliar instructions could be found in the textbook *Bread Making*, published by the BTI and the U.S. Wheat Associates in 1974, preserving a systematic and highly scientific baking expertise.

The lecturers at the BTI published three textbooks on baking, including *Bread Making*, *Cake and Pastry Technology*, and *Basic Cake Decorating*. The authors claimed the purposes of writing these textbooks were:

...introducing modern baking technology, training baking professionals and technicians of baking material manufacturers to understand the principles and production methods of baking materials and products, in order to improve technology and quality, and to achieve the purpose of promoting baking products.³¹

To accomplish these aims, the first book of the series, *Bread Making*, introduces six themes. The first theme is about basic science, including physics, chemistry, and baking calculations; the second theme is about baking materials, which include wheat flour, sugar, yeast, molds and bacteria, baking fats, milk products, egg products, water, chemical leavening, and enzymes. The third theme focuses on baking technologies, which include dough mixing, fermentation, dough make-up, baking, and cooling. The fourth theme introduces the baking methods of a variety of breads. The fifth theme documents dough manipulation experiments, while the sixth details modern bakery equipment and related nutritional knowledge.

The themes of this book show that the baking process involves a variety of technologies, and the baker must accurately grasp the weight of each ingredient, the recipe, and the proper temperature of the dough during fermentation and baking. With

²⁹ Ibid.

³⁰ Lu, Guan hong 呂光泓, “Introduction of the American Wheat Association 美國小麥協會工作簡介,” *Wheat Food and Nutrition* (1983. 10), 55-57.

³¹ Gu, Detsai et al. 顧德材等, *Bread Making* 實用麵包製作技術 (Taipei: China Grain Products Research & Development Institute, 2003 [1974]), Introduction.

the development of bread-making machineries, the scientific methods are becoming more and more stringent.³²

For example, modern flour processing is more complicated than rice processing and requires a variety of improvers, such as calcium salt and sulfate as dough conditioners, and Potassium bromate (KBrO₃) to enhance the strength of gluten. In addition, because most consumers prefer white bread, cereal chemists invented and added a variety of chemicals into the flour to accelerate oxidation, which at the same time destroys the lutein or carotene in the flour, thus producing a white colored flour.³³ In addition to flour being involved in a considerable number of processes, the yeast ingredient in bread has also undergone many developments. Yeast has many varieties, some suitable for brewing while others are suitable for baking, and has quite a long history. Modern baking techniques provide many ways to control the amount of yeast and regulate its temperature, humidity, material dosage, etc.; therefore bakers can estimate its production, transforming baking into an industrialized science.³⁴

The high degree of industrialization and mechanization is also highlighted by the numerous machines introduced in the textbooks. The authors explained that the bread factories in “the West”, namely Europe and the U.S., are equipped with machines like mixers, rounders, reel ovens, deck ovens, tunnel ovens, spiral ovens, slicers, and wrapping machines. By introducing these innovative machineries, the authors made a connection between bread and modern technology, further linking it to the idea of high quality bread, fashioning baking into a scientific modern industry.

In addition to the significant influences of the BTI under U.S. aid, it should be noted that the baking industry in postwar Taiwan was stimulated by the influx of bakers from mainland China who migrated to Taiwan after the Second World War. Immigrants brought with them knowledge of a myriad of cuisines as well as baking techniques, and the many bakers and chefs who came had first worked as bakers and pastry chefs in Western restaurants before starting their own businesses. For example, the founder of Shuncheng Bread, Wu Shun-cheng 吳順成, had worked in Western restaurants in China before migrating to Taiwan in 1948. Having worked at a bakery in Shanghai and as a chef at the Philippine Embassy in Taipei, Wu established a bakery in 1965 that developed into a bakery chain in Taipei.³⁵

Similarly, Fuli Bakery was originally located in the French Concession in Shanghai. Its advertisement said that its bread is “scientifically baked” and its cookies are “supervised by technicians”, therefore it is the best in Shanghai (Figure 1). After migrating to Taiwan in 1950, Fuli Bakery’s French chef and the Beijing pastry chef

³² Ibid., 1-3.

³³ Ibid., 163-177.

³⁴ Ibid., 192.

³⁵ Wu, Shun-cheng and Ho Yenching 吳順成, 侯延卿, *The Road to Shuncheng 順成之路* (Taipei: Erya Publishing, 2016).

established the Fuli Bakery Company, which was once the main bread supplier for the U.S. Army Advisory Corps in Taiwan.³⁶ Similarly, other bakers moved to Taiwan and established their bakeries in the 1950s. Different from the Han pastry shops in the colonial period that often sold various other goods such as canned food, dried meat, and even imported clothes, the newly established bakeries of the postwar period sold bread and cakes and gradually became their own distinct category.



Figure 1. Advertisement of Fuli Bakery in Shanghai

Source: *Sheng Newspaper* (Shanghai), 1939. 3. 11. (4).

The establishment of the bakery as a new type of market in Taiwan is mainly due to the policies encouraging wheat-derived food production. Along with other East Asian regions in the postwar period, wheat products were gradually posited as an alternative staple food. Bread is a prominent example.

³⁶ My interview with the manager of Fuli Bakery Ms. Yin (2021. 3. 30, Taipei).

The Emergence of Bread as Daily Food

In East Asia, rice is often regarded as the most important staple food. Even though the climates of Japan and South Korea are highly suitable for growing wheat and wheat is traditionally produced there, the rise of bread in Japan and South Korea did not occur until the 19th to 20th centuries. Prior to the 19th century, the wheat produced was mainly used for noodles rather than bread. The availability of raw ingredients is only one of the conditions for the establishment of dietary habits, not an essential condition. In the case of Japan, bread began to be more widely consumed because of the Second World War.

In his 1930 book *Bread and Cakes*, Sugimoto Ryuji reveals that his motivation for joining the confectionery industry was the rice riots in Japan, which were caused by the lack of food products due to the war. In the midst of this social context, the author went to the United States to study baking. The book is prefaced by the director of the Clothing and Food Division of the Japanese Ministry of the Army and the director of the Quartermaster General of the Japanese Ministry of the Navy, both of whom advocate for the “advancement of scientific knowledge of bread” in consideration of food shortages, defense and military applications, and national preferences. As noted in previous studies, bread production began to expand and become a more typical food item, partly because of the invention of machinery for mass production. After the industrial revolution in Europe in the 18th century, large-scale bread-making factories were established. After 1870, bread mixing machines, bread shaping machines, automatic dough dividers, and movable steel-shelled automatic ovens were invented successively, and bread-making entered the era of machine operation. In the early 20th century, cutting machines, rounding machines, and sequential packaging machines, among others, were all invented.³⁷

The rise of the widespread consumption of bread in modern society is related not only to the mechanical development of the baking industry but also to the changes in social structure and work patterns. In Taiwan, during the Qing Dynasty and the period of Japanese rule, pastries were mainly used as festive foods, such as for the Mid-Autumn Festival, weddings, sacrificial offerings, and gift giving. To this day, wedding celebrations, ceremonial events, and the Mid-Autumn Festival are still the three most prominent events for bakeries.

During the Japanese occupation, with the establishment of the round-island railway and baking factories, the number of baked goods increased, and baked good consumption became more widespread. In particular, the prevalence of bread during the Japanese colonial period gradually increased in the 1930s, reflecting the increasing acceptance of bread in Taiwan.

³⁷ Sugimoto Ryuji 杉本隆治, *Bread and Cake* パンとケーキ (Tokyo: Sugimoto Ryuji Shop, 1930), 100-101.

According to historical archives related to bread consumption, bread consumption in Taiwanese society had three driving factors. The first was its convenience, which contrasts sharply with the ceremonial nature of traditional Han pastries.³⁸ Bread was lightweight, easy to carry, and simpler to make than most Han pastries, with no need for complicated fillings or crusts and only requiring flour, yeast, and salt.

It was after the first World War that American-style sweet breads, German bread ovens and industrial yeast became more widely propagated in East Asia. In Japan, bakeries have flourished since the Meiji period, and bread became popular for breakfast, lunch and on occasion for dinner as a quick and simple meal or an accompaniment to meals.³⁹ The introduction of modern mass-production ovens further enhanced the simplicity of the baking process, thus lowering the price of bread and making it more widely available. With the development of transportation infrastructure and the rise of long-distance transportation under Japanese rule, bread became an ideal choice for meals during railway trips.

The second agent of bread consumption was the development of cafes and restaurants offering Western cuisine. Such establishments often sold Western-style desserts. For example, the Railway Hotel in Taipei, which was the epitome of Western cuisine during the colonial period, had built a large-scale bread oven. The hotel used the highest-quality flour and could make 300 kilograms of bread in one day.⁴⁰ In this sense, bread was reinterpreted as a “modern and leisure food” enjoyed in the Western dining space. For example, urban dwellers could take their children to a cafe for a cake and then buy two loaves of bread to take home as a gift. Alternatively, they could buy jam and flour to make cakes for children at home. Bread was considered a non-staple novelty food and was eaten during special occasions such as train rides and for leisure activities.

The third driving force was the functionality of bread in the military and school contexts. Dry bread was an especially important ration for the army, and bakers were often associated with the military because bread was a convenient choice to consume in the barracks. In terms of bread in schools, the earliest mention of bread was in the diary of a Taiwanese public school teacher, Huang Wan-cheng 黃旺成 in 1916. For a school sporting event, the students were gathered and given a pack of four buns as their lunch.⁴¹ In bread-related propaganda during the Japanese colonial period, bread was often linked to children. It was claimed in the newspaper that bread was easy to digest, nutritious, and suitable for promoting national health. Therefore, people were encouraged to occasionally provide bread instead of the widely consumed rice lunch box for children in school.⁴²

³⁸ Chen, Yu-jen, “Han pastry, Taiwanese snacks, and bread.”

³⁹ Annie Sheng, “Forging ahead with Bread,” 207, 213.

⁴⁰ “Bread of the Railway Station Hotel,” *Taiwan nichinichi shinpō* (Taiwan Daily News), 1908. 10. 15. (5).

⁴¹ *Diary of Huang Wan-cheng* 黃旺成日記 (1916-12-03), retrieved on 2020. 6. 30.

⁴² “Have bread as lunch (O bentō ni shokupan),” *Taipei Shibao* 臺灣新報, 1935. 11. 15. (10).

All three of these influences led to the transformation of baked goods from being part of the ritual of traditional Taiwanese festivals to a part of modern life. After the Second World War, especially after 1970, the number of bakeries increased as many professional bakers who had finished their courses at the BTI opened their own bakeries. As the employment rate of women increased and women had less time to cook, bread was increasingly regarded as a convenient meal option. The establishment of the BTI prompted strong growth in the baking industry, attracting many people to learn to bake, and many Han pastry bakers transitioned to learning the craft of bread and cake baking. Informants from the baking industry suggested that the competition among bakeries and bakers in Taiwan had been intense by the 1980s.⁴³

Although the Taiwanese government does not have thorough statistics on the changes in the number of bakeries after World War II, the growth in the product value of the wheat baking industry shows the growing importance of bread in the daily life of Taiwanese people. As Table 1 shows, in 1983, the value of the wheat baking industry was 4,748 million NT\$, and by 1989 it had exceeded 10 billion. Since then, it has continued to burgeon.

In addition to the intense competition among bakeries, the emergence of the large-scale production of machine-made bread induced the competition to become fiercer. In the late 1970s, the largest industrial food company in Taiwan, Uni-President, co-operated with the Yamazaki Bakery Company in Japan to produce machine-made bread. Establishing seven bakeries and fourteen convenience stores in Taipei in 1980, Uni-President planned to establish 1,000 bakeries nationwide, supplying more than 150 kinds of toast, bread and cakes made by automated machines. Claiming that bread was “the staple food of the 1980s,” it stated that machine-made bread would allow the public to enjoy fresh, hygienic, and inexpensive bread goods.⁴⁴ In 1992, Uni-President opened its 600th store, revealing its business success. Following this trend, according to the statistics of the Ministry of Finance, there were 4,000 bakeries in Taiwan by 2008, and in 2019, the number had exceeded 5,000.⁴⁵ Such a development indicates that the baking industry was penetrating the daily life of the Taiwanese people.

⁴³ My interviews with Mr. Lin (2020. 3. 15, Taichung) and Mr. Liu (2020. 4. 8, Taipei).

⁴⁴ Ode 偶得, “Production and Marketing of the Uni-President Bakery 統一麵包的統一產銷,” *Economy Daily News* 經濟日報, 1980. 8. 5. (12).

⁴⁵ The statistics database of the Ministry of Finance, R.O.C., <https://web02.mof.gov.tw/njswww/WebMain.aspx?sys=100&funid=defjspf2>

Table 1. Product Value of the Wheat Baking Industry and Annual Growth Rate (1983-1991)

Year	Product Value (million NTD)	Annual Growth Rate (%)
1983	4,748	-
1984	5,491	15.64
1985	6,191	12.74
1986	6,627	7.00
1987	6,881	3.83
1988	7,324	6.43
1989	10,766	46.99
1990	11,889	10.43
1991	14,093	18.53

Source: Industrial Production Statistics Monthly Taiwan Area (1992), the Republic of China 中華民國臺灣地區工業生產統計月報 (Taipei: Ministry of Economic Affairs, Department of Statistics 經濟部統計處).

In addition to the increase in the number of bakeries, the upward trend in the general public's bread purchases is a clear example of how bread has become an everyday food. Using Taipei City as an example, the report of Taipei City Household Income and Expenditure Survey (Table 2) shows that in 1982, the average monthly cost of purchasing bread and cakes for each household in Taipei was NT\$349, and in 1986 it was nearly NT\$445, and in 1988 it had rapidly increased to NT\$546.8, which fully illustrates the growth rate of bread consumption in the daily life of the general public in the 1980s.

The alteration of school lunches is another example of how bread has entered the daily life of Taiwanese citizens. During the U.S. aid period, school lunches began to be served with bread, buns, rolls, noodles, etc. Rice was only served once or twice a week. After the end of U.S. aid, the government set up ten wheat food supply centers to produce bread, noodles, buns, and rolls in a consistent manner, with an annual output of over 4 million buns and rolls, and nearly 30,000 kilograms of noodles in

the 1970s.⁴⁶ The establishment of Uni-President further demonstrates the increased consumer acceptance of bread.

Table 2. Household Expenditure on Rice Products and Bread/Cakes of Taipei City

Year	Rice and Rice Products (NTD)	Bread and Cakes (NTD)
1982	566.3	349.1
1983	528.4	370.2
1984	525.6	392.6
1985	505.5	396.3
1986	482.0	444.9
1987	450.8	489.1
1988	444.9	546.8
1989	466.5	586.7
1990	490.4	665.6

Source: *Report on the household income and expenditure survey of Taipei, Republic of China* 中華民國臺北市家庭收支概況調查報告 1983-1991 (Taipei: Taipei Government).

The symbolic significance of Uni-President bread is the debut of machine-made bread for mass consumption, not merely for students and the military. Before the 1980s, the normal bakeries in Taiwan were small with one baking oven, and one or two chefs with young apprentices in tow. The bakers woke up at three or four o'clock in the morning to bake bread, so that patrons could have it for breakfast. But the emergence of large machine-made bread factories has had an impact on such small bakeries and the bakery business.

The differences between traditional home-made bakeries and the new types of machine-made bakeries are multi-faceted. One factor is the larger quantities of bread that factories can make; the other is the issue of hygiene requirements. According to the discussions on Uni-President bread presented in the media, comparisons between machine-made bread and home-made bakeries generally considered the former to be

⁴⁶ Sheng, Zheng 沈震, “Promotion of school lunch project 學校營養午餐計劃推廣現況,” *Journal of the Chinese Nutrition Society* 中華民國營養學會雜誌 3:2 (1978), 30.

more hygienic and “a modern production and marketing system in line with European and American standards,” and even considered that “large scale machine manufacturing can save labor and energy expenses.”⁴⁷ Such a viewpoint suggests connections between modernization and machine production, giving a higher degree of modernity to machine-made bread.

To gain the trust of consumers, Uni-President cooperated with schools by adopting an off-campus teaching method, allowing students to visit the bread factory, and allowing students to order Uni-President bread for their “school breakfast.” When students visited the large bread factory, they were required to change into special slippers, wear white hats to cover their hair, and pass through a controlled passage to prevent flies from entering the factory. All these materials and designs specifically highlighted the conditions of hygiene, inducing the visitors to draw the conclusion that all bread made by modern machines has a high quality of hygiene. Through these promotions, the machine-made bread successfully appealed to the students and their parents, and the popularity of machine-made bread increased sharply.

The increase of bakeries and large-scale production of machine-made bread encouraged the bread consumption of the 1980s, but it could not be ignored that the rising popularity of bread also reflected the changes in social and family structures, as well as the changing role of women. Since the 1980s, the number of nuclear families and three-generation families in Taiwan has gradually decreased, whereas the number of married couples without children, single people living alone, and single-parent families have increased (Table 3).

Table 3. Changing Family Types in Taiwan

%	Nuclear	Married couples	Three-generation	Single	Single-parent	Grandparents and grandchildren	Others
2020	33.05	20.25	12.34	14.37	9.94	0.91	9.12
2012	38.98	16.77	14.77	11.02	9.76	1.28	7.42
2001	47.12	13.03	15.48	10.73	7.73	1.12	4.80
1988	59.12	7.65	16.69	5.98	5.77	0.83	3.96

Source: National Statistics (<https://www.stat.gov.tw/ct.asp?xItem=1675&ctNode=511&mp=4>).

⁴⁷ Ode, “Production and Marketing of the Uni-President Bakery.”

In the case of the increasing number of single people living alone and single-parent families, the head of the household is the only source of income and must work outside the home in most cases. The increase in the number of married couples with two salaries and no children also serves as a catalyst for the take-out industry and the rise of convenience stores. The pronounced decline in nuclear families reflects the social trend of fewer children and an aging population⁴⁸.

In addition, the female employment rate reached 38.76% in 1980 and increased to 50.19% in 2012. The labor force rate of married women also increased gradually from 31.94% in 1978 to over 48% in 2006.⁴⁹ These figures indicate that women's participation in the workforce has increased substantially since 1980. The division of housework among women in Taiwan has changed since industrialization, with more women working outside the home and spending less time on housework, including meal preparation. Instead, they purchase meals from outside the home. For breakfast, bread became a popular and easy meal, which further increased the consumption of bread and the rise of bakeries.

In addition to the increase of bakeries and the emergence of machine-made bread, another important manifestation of bread's permeation into daily life is the use of home baking machines. It was in the 1960s that the machine which can toast two slices of bread appeared in Taiwanese families, and the production of such toasters resulted from the postwar industrial transformation: the trend of kitchen electronics.

The research of electric cookers has pointed out that during the Japanese colonial period, the only common household electrical appliances were electric lamps. After the war, state-owned electrical companies and private electrical factories transformed to produce manufactured electrical appliances such as transformers, motors, fans, etc. The development of the electrical industry was mainly for military defense and power construction needs.⁵⁰ As Wajcman said, most of the Western domestic technologies were not designed for home use, but for commercial, industrial or defense purposes, and only after economic stabilization, the technology was adapted for use in the home.⁵¹

By the mid to late 1960s, under the national "Incentive Investment Ordinance," the electrical industry cooperated with foreign companies to transform technology into electrical products, and "home appliances" started to be seen in the late 1960s. The most typical example is the Tatung Machinery & Steel Company, which started

⁴⁸ Chen, Yujen 陳玉箴, "From 'Housework' to 'Labor commodity': The transformation of Taiwan Family Dinner (1980-2013) 從「家務」到「勞動商品」：臺灣家庭晚餐型態變遷的考察 (1980-2013)," *Monumenta Taiwanica* 台灣學誌 13 (2016), 71-103.

⁴⁹ National Statistics, Human Resources Statistics, Table 10: <http://www.dgbas.gov.tw/ct.asp?xItem=18844&ctNode=4943>.

⁵⁰ Chin, Hsienyu 秦先玉, *The Making of "Happy Electrified Families": A History of Kitchen Electrification in Postwar Taiwan, 1945-1970s* 「蒸煮」幸福：台灣戰後廚房電氣化發展, 1945-1970, National Tsinghua University, History Department, PhD dissertation, 2011.

⁵¹ Wajcman, Judy, *Feminism Confronts Technology* (Oxford: Polity Press, 1991).

to invest in the production of household appliances in the 1950s, with electric rice cookers being the most representative one.⁵²

Among home appliances, toasters were not as popular as televisions, refrigerators, and washing machines. The statistics of 1966 shows that the popularity of toasters was only at 0.88%, even lower than electric kettles (1.52%). In comparison, the rate of toasters as household appliances in the U.S. in 1966 was 83.6%.⁵³ However, the popularity of toasters rose steadily in Taiwan in the following decade. The statistics in 1975 show that the popularity of toasters was 13.6%, lower than electric fans (90.2%), televisions (82.9%), rice cookers (81.6%), refrigerators (60.6%), washing machines (30.8%), and juice dispensers (22%).⁵⁴ Despite the relatively low popularity rate, the toaster sales still exhibit the connection between bread and modern home appliances symbolically and practically, further shaping bread as a modern food along with the other social conditions analyzed previously.

Conclusion

In the postwar period, Taiwan's baking industry had to contend with not only the entry of new products but also the emergence and reorganization of the industrial supply chain, including wheat cultivation and flour production, the importation of wheat, the manufacture and management of baked goods, and consumer market operations. For Taiwanese people who had long used Han pastries as ritual or festival food, Western bread and cake products gradually became accepted and incorporated into the everyday diet.

This involved both material and conceptual shifts. At the material level, U.S. aid influenced the institutionalization of the flour industry and the promotion of bread, which rapidly increased the number of bakers and bakeries. With the introduction of machine-made bread, the popularity of bread was accelerated in the 1980s. At the conceptual level, bread has been associated with "the West" since the Japanese colonial period, and both the emergence of U.S. aid flour and machine-made bread in the postwar era have further shaped bread as one of the symbols of modernity.

Bread is not only viewed in the imaginations of the public as a lightweight and convenient food item but also as an increasingly acceptable form of daily food. There were multiple factors for this change. At the same time, industrialization and urbanization led to women entering the workforce and the rise of the restaurant industry. These social changes created an environment in which the baking industry flourished.

⁵² Tatung 大同 was originally a private steel factory established in 1939, and invested in repairing the machinery and equipment of the train workshop in 1948.

⁵³ Chang, Neiwen 張乃文, "Electrical Industry and Electrified Home 電器業與電化家庭," *Investment and Enterprise* 投資與企業, 224 (1968), 11-12.

⁵⁴ Chin, Hsienyu, *The Making of "Happy Electrified Families,"* 42.

Moreover, bakers and bakeries that migrated to Taiwan from mainland China after the Second World War brought with them baked goods that had been popular in Shanghai, such as Russian desserts and French bread.

Abstract

This article examines the development of the baking industry and bread consumption in postwar Taiwan, particularly during the period of U.S. aid (1951-1965), which was a key period of technological and institutional change in baking. Focusing on the establishment of the wheat flour industry and new baking technologies, this article explores how these technologies were introduced and how their progress shaped bread as a “modern food”, and how the linkage with modernity affected the consumption of bread in Taiwan.

Since the 1950s, American aid and migrants from mainland China have both contributed to the establishment of a flour industry and modern bakeries. The flour industry in Taiwan faced drastic changes along with other countries in East Asia because of the new international political order in the postwar period. With the establishment of the Executive Committee on the Promotion of Flour and Wheat Food in Taiwan in 1962, the government adopted various methods to cultivate the demand for bread and Western pastry products. The Baking Training Institute established in 1967 was the most prominent institution in the development of baking skills and technology in Taiwan, also bringing intensive competition of between bakeries. In addition, the emergence of large-scale production of machine-made bread in the late 1970s further shaped the “fresh, hygienic, and inexpensive” image of bread, fostering its consumption in Taiwanese society.

Keywords: bread, baking history, postwar Taiwan, food culture, modern East Asia