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Housewives and the Growth of the Japanese Electrical Appliance Industry, 1950–1990

This article challenges the prevailing narrative surrounding the Japanese manufacturing industry in the post-World War II era, which predominantly centers on large corporations and male engineers. It sheds light on the vital role played by Japanese housewives in shaping product innovation. It argues that the exclusion of consumers, particularly women, from existing industrial models carries a gendered dimension. By presenting Japanese housewives as active stakeholders who defy stereotypes and enhance their lives by expressing their opinions, we aim to offer a fresh perspective on innovation and product development. The article specifically focuses on the electric appliance industry and draws upon a diverse range of sources, including women's magazines and corporate archives, to uncover the hidden aspects of gender within the Japanese economic miracle. It shows that housewives have played an active role in product innovation and that women's magazines have made this possible by acting as intermediaries between women and companies.

Keywords: gender studies, consumers, Japan, electrical appliance industry, innovation

The narrative on the formation and growth of the Japanese manufacturing industry after World War II is dominated by discussions of the role of large corporations and male engineers. Consumers are generally absent from these discourses or are presented as passive agents who support the growth of companies through their

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demand. This is particularly true in the case of the electrical appliances industry, which gave rise to Japanese consumer electronics, one of the main sectors that drove the economic miracle of the 1960s–1990s. Although these products were generally purchased by housewives, they were seen as passive wives who merely acquired innovative products developed by male engineers.

Research into innovation in Japanese manufacturing has often seen it as an internal process, taking the form of a national innovation system dominated by large corporations. From this perspective, technological development followed a two-stage trajectory, with a first phase characterized by joint research between universities, the army, and private companies in the 1920s–1950s and a second phase that started in the 1950s, during which corporations internalized R&D and established themselves as the most important agents of innovation.¹ Japanese large firms were particularly successful during a catch-up phase with the US in a world economy that was not yet globalized. At this time, industrial production was not realized within global value chains but by large, vertically integrated firms.² In 1995, Nonaka and Takeuchi argued that the ability to create, develop, and diffuse knowledge was the core competitive advantage of Japanese manufacturers.³ Scholars in the field of technology management have particularly demonstrated this characteristic in automobile companies.⁴ Large manufacturing firms focused on the gradual improvement of products, with the aim of producing Western goods better and cheaper than Western firms. Thus, innovation was mostly incremental.⁵ Consequently, mainstream research considers corporations as the providers of new goods to society in a unidirectional flow from male engineers to (primarily) female consumers.

Consumers are largely absent from this dominant narrative. Demand is often considered an abstract factor, embodied by GDP or income growth, that enables private corporations to develop. Moreover,

¹Minoru Sawai, *Kindai Nihon no Kenkyū Kaihatsu Taisei* [The modern Japanese national innovation system] (Nagoya, 2012).

²Pierre-Yves Donzé and Julia Yongue, *Japanese Capitalism and Entrepreneurship: A History of Business from the Tokugawa Era to the Present* (New York, 2024).

³Ikujiro Nonaka and Hirotaka Takeuchi, *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation* (New York, 1995).

⁴Kim B. Clark and Takahiro Fujimoto, *Product Development Performance: Strategy, Organization, and Management in the World Auto Industry* (Boston, 1991); Micheal A. Cusumano and Kentaro Nobeoka, "Strategy, Structure and Performance in Product Development: Observations from the Auto Industry," *Research Policy* 21, no. 3 (1992): 265–293; Takahiro Fujimoto, *Nihon no Monozukuri Tetsugaku* [The philosophy of Japanese manufacturing] (Tokyo, 2004).

⁵Takeo Kikkawa, *Inobeshon no Rekishi: Nihon no Kakushinteki Kigyōka Gunzō* [A history of innovation: Japan's innovative entrepreneurs] (Tokyo, 2019).

excluding consumers from the models that explain Japan's industrial growth has an important gendered dimension. Women were, in particular, major deciders in the purchase of home electrical appliances, a sector that led to the development of electronic consumer companies. For example, in the early 1950s, Toshiba adapted the design of its electric fans by giving them specific styles and names targeting women.⁶ Beyond this episode, there is a need to reintroduce female consumers to the process of developing innovative products.

International literature in gendered business history has emphasized that women were not passive or disempowered actors in expanding global business but shaped how large firms and multinationals developed. Blaszczyk was one of the first business historians to go beyond the general idea of large corporations manipulating consumers through mass advertising. She demonstrated that consumers contributed to the co-development of products by corporations. In particular, understanding the needs of female consumers was a major issue for manufacturers of housewares in the US.⁷ Similarly, research on the marketing strategies used by Singer, the manufacturer of sewing machines, showed that women employed as sellers and demonstrators of the way to use machines contributed mostly to the expansion of the firm, notably in Japan and Mexico, because women were able to communicate to other women and co-developed the idea of modern women.⁸ The apparel industry is another example of a business in which women are not passive buyers. In Japan, the production of Western clothes for the middle class started with homemade dresses by young women who had learned new techniques in special couture schools. The growth of a clothing industry based on large corporations followed the new demand created by these female consumers.⁹

Consequently, this article aims to reconsider the business history of the Japanese electric appliance industry by reintroducing female consumers as active stakeholders. The main research questions addressed here are as follows: How did women contribute to product development? What was the impact of the cooperation between female consumers and male engineers on the nature of innovation carried out by manufacturing companies?

⁶Sarah Teasley, *Designing Modern Japan* (London, 2022), 221.

⁷Regina Lee Blaszczyk, *Imagining Consumers: Design and Innovation from Wedgwood to Corning* (Baltimore, 2000).

⁸Andrew Gordon, *Fabricating Consumers: The Sewing Machine in Modern Japan*, 1st ed. (Berkeley, 2012); Paula A. de la Cruz-Fernández, "Multinationals and Gender: Singer Sewing Machine and Marketing in Mexico, 1890–1930," *Business History Review* 89, no. 3 (2015): 531–549.

⁹Gordon, *Fabricating Consumers*; Pierre-Yves Donzé and Rika Fujioka, "The Formation of a Technology-Based Fashion System, 1945–1990: The Sources of the Lost Competitiveness of Japanese Apparel Companies," *Enterprise & Society* 22, no. 2 (2021): 438–474.

To answer these questions, we focus on the electric appliance industry. Using a broad range of sources, including women's magazines, corporate archives, and interviews, we provide a new understanding of the foundations of the growth of the Japanese manufacturing industry.

Gender Studies and Business History

Although some gendered analyses of business history existed in the 1980s, they were still the exception, rather than the norm.¹⁰ Accordingly, business history remained largely untouched by this new approach in social sciences because scholars in this field "have tended to omit issues of power and gender from their calculations and have explained technological change in terms of factor prices and corporate efficiency."¹¹ However, since the mid-1990s, some researchers have questioned women's absence from business history, prompting research and reshaping the field.¹² Honeyman revealed that British women had been participating in business as early as the eighteenth century, while Andersson-Skog argued that women's self-employment and wage labor in the service industry have been overlooked as economic factors in both traditional business history and gender history.¹³ Since 2000, the attention of scholarship on gendered business history has moved from women entrepreneurs to broader perspectives on how the gender issue shaped products, markets, and firms' strategies. For example, in Gardner's study, the breast prosthesis industry for women who have undergone mastectomies was analyzed as a beauty business, investigating its significance in the process of cancer recovery.¹⁴ She examined the industry's development, its adaptation to consumer demands, and its utilization of feminine beauty. Hall examined the sale of Lysol disinfectant as a contraceptive douche for women during the interwar period in Canada and the United States. Euphemistically termed the "feminine hygiene" market, it was the most widely marketed female

¹⁰ Mary Ellen Waller-Zuckerman, "'Old Homes, in a City of Perpetual Change': Women's Magazines, 1890–1916," *Business History Review* 63, no. 4 (1989): 715–756.

¹¹ Kenneth Lipartito, "When Women Were Switches: Technology, Work, And Gender in the Telephone Industry, 1890–1920," *American Historical Review* 99, no. 4 (1994): 1074–1111.

¹² Philip Scranton, "Introduction: Gender and Business History," *Business History Review* 72, no. 2 (1998): 185–187; Angel Kwolek-Folland, "Gender and Business History," *Enterprise & Society* 2, no. 1 (2001): 1–10; John K. Walton, "New Directions in Business History: Themes, Approaches and Opportunities," *Business History* 52, no. 1 (2010): 1–16.

¹³ Katrina Honeyman, "Doing Business with Gender: Service Industries and British Business History," *Business History Review* 81, no. 3 (2007): 471–493; Lena Andersson-Skog, "In the Shadow of the Swedish Welfare State: Women and the Service Sector," *Business History Review* 81, no. 3 (2007): 451–470.

¹⁴ Kirsten E. Gardner, "Hiding the Scars: A History of Post-Mastectomy Breast Prostheses, 1945–2000," *Enterprise & Society* 1, no. 3 (2007): 565–590.

contraceptive at that time.¹⁵ She focused particularly on how the company attempted to communicate the purpose of its product to the intended consumers, white women, to understand the historical context of this significant market for contraceptives. Another example of this growing body of research is the work by Walsh, who highlights women's vital role in transportation services. This sector has responded to women's demands, thanks to equality laws, challenging its traditional male dominance.¹⁶ Despite such research, scholarly conversations between business history and gender studies remain limited.¹⁷

Compared with this global context, the gendered approach in Japanese business history is still in its very early stages. Moreover, unlike international scholarship that developed gendered business history research focused on women entrepreneurs to challenge a common view of the "business world dominated by white male decision-makers," Japanese business historians have very little interest in women entrepreneurs. Between 1990 and 2020, the Japanese *Journal of Business History* (*Keiei Shigaku*) did not publish any articles on this subject.¹⁸ Moreover, the series of biographies of entrepreneurs edited by business historian Masaru Udagawa does not include any women.¹⁹ The state of academic research is hence similar to business literature for the general public, in which entrepreneurs are men. For example, the two-volume popular books on Japanese entrepreneurs in the twentieth century published by Nikkei in 2000–2001 to celebrate the people who made modern Japan include only two women among a total of ninety-five people.²⁰ Among a large number of publications on successful

¹⁵ Kirsten Hall, "Selling Sexual Certainty? Advertising Lysol as a Contraceptive in the United States and Canada, 1919–1939," *Enterprise & Society* 14, no. 1 (2013): 71–98.

¹⁶ Margaret Walsh, "Gender in the History of Transportation Services: A Historiographical Perspective," *Business History Review* 81, no. 3 (2007): 545–562.

¹⁷ Jennifer Aston, Hannah Barker, Gabrielle Durepos, Shennette Garrett-Scott, Peter James Hudson, and Angel Kwolek-Folland, "Take Nothing for Granted: Expanding the Conversation about Business, Gender, and Feminism," *Business History* 66, no. 1 (Mar. 2024): 93–106.

¹⁸ Mary A. Yeager, "Gender, Race, and Entrepreneurship," in *The Routledge Companion to the Makers of Global Business*, ed. Teresa da Silva Lopes, Christina Lubinski, and Heidi J. S. Tweek (London, 2019), 69–92. Other major works on women as entrepreneurs include: Béatrice Craig, *Women and Business since 1500: Invisible Presences in Europe and North America?* (London, 2016); Angel Kwolek-Folland, *Engendering Business: Men and Women in the Corporate Office, 1870–1930* (Baltimore, 1994); *Women in Business*, ed. Mary A. Yeager (Cheltenham, UK, 1994). Also see *Keiei Shigaku*, 1990–2020, accessed 15 Feb. 2023, <https://www.jstage.jst.go.jp/browse/bhsj/-char/en>.

¹⁹ Masaru Udagawa, *Kesu Bukku Nihon no Kigyōka Katsudō* [Casebook of Entrepreneurial Activities in Japan] (Tokyo, 1999); *Kesu Sutadhi Nihon no Kigyōkashi* [Case study: history of entrepreneurship in Japan], ed. Hosei University Industrial Information Center and Masaru Udagawa (Tokyo, 2002).

²⁰ *20-Seiki Nihon no Keizaijin* [Japanese Business People in the 20th century], ed. Nikkei (Tokyo, 2000); *20-Seiki Nihon no Keizaijin 2* [Japanese business people in the 20th century 2], ed. Nikkei (Tokyo, 2001).

managers, only very few tackle women, such as the book on Sony's female managers published in 2004 by journalist Mikiko Taga.²¹

The only exception for studies of women in business history research in Japan is as an unskilled and cheap workforce for the manufacturing industry. Numerous works on specific companies, mostly in the textile, electric appliance, and automobile industries, have demonstrated a gendered imbalance among blue-collar workers. Young girls from poor families in the countryside supported the growth of many manufacturing firms.²² The distinction in the workplace between women and men has also attracted the attention of foreign scholars, for example, in cotton spinning factories and offices of large firms.²³ Among this scholarship, the 2005 article on department store girls published by Tomoko Kondo is especially notable. She showed how department stores used femininity as a resource to improve their reputation when they refocused on the sales of modern consumer goods for urban middle classes during the interwar years. Salesgirls were employed not only for their cheap wages but also because their educational background and physical beauty were enhanced by modern uniforms.²⁴ The use of gender differences by managers as a resource to develop competitive services and products remains an underdeveloped area of research in Japanese business history.

Professional Housewives in Japan, 1920–1990

Although the period covered by this paper is from the 1950s to 1990, when the Japanese economy experienced rapid growth after the defeat in World War II, it is helpful to confirm that the gendered division of

²¹ Mikiko Taga, *Sony na Onnatachi* [Sony women] (Tokyo, 2004).

²² See, for example, Katsutoshi Hashiguchi, "Kindai Bisai Sanchi no Rikishokki Kōjō: Keiorimono no Tahinshu Seisan to Suzuki Kamajirō [Power loom factories in modern Bisai Production Area: multi-product production of wool textiles and Kamajirō Suzuki]," *Keiei Shigaku* 54, no. 4 (2020): 3–28; Yoshihiko Kikuchi, "Nichihiro Sengo no Denkyō Sangyō no Seichō [Growth of the light bulb industry after the Russo-Japanese War]," *Keiei Shigaku* 47, no. 2 (2012): 3–29; Takahiro Oba, "Kensetsugyō · Seizogyō no Gijutsu Kakushin to Kōsotsu-Sha no Yakuwari: 1950-Nendai Kara 1960-Nendai ni Kakete [Technical innovations in the construction and manufacturing industries and the role of high school graduates: from the 1950s to the 1960s]," *Keiei Shigaku* 43, no. 2 (2008): 30–56.

²³ Janet Hunter, *Women and the Labor Market in Japan's Industrializing Economy: The Textile Industry before the Pacific War*, 1st ed. (London, 2003); Yūko Ogasawara, *Office Ladies and Salaried Men: Power, Gender, and Work in Japanese Companies*. (Berkeley, 1998).

²⁴ Tomoko Kondō, "Depōto Gāru no Tōjō: Shinsaigo Tokyo no Hyakkaten o Chūshi ni [The role of salesgirls of Japanese department stores in the 1920s–30s]," *Keiei Shigaku* 40, no. 3 (2005): 27–43. This innovative paper, which breaks with the overwhelming majority of business history research commonly focused on the manufacturing industry and following the Chandlerian paradigm, was published as a "research note" and not an "academic paper."

labor in which men work outside and women inside the home existed before the war. Based on a survey of households, business historian Akiko Chimoto stated that this type of social division and norm had already taken root in the 1920s and 1930s. During this period, the standard of living of the middle class increased, and it became possible to live on the husband's income. This made it possible for wives of salaried workers, such as civil servants, company employees, teachers, and some factory workers, to become housewives.²⁵ In prewar rural areas, however, the entire family worked collaboratively on the farm. Childcare and household chores were typically done by individuals available, especially the head of the household's parents, who were often unable to participate in labor-intensive farming activities.²⁶

Although the new constitution enshrined the principle of gender equality after World War II, the division of roles was not broken but became increasingly prevalent.²⁷ Susanne Vogel's study on three middle-class housewives living in suburban Japan in 1958–1960 suggests that marriage, childbearing, and the ideal of a good wife and wise mother were taken for granted among Japanese women in this social group.²⁸ In the 1960s, even in rural areas, the norm became established that the wives of the household heads were responsible for all household chores, except for childcare, which was often taken on by the grandmother (the head of the household's mother) as before, to secure the agricultural labor force of the head of the household's wife.²⁹

The division of labor roles in urban households was further developed during the high-economic growth. The general way of life for urban women during this period was to work short-term until their early 20s, marry in their late 20s, and remain in the home as wives or mothers.³⁰ The norm that

²⁵ Akiko Chimoto and Diana Lynn Bethel, "Women and the Labour Market in Japan's Industrialising Economy: The Textile Industry before the Pacific War," *U.S.-Japan Women's Journal. English Supplement* no. 8 (1995): 37–63.

²⁶ Izumi Fukuda, "Nōson ni okeru Kyōdōhoiku: Nōson no Rekishi to Nōson no Kosodate no Konnichi teki Kadai [Cooperative childcare in rural areas: the history of childcare in rural areas and contemporary child-rearing challenges]," *Seikyo Soken Report* 73 (2013): 55–61; Masahiro Yamada, "Danjokuyōdōsankaku ha Nihon no Kibō2 Okina Jjidai Henka no Naka de [Gender equality is Japan's hope part 2: amidst significant era changes]," *Kyodo Sankaku* 57 (2013): 13.

²⁷ Setsuko Onode, "Kōdo Keizai Seichōki ni Okeru Kaji Ikuji no Jittai to Kihanishiki, Kanjō [Housework and childcare during the period of rapid economic growth and normative consciousness, and emotions]," *Kenkyūkiyō* no. 29 (2019): 79–98.

²⁸ Suzanne Hall Vogel, *Kawariyuku Nihon no Kazoku: Za Purofueshonaru Hausuwaifu kara Mita Gojūnen* [Japan's professional housewives: postwar ideal and present strains] (Kyoto, 2012).

²⁹ Yotaro Hamada, "Nōson ni Okeru Hahaoya no Yakuwari [The role of mothers in rural communities]," *Kyōiku Shakaigaku Kenkyū* 21 (1966): 14–26.

³⁰ Hachiro Iwai, "Kōdo Seichōki Igo no Gakureki to Raifukōsu [Educational background and life course after the period of rapid economic growth]," *Journal of Educational Sociology* 46 (1990): 71–95; Shinichi Toshima, "Kōdo Keizai Seichō Katei ni okeru Kazoku Keiei to

men were the industrial warriors directly responsible for Japan's rapid economic growth was prevalent, and the role of the wife was to gently receive a man who returned home tired.³¹ Onode conducted retrospective interviews with housewives in urban areas during the period of rapid economic growth. She pointed out that, except for the wealthy, these housewives did most of the housework and childcare regardless of whether they were employed. Housework and childcare were considered women's tasks.³² Thus, professional housewives in Japan during this period were often seen as persons living at home and contributing only indirectly to economic growth through the gentle support of their husbands.³³

The technological innovations developed during the 1950s–1980s changed the lives of housewives. According to Simon Partner, the reason for the widespread availability of home appliances in Japan in this period is that manufacturers promoted them as rational purchases, making them accessible through installment sales, and enabling housewives to budget for them.³⁴ The infrastructure for electricity, gas, and water supply became widespread throughout the country; home appliances began to be widely used approximately in 1955, and the masses enjoyed liberation from the enduring lifestyle of the prewar and postwar periods. The diffusion rate exceeded 50% for electric washing machines and black-and-white televisions in 1961, electric refrigerators and kettles in 1965, electric vacuum cleaners in 1968, and gas water heaters in 1972. The expansion of ready-made clothing also made sewing labor a phenomenon of the past. The spread of semi-processed and instant foods enabled savings in cooking labor.³⁵ In particular, there is a need to stress the major impact of the development of electric rice cookers in the 1950s on housework. Unlike the majority of other electric appliance goods, this innovation was specific to the Japanese food culture environment. This shows that the modernization of the household was not a mere Westernization of lifestyle.³⁶ Thus, with

Seikatsu Yōshiki no Henbō [The drastic change of family farm and style of living during the rapid economic growth],” *Kyushu University Journal of Agricultural Sciences* 52, no. 1/2 (1997): 113–127.

³¹ Kazuko Nagahara and Sayoko Yoneda, *Onna no Shōwashi Heiwa na Ashita o Motomete* [Women's Showa history: in search of a peaceful tomorrow] (Tokyo, 1986).

³² Onode, “Kōdo Keizai Seichōki ni Okeru Kaji Ikuji no Jittai to Kihanishiki, Kanjō,” 79–98.

³³ Nagahara and Yoneda, *Onna no Shōwashi Heiwa na Ashita o Motomete*.

³⁴ Simon Partner, *Assembled in Japan: Electrical Goods and the Making of the Japanese Consumer* (Berkeley, 1999).

³⁵ Sakiko Shiota, “Kōdo Keizai Seichōki no Gijutsu Kakushin to Joshi Rōdō no Henka [Technological innovation and changes in women's labor during the period of rapid economic growth],” in *Gijutsu Kakushin to Joshi Rōdō* [Technological innovation and women's labor], ed. Masanori Nakamura (Tokyo, 1985): 171–201; Shinichi Toshima, *Kōdo Keizai Seichō Katei ni okeru Kazoku Keiei to Seikatsu Yōshiki no Henbō*, 113–127.

³⁶ Helen Macnaughtan, “Building up Steam as Consumers: Women, Rice Cookers and the Consumption of Everyday Household Goods in Japan,” in *The Historical Consumer:*

the decline of traditional domestic labor techniques and the rapid penetration into the home of lifestyle technologies and culture created by modern corporations, housewives began to have more free time on their hands.

Furthermore, technological innovations within the companies also impacted Japanese housewives by offering them new jobs. Automation and simplification of labor processes in industries such as electrical equipment, machinery, nonferrous metal products, steel, and chemicals, as well as the expansion of office organization, increased the number of jobs that women could efficiently perform. Thus, during rapid economic growth, women became housewives only upon marriage or childbirth. After completing their childcare responsibilities, they reentered the workforce as nonregular employees within limits that would not disrupt their family duties.³⁷ These changes led some women, awakened to a sense of rights, to organize women's liberation movements (e.g., the feminist movement) in the 1970s, creating a crack in the old housewife identity.

Unlike previous studies that primarily portrayed Japanese housewives during this period as passive and complementary, some research has highlighted the independent efforts made by housewives to improve their lives. For instance, Leung, Zietsma, and Paredo analyzed the role of Japanese *seikatsu* (life) clubs, organizations dedicated to enhancing quality of life. They emphasized that middle- and upper-class housewives who participated in these clubs between 1965 and 1989 became more conscious of the limitations imposed on them. They were able to deliberately change their identities and gradually alter their self-concepts and the institutionalized role expectations that bound them. In particular, Japanese women used magazines, such as *Fujin no Tomo* (Women's Friends), to acquire new knowledge and to share their experiences. Ozeki argues that this led to "life rationalization" and uses the concept of *kaizen*, a major management tool in the Japanese manufacturing industry that focuses on the constant and gradual improvement of processes.³⁸ Electric appliances were a major target of such discussions. Their use changed the lives of women and families. Such appliances had to represent an affordable investment and answer the needs of households well.

Consumption and Everyday Life in Japan, 1850–2000, ed. Penelope Francks (London, 2012), 79–104.

³⁷ Shiota, "Kōdō Keizai Seichōki no Gijutsu Kakushin to Joshi Rōdō no Henka," 171–201.

³⁸ Aegean Leung, Charlene Zietsma, and Ana Maria Peredo, "Emergent Identity Work and Institutional Change: The 'Quiet' Revolution of Japanese Middle-Class Housewives," *Organization Studies* 35, no. 3 (2013): 423–450.

Housewives as Household Managers and Consumers of Electrical Appliances

Japanese housewives were proactive after World War II. They actively managed household finances based on their husbands' salaries and adopted rational practices to be able to purchase electrical appliances that cost several times their monthly revenues, striving to achieve their "electrified dream life."³⁹ The prevalence of installment sales offered by manufacturers supported the planned purchase of these electrical appliances.⁴⁰ Under these circumstances, housewives had to carefully manage their households to ensure they did not delay the installment payments.⁴¹

Japanese housewives bought home appliances as soon as possible to ease the burden of housework. For example, a housewife in a family of five (the average family size was 4.4 people in 1955) at the time had to wash the equivalent of an elephant's weight in clothes every year, and buying an electric washing machine was a woman's dream.⁴² Moreover, housewives gained a sense of satisfaction and superiority by buying appliances their neighbors had or buying them before their neighbors did.⁴³ As it was unbearable to be without home appliances while other housewives had them, borrowing money from consumer credit companies without telling the husband was a common practice.⁴⁴

Buying home appliances did not only reduce the housework load, but also increased leisure time. Housewives used their free time for "reading, followed by listening to the radio, sewing and mending, taking care of children, reading newspapers, knitting, just resting, chatting, watching television, using it for hobbies and entertainment."⁴⁵ They found optimal ways to use washing machines by adjusting the amount of laundry and detergent and setting timers on electric rice cookers to

³⁹ Mikiyo Kanō, *Sengoshi to Jiendā* [Postwar history and gender] (Tokyo, 2005).

⁴⁰ Andrew Gordon, "From Singer to Shinpan: Consumer Credit in Modern Japan," in *The Ambivalent Consumer: Questioning Consumption in East Asia and the West*, ed. Sheldon Garon and Patricia L. Maclachlan (Ithaca, NY, 2006), 137–162; Partner, *Assembled in Japan*.

⁴¹ Partner; Gordon, "From Singer to Shinpan," 137–162; Yōhei Kojima, *Sara-Kin no Rekishi: Shōhisha Kinyū to Nihon Shakai* [History of money lenders: consumer finance and Japanese society] (Tokyo, 2021).

⁴² Zenkoku Tomo no Kai Chūōbu, *Zenkoku Tomo no Kai Kakei Hōkoku: Hanseiki no Matome to Hirogaru Seikatsu Kenkyū* [National Tomo no Kai Household Financial Report: summary of half a century and expanding lifestyle research] (Tokyo, 2004). Also see "Fujin no Jūrōdō [Heavy labor of women]," *Yomiuri Shinbun* Morning, 7 Jan. 1953.

⁴³ "Manē-Puran Tokubetsu Kyōshitsu: Shichinagare o Ōdā de Ima ha Shinpin Dōyō Kakuji ni 2-Wari ha Yasui" [Money plan special classroom: order pawn items. Now 20% cheaper than new], *Yomiuri Shinbun* Morning, 1 Jan. 1966.

⁴⁴ Kojima, *Sara-Kin no Rekishi*.

⁴⁵ "Ichiman Katei no Kyōryoku kara Umareta Kakei Seikatsu Hakurankai no Shuppatsu ni Atatte: Zenkoku Shufu no Nijūyon Jikan Chōsa o Chūshinni [The start of the household expo born from the cooperation of ten thousand households: focusing on the 24-hour survey of housewives nationwide]," *Fujin no Tomo* 53, no. 7 (1960): 26–27.

increase the amount of sleep they got by thirty minutes a day.⁴⁶ Figure 1 shows the result of the spread of such new practices: housework time fell by almost 20% from 442 to 355 minutes between 1959 and 1989.⁴⁷

However, during the 1950s and the 1960s, home appliances were still expensive and difficult to afford. Their purchase was considered an investment. As shown in Figure 2, the expenses for furniture (including electrical appliances) grew faster than living expenses in general between 1954 and 1974. For example, the cost of living for an average household in 1959 was JPY 44,421, while a refrigerator cost JPY 63,000.⁴⁸

In fact, during this period, housewives struggled to manage their household budgets and could barely afford one appliance a year. For example, in a testimony published by a women's magazine in 1959, a housewife in a family of three explained how she managed the household budget to buy electrical equipment.⁴⁹ She explained, "We bought them a little earlier when we felt the need. We never had enough money in the household budget, so we put clothes and furniture on the back burner."⁵⁰ As a result of her budget management, the household was able to successively acquire a vacuum cleaner (1951), an oven (1952), a washing machine (1954), a blender (1955), an ultra-shortwave therapy machine (1956), a tape recorder (1957), a refrigerator (1958), a television, an electric drill and an electric *kotatsu* (1959).⁵¹ Household management was the key to improving the material life of the family.

Budget restraints led housewives to seek the opinions of other housewives before purchasing appliances. First, they exchanged information about goods through letters to magazines and regular columns.⁵² They shared ideas about performance and price.⁵³ They exchanged advice on buying. For example, they argued, "It is better to choose an appliance from a trusted manufacturer so that repair parts are readily available in case of a breakdown" or stressed that "If you go to a

⁴⁶ "Jūnen Kan Konna Junjo de Fueta Denkikigu [Ten years of increasing order in electrical appliances]," *Fujin no Tomo* 53, no. 12 (1960): 218–219. Also see "Isshūkan no Kaji ha Otto to Tsuma de 24-Jikan [A week's housework is 24 hours for husband and wife]," *Fujin no Tomo* 53, no. 4 (1962): 52–55.

⁴⁷ "Shufu no Seikatsu Jikan Chōsa ni Miru Gendai no Katei [A view of the modern home through a survey on housewives' living hours]," *Fujin no Tomo* 74, no. 4 (1990): 48–53.

⁴⁸ "Zenkoku Tomo no Kai Chūōbu, *Zenkoku Tomo no Kai Kakei Hōkoku*;" "Jūnen Kan Konna Junjo de Fueta Denkikigu," 218–219.

⁴⁹ "Jūnen Kan Konna Junjo de Fueta Denkikigu," 218–219.

⁵⁰ "Jūnen Kan Konna Junjo de Fueta Denkikigu."

⁵¹ "Jūnen Kan Konna Junjo de Fueta Denkikigu."

⁵² "Kaji Kakei Soudan-Shitsu: Shūtome to no Doukyo Seikatsu kara Atarashii Katei o Tsukuruniwa [Housework and household finance consultation room: how to establish a new home from a life living with the mother-in-law]," *Fujin no Tomo* 53, no. 4 (1959): 182–185.

⁵³ "Tōsho Boshū: Kakei no Kenkyū Kaguhī ni Tsuite [Call for letters: household budget research on furniture costs]," *Fujin no Tomo* 48, no. 6 (1954): 80.

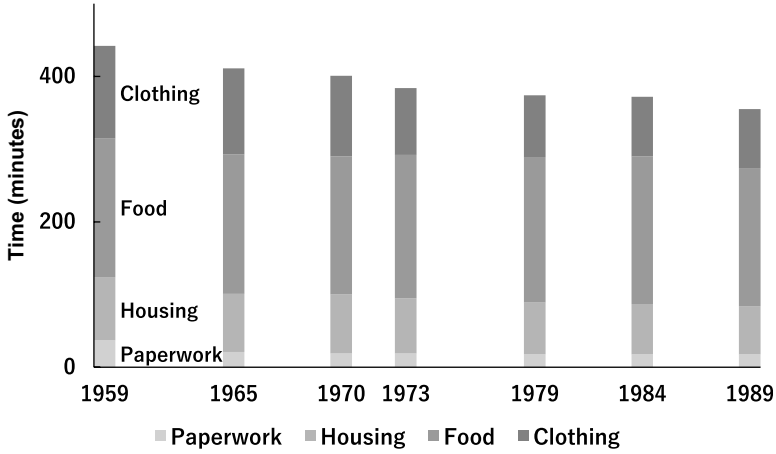


Figure 1. Changes in housework time. (Source: *Fujin no Tomo* 74, no. 4 [1990]: 48–53.)

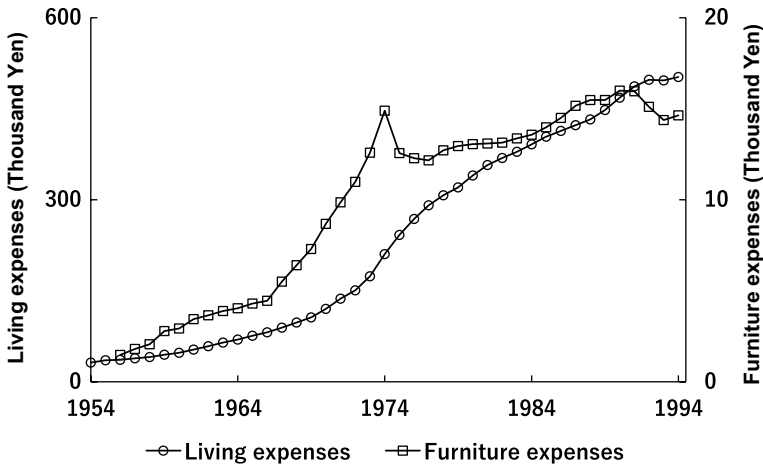


Figure 2. Changes in living and furniture expenses. Note: “Furniture” includes electrical appliances. (Source: *Zenkoku Tomo no Kai Chūōbu*, 2004.)

service station of an electric power company in advance, you can find many places and materials about home appliances.”⁵⁴

Second, housewives also began to express critical opinions about the nature of appliances and manufacturers. For example, a woman

⁵⁴“Shōhisha Shinri Kokoroe-Chō 1. Kaimono [Consumer psychology guidebook 1. Shopping],” *Fujin no Tomo* 55, no. 6 (1961): 59–66.

criticized advertising strategies in a magazine in 1961, stressing the impossibility of properly comparing the suction power of vacuum cleaners from different companies because of the different expressions they used in their ads.⁵⁵ The same year, another housewife expressed dissatisfaction with manufacturers prioritizing novelty over improving the performance of existing products.⁵⁶ However, the influence of individual housewives' voices was limited.

In this situation, some women's magazines played a major role in amplifying their voices and making an impact on appliance manufacturers.⁵⁷ One of the major media outlets that has represented the voices of housewives is *Kurashi no Techo* (Lifestyle Notebook). The magazine's circulation grew from 10,000 copies in its first issue in 1954 to 520,000 in 1957, increasing its social impact.⁵⁸ This magazine included a series of "product tests" in which the presentation of various goods was followed by reports on the tests of technical performance, durability, ease of use, and other factors. What makes these product tests unique is that they were critiques from the perspective of housewives, rather than general technical tests run by manufacturers.⁵⁹ Questionnaires were taken from housewives who used them, and tests were conducted by editorial staff, including women, in natural home environments.⁶⁰ Between 1954 and 2007, a total of 604 product tests were conducted on 305 different products. According to Table 1, manufacturers relied on the information provided in *Kurashi no Techo* to develop their communication strategies.⁶¹ They often mentioned the tests conducted by this magazine in their advertisements. For instance, in 1961, a safety product manufacturer highlighted that their appliance was rated as the "highest-performing product in the *Kurashi no Techo* test." This implies that the manufacturer valued the voices of housewives, which were featured in *Kurashi no Techo*, as an important source of insight.

⁵⁵ "Shōhisha Shinri Kokoroe-Chō 2. Kōkoku no Mikata [Consumer psychology guidebook 2. How to view advertisements]," *Fujin no Tomo* 55, no. 8 (1961): 100–108.

⁵⁶ "Shōhisha Shinri Kokoroe-Chō 2," 100–108.

⁵⁷ "Tōsho Boshū: Kakei no Kenkyū Kagui ni Tsuite [Letter to the editor: a study on household expenditure on furniture]," *Fujin no Tomo* 48, no. 6 (1954): 80; "Tōsho Boshū: Watashi wa Denki Kigu o Konna Fūni Tsukatteimasu [Call for letters: this is how I use electrical appliances]," *Fujin no Tomo* 50, no. 11 (1956): 139.

⁵⁸ Masaaki Kogure, *Hanamori-San, Shizuko-San, Soshite Kurashi no Techo Hensyūbu* [Hanamori, Shizuko, and the Kurashi no Techo editorial staff] (Tokyo, 2016).

⁵⁹ Yasuji Hanamori, "Shōhin Tesuto Nyūmon [Introduction to product testing]," *Kurashi no Techo*, Volume of "the First Century" (including issues 1–100), no. 100 (1969): 85–108.

⁶⁰ Kurashi no Techo Kenkyūjitsu and Kyōryoku Gurūpu, "Denki Sentakuki o Tsukattemite: 284-Mei no Shuhu no Hōkoku [After using electric washing machines: reports from 284 housewives]," *Kurashi no Techo*, Volume of "the First Century" (including issues 1–100), no. 35 (1956): 109–116. Also see Hanamori, "Shōhin Tesuto Nyūmon," 85–108; Yasuo Futai, *Boku no Hanamori Yasuji* [My Hanamori Yasuji] (Tokyo, 2016).

⁶¹ "Internal Document," Kurashi-no-techo Co., Ltd.

Table 1
Manufacturers that Mentioned *Kurashi no Techo* in Their
Advertisements

<i>Year</i>	<i>Product</i>	<i>Media</i>	<i>Mention</i>
1957	Cleaning Supplies	Event signage	"First place among those used in X issues of <i>Kurashi no Techo</i> "
1961	Safety Equipment	Paper advertisements	"Highest-performing product in the <i>Kurashi no Techo</i> test"
1961	Home Appliance	Commercial Film	"I read about it in this magazine. I did a lot of research, and I think the dual-jet washing machine is the best"
1963	Food	Paper advertisements	"Product X, an instant dipping sauce, is introduced as tasty and good value for the money in <i>Kurashi no Techo</i> ."
1963	Stationery	Magazine Advertisement	"The <i>Kurashi no Techo</i> laboratory tested the performance of product X. It was not inferior to those of leading European and US. manufacturers."
1963	Detergent	Offprint	"Thank you very much for your research on our product X"
1963	Watches	Radio/TV	"The latest issue of <i>Kurashi no Techo</i> features a test of wristwatches, and Company X's superior technology is recognized here as well"
1986	Watches	In-house Magazine	Reprints of <i>Kurashi no Techo</i> 's positive review

Source: Kurashi-no-techo Co., Ltd internal documents. Company and product names anonymized by the authors.

Answering the Needs of Housewives: Product Development by Male Engineers

Housewives' Voices on Technical Performance (1954–1973). The voices of housewives collected by the media was valuable information for appliance manufacturers. Figure 3 shows a questionnaire about refrigerators distributed by *Kurashi no Techo* to some housewife readers called the "Cooperative Group." It gathered personal information about the respondents (name, address, telephone number, income, occupation, and number of household members), basic information about refrigerators (manufacturer, size), their use (time of purchase, place of use, time of use, items stored, amount of ice used, defrosting



調査表

電気冷蔵庫

暮らしの手帖研究室

お名前			おところ		
電話番号		およその月収		ご職業	

1 この製品を使っていらっしゃいますか 該当する項目に○をつけて下さい

サンヨー 東芝 ナショナル 日立 富士
 三菱 その他の国産品 ()
 外国製品 ()

2 お買求めになったのは いつですか 頂いた場合でしたら その年月を

昭和 年 月

3 大きさは何立方呎ですか

A 2.2 2.3 2.4 2.5 3.0 3.1 3.2
 3.3 3.5 4.0 5.0 5.5 6.0 7.0
 7.7 9.0 9.2 その他 (立方呎)

*もしわかりにならないとき 恐れ入りますが内法の寸法 (実際にものが入る部分) を計って下へお書きこみ下さい (上の項目に○をおつけ下さった方は必要ありません)

内法 ・巾 センチ ・奥行 センチ ・高さ センチ

B この大きさを どうお考えですか 該当する項目に○をつけて下さい

丁度よい 大きすぎる 小さすぎる

C ご家族は何人ですか お手伝、同居人もふくめて下さい

計 人

内訳 ・男 人 ・女 人 ・子供 (小学6年以下) 人

Figure 3. Questionnaire about refrigerators. (Source: Kurashi-no-techo Co., Ltd internal document.)

method), complaints (problems, failures, inconveniences), and requests to the manufacturer (hopes, cautions). The survey results, based on 788 reports, were published in 1958.⁶² Numerous similar articles appeared in the magazine during the 1950s and 1960s.

In addition, housewives criticized appliances. While male engineers conducted evaluations based on general technical testing methods, the editorial staff of *Kurashi no Techo*, including women, conducted evaluations from the perspective of housewife users. For example, when testing vacuum cleaners in 1969, they visited real homes to collect vacuum cleaner debris, not manufactured debris such as sawdust.⁶³ This test highlighted the attention to troubleshooting breakdowns, as well as risks (e.g., the danger of lid coming off while the washing machine is spinning), technical performance issues (such as the delivery of performance similar to that claimed by the manufacturer), accessories issues (e.g., refrigerators with a ridiculous-looking water cooler), and replacement issues (new products not worth buying).⁶⁴ Table 2 gives numerous concrete examples of concerns raised by women regarding washing machines, vacuum cleaners, and refrigerators. These problems identified by housewives needed to be taken into account by manufacturers during the era of rapid economic development.

Manufacturers cannot ignore the voices of housewives. Table 3 expresses the evolution of product testing of typical household appliances (washing machines, refrigerators, and vacuum cleaners) from 1954 to 1990. The horizontal axis shows the year—and the vertical axis the name of the appliance and manufacturer—with ✓ indicating whether the manufacturer was tested by *Kurashi no Techo* and ☑ indicating whether the manufacturer was recommended by *Kurashi no Techo*. Table 3 shows that major manufacturers received feedback from users approximately every three years. For example, in a test for refrigerators conducted in 1975, one product received a “not

⁶²“Denki Reizōko: Koshō, Doko no Seihin ga Ichiban Koshō ga Sukunakattaka 788-Dai no Shiyo Hōkoku kara [Electric Refrigerators: Which Product had the Fewest Breakdowns, Based on 788 Reports of Use],” *Kurashi no Techo*, Volume of “the First Century” (including issues 1–100), no. 45 (1958): 38–55.

⁶³Kogure, *Hanamori-San, Shizuko-San, Soshite Kurashi no Techo Hensyūbu*.

⁶⁴“Tesuto Hōkoku ‘Zenjidō’ toiu Na no Sentakuki [Test Report: Washing Machine Named “Fully Automatic”],” *Kurashi no Techo*, Volume of “the Second Century” (including issues 101–200), no. 1 (1969): 52–63; “Denki Sentakuki o Tesuto suru [Testing an Electric Washing Machine],” *Kurashi no Techo*, Volume of “the First Century” (including issues 1–100), no. 60 (1960): 5–25; “Kotoshi Moshimo Reizōko o Kaikaeru nara: 2-Doa-Shiki Reitō Reizōko o Tesuto suru [If You Buy a New Refrigerator This Year: Test a 2-Door Refrigerator-Freezer],” *Kurashi no Techo*, Volume of “the Second Century” (including issues 101–200), no. 24 (1973): 5–19; “Shōhin Tesuto: Setudengata toiu Denki Sōjiki [Product Test: An Electric Vacuum Cleaner Called “Energy-saving Type”],” *Kurashi no Techo*, Volume of “the Second Century” (including issues 101–200), no. 28 (1973): 85–93.

Table 2
Housewives' Voices on Representative Home Appliances,
1954–1973

<i>Sample Product Test Quotes</i>	<i>Machine</i>	<i>Reference</i>
Breakdown		
"The breakdown rate by manufacturer shows that . . . Only Hitachi has never broken down"	Washing machine	1956, 1(35)
"Which product had the fewest breakdowns from the 788 reported in use"	Refrigerator	1958, 1(45)
"[Vacuum cleaners] break down so often that they are disgusting"	Vacuum cleaner	1966, 1(87)
Risk		
"Some washing machines leak water if you are not careful, and it is especially dangerous when rinsing"	Washing machine	1961, 1(60)
"Things that could cut your fingers or injure your legs are overlooked with impunity"	Refrigerator	1965, 1(80)
"Danger! The lid opens during high-speed dehydration"	Washing machine	1969, 2(1)
Performance		
"Only Sharp washing machines with a dehydrator can wash the indicated quantity"	Washing machine	1961, 1(60)
"Most models are terribly cumbersome, with double and triple rubbish bags. This is an example of the desire to improve performance and forgetting about the user"	Vacuum cleaner	1966, 1(85)
"The performance of the freezer section was about the same or even worse than the ice compartment of an ordinary refrigerator in our tests"	Refrigerator	1970, 2(6)
Accessory		
"[Washing machines] have all sorts of dials and cocks, but many of them are so pretentious that they are actually difficult to use"	Washing machine	1961, 1(60)
"Some accessories are useless, some are effective"	Refrigerator	1965, 1(80)
"Although advertised with much fanfare, today's dust-removing devices are a kind of bluff, seemingly useful but actually ineffective"	Vacuum cleaner	1969, 2(3)
"[Refrigerators] with a water cooler that looks ridiculous"	Refrigerator	1973, 2(24)
Replacement		
"[These washing machines] are not worth rushing out to buy"	Washing machine	1961, 1(60)
"Even if [the refrigerator] does not have an automatic defrosting device, there is no need to rush out and buy another one."	Refrigerator	1964, 1(64)
"Whether or not to buy [such vacuum cleaners] is a matter that requires careful consideration"	Vacuum cleaner	1973, 2(28)

Source: *Kurashi no Techo*, 1956–1973.

Table 3
Product Tests on Representative Home Appliances,
1954–1990

Electrical appliance & Manufacturer	Manufacturer	1954–1965		1966–1973		1974–1985		1986–1990			
		Tested	Recommended	Tested	Recommended	Tested	Recommended	Tested	Recommended		
Washing machine	Hitachi	✓	✓	☒	✓	✓	✓	☒	✓		
	Mitsubishi	✓	✓	✓	✓	✓	✓	✓	✓		
	National	✓	✓	✓	☒	✓	☒	✓	☒		
Refrigerator	Hitachi		✓	✓	✓	✓	✓	✓	✓		
	Mitsubishi		✓	✓	✓	✓	✓	✓	✓		
	National		✓	✓	☒	✓	☒	✓	✓		
Vacuum cleaner	Hitachi		✓	✓	✓	✓	✓	✓	☒		
	Mitsubishi		✓	✓	✓	✓	✓	✓	✓		
	National		✓	✓	✓	✓	✓	✓	✓		
		Rapid Economic Growth				Stable Economic Growth					
		Year									

Source: *Kurashi no Techo*, 1956–1990. Note: ✓: Tested manufacturer, ☒: Recommended manufacturer.

recommended” rating due to a notable issue: “The major concern was the refrigerator’s lack of stability, which made it potentially hazardous as it tended to tip forward with just a slight force when the door was opened.”⁶⁵ These observations were obviously only noticeable to housewives who actually used the product, and came as an unexpected problem to male engineers. Housewives found these evaluations helpful as they considered them when deciding which home appliance brand to buy. As a result, recommended products sold better, while non-recommended products saw a decline in sales.⁶⁶ Masaaki Kogure, a former editorial staff member of *Kurashi no Techo*, describes the situation as follows:

⁶⁵“Kotoshi Moshimo Reizōko o Kaikaeru nara,” 5–19.

⁶⁶Hanamori, “Shōhin Tesuto Nyūmon,” 85–108.

At first, the manufacturers wondered what can an amateur say? However, as soon as the test results were published in the magazine, inquiries and complaints started from readers and dealers alike. Most of all, the company's management asked us why their performance was so poor. Then, the manufacturers' representatives started coming in. They wanted to know more about our testing methods, which differed from [the ones used in] their firm, or they wanted to see the broken products from our durability tests.⁶⁷

Manufacturers began to develop technologies based on the voices of housewives. The editorial staff of *Kurashi no Techo* shared detailed product test data and the products used in the tests with the engineers. Manufacturers improved their products based on these data.⁶⁸ An article published in *Kurashi no Techo* in 1966 states that "Recently, a new type of dehydrating washing machine was introduced by National and Fuji. According to the manufacturers, they have made improvements based on the test results."⁶⁹ For example, a washing machine had a safety issue because the dehydrator would not stop spinning even when the lid was opened in 1965.⁷⁰ After receiving criticism from housewives, the manufacturer made design changes and solved the problem the following year. It implemented a system that linked the lid to the brake, resulting in a washing machine that automatically stopped the dehydrator when the lid was opened.⁷¹ *Asahi Shimbun*, a Japanese mass-circulation newspaper, also noted that "'Kurashi no Techo' tested washing machines and pointed out defects, but all companies paid attention to water leakage and made improvements such as opening water intake and drainage holes."⁷²

While we have focused on the role of the media in conveying housewives' voices to manufacturers, it is important not to overlook the

⁶⁷ Kogure, *Hanamori-San, Shizuko-San, Soshite Kurashi no Techo Hensyūbu*.

⁶⁸ Hiroshi Sakai, *Hanamori Yasuji no Shigoto* [The work of Yasuji Hanamori] (Tokyo, 1988).

⁶⁹ "Dassui Sentakuki no Shingata 2-Shu o Tesuto suru [Testing two new types of spin dryers: subsequent report]," *Kurashi no Techo*, Volume of "the First Century" (including issues 1–100), no. 84 (1966): 139–141.

⁷⁰ "Dassuki tuki Sentakuki wo Tesuto suru [Testing washing machine with dehydrator]," *Kurashi no Techo*, Volume of "the First Century" (including issues 1–100), no. 79 (1965): 20–35.

⁷¹ "Dassui Sentakuki no Shingata 2-shu o Tesuto suru," 139–141.

⁷² "Sentakuki: Ichiban ōi Uzumaki-Shiki Angai mada Fukyū Shiteinai [Washing machine: most common whirlpool type not yet in widespread use]," *Asahi Shimbun* Morning, 5 Aug. 1962.

instances where some housewives directly expressed their opinions without relying on magazines. For example, a consumer education organization with 5,070 member housewives compiled a list of defective parts and manufacturer requests for makers of home appliances based on a survey of 2,000 housewives.⁷³ In some cases, manufacturers collected the housewives' voices directly. Sharp added a convenient detergent box to its washing machines based on the results of a survey of housewives on their detergent use.⁷⁴ There were consequently different ways to listen to the users' voices, although women's magazines was the most systematically organized channel.

Electrical appliances experienced a fast diffusion in households between the mid-1950s and 1974 (see Figure 4). This period was characterized by high economic growth and increasing income. It enabled most households to acquire new equipment, such as washing machines, refrigerators, and vacuum cleaners. Housewives needed appliances with technical performance that answered their needs and contributed to their development through the aforementioned tests.

Housewives' Voices on Usability (1974–1991). After the mid-1970s, while nearly all households were equipped with electrical appliances, housewives' attention was not focused only on performance. It included the usability of these goods more and more (see table 4). Housewives were satisfied with the primary technical performance of appliances. For example, they noted little difference in performance between expensive and inexpensive products.⁷⁵ In some cases, they were encouraged to buy the cheaper version because of its smaller size and better performance.⁷⁶ In other cases, housewives praised manufacturers' efforts to improve technical performance and noted minimal performance differences between models.⁷⁷

However, housewives began to express dissatisfaction with their usability. First, there was a lack of usability for basic functions. For

⁷³“Shufu Minna Ometsuke-Yaku. Denka Seihin nado ni Kujō. Meka to Hanashiaimo. Shinjuku no Betā Hōmu Sākuru [Every housewife is a watchdog. Complaints about electrical products and discussions with manufacturers. Shinjuku's better home circle],” *Yomiuri Shinbun Evening*, 2 Feb. 1964.

⁷⁴“Fujin to Kurashi: Risō no Sentakuki o Kōan [Woman and life: designing the ideal washing machine],” *Yomiuri Shinbun Morning*, 4 Apr. 1982.

⁷⁵“Yasui Sentakuki to Takai Sentakuki: 10-Shu no Tesuto Hōkoku [Cheap and expensive washing machines: a test report on 10 models],” *Kurashi no Techo*, Volume of “the Second Century” (including issues 101–200), no. 37 (1975): 5–17.

⁷⁶“Yasui Sōjiki o Tesuto suru [Testing a cheap vacuum cleaner],” *Kurashi no Techo*, Volume of “the Second Century” (including issues 101–200), no. 44 (1976): 24–35.

⁷⁷“230-L Kurasu no Denki Reizōko o Tesuto suru [Testing a 230-liter class electric refrigerator],” *Kurashi no Techo*, Volume of “the Second Century” (including issues 101–200), no. 72 (1981): 38–51.

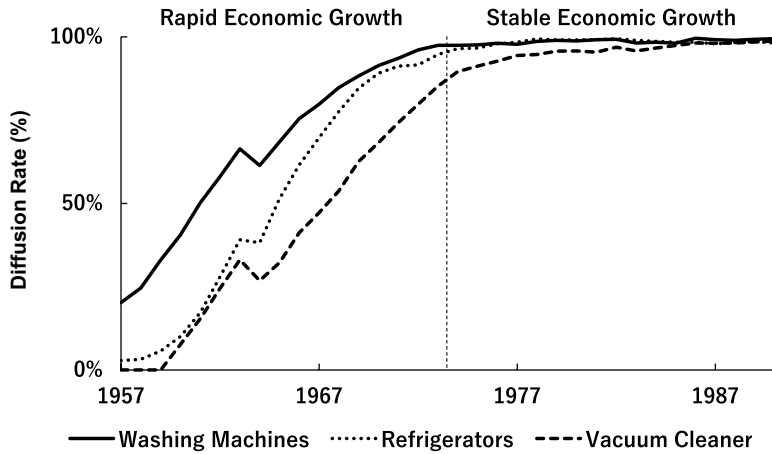


Figure 4. Diffusion rate of major home appliances. (Source: Cabinet Office Statistics Bureau. “Shuyō Taikyū Shōhizai to no Fukyū Ritsu. [Survey of consumption trends: Penetration rate of major durable consumer goods, etc.] Government of Japan, 2021, accessed 23 Aug. 2022, <https://www.esri.cao.go.jp/jp/stat/shouhi/0403fukyuritsu.xls>.)

example, housewives claimed that the scales were challenging to read and that it was difficult to understand how to use new functions.⁷⁸ Figure 5 shows that the readability of washing machines’ dials had also been a persistent issue since the 1960s. In older models, the dials were located at the front of the machine, requiring housewives to crouch down to read them.⁷⁹ In response to this criticism, manufacturers redesigned newer models to have the dial placed on top of the machine, making it easier for housewives to read them.⁸⁰ Housewives argued that staying true to essential performance was desirable rather than pursuing novelty.⁸¹ On the other hand, appliances that could be used by people who were not good at

⁷⁸ “Ōgata no Denki Reizōko 6-Shu o Tesuto suru [Testing six types of large electric refrigerators],” *Kurashi no Techo*, Volume of “the Second Century” (including issues 101–200), no. 54 (1978): 40–51. Also see “Tadaiima Sendenchū no Shingata no Reizōko wa Hontō ni Yakunitatsuka [Is the new refrigerator now being advertised truly useful?],” *Kurashi no Techo*, Volume of “the Second Century” (including issues 101–200), no. 96 (1985): 5–19.

⁷⁹ “Dassuki tuki Sentakuki o Tesuto suru [Testing washing machine with dehydrator],” *Kurashi no Techo*, Volume of “the First Century” (including issues 1–100), no. 79 (1965): 20–35.

⁸⁰ “Dassui Sentakuki no Shingata 2-shu o Tesuto suru,” 139–141.

⁸¹ “Nisōsiki Sentakuki 6-Shu o Tesuto suru [Testing six types of two-layer washing machines],” *Kurashi no Techo*, Volume of “the First Century” (including issues 1–100), no. 67 (1980): 40–51.

Table 4
Housewives' Voices on Representative Home Appliances,
1974–1990

<i>Sample Product Test Quotes</i>	<i>Machine</i>	<i>Reference</i>
Performance		
"There is very little difference in performance between an expensive washing machine and a new, cheaper one."	Washing machine	1975, 2(37)
"If you are buying a vacuum cleaner now, I would recommend the new cheap one rather than the expensive one. Because it is smaller, easier to use and does a good job."	Vacuum cleaner	1976, 2(44)
"The refrigerators we tested this time were not below the standard. . . . the manufacturers' efforts are commendable."	Refrigerator	1981, 2(72)
"In short, the test results show that the differences in performance between all models are very small."	Washing machine	1984, 2(90)
"The vacuum cleaners we tested, whether they cost 20,000 yen or around 50,000 yen, were not very different in terms of the most basic performance - sucking up dust. 1990 Vacuum cleaners"	Vacuum cleaner	1990, 3(25)
Usability		
"Some are easy to use, some are not."	Washing machine	1975, 2(37)
"Good or bad user friendliness . . . hard to read scales . . . hard to clean evaporators . . . foreign products are not as durable as before."	Refrigerator	1978, 2(54)
"The ease of use is even worse than before. I wish they would stick to the basics instead of chasing novelty."	Washing machine	1980, 2(67)
"It makes it more confusing for those of us who actually use it to know what to put in where."	Refrigerator	1985, 2(96)
"The direction of the higher models is not wrong, as they can be used by people who are not strong enough to clean well, they are quieter and seem to be less fussy about other people, and they let hardly any waste escape for disposal".	Vacuum cleaner	1990, 3(25)
Advertisement		
"[Manufacturers] whisper things like 'for a lifetime of five to ten years', 'comfortable living' and 'a rational weekly life plan'. But I don't want to be drawn into that kind of advertising anymore."	Refrigerator	1978, 2(54)
"[Manufacturers] also say that a fully automatic washing machine saves much more water than a two-tank machine. The amount of water used is indeed much less than before, but now the rinsing is a bit worse and the clothes hurt a lot more."	Washing machine	1979, 2(62)

(Continued)

Table 4 (Continued)

Sample Product Test Quotes	Machine	Reference
"I wish they would do more basic research into things like air intake and power consumption, rather than adding little tricks and accessories to make it sound like a marketing ploy."	Vacuum cleaner	1980, 2(65)
"All the companies claim to be 'wall-fit' or to have a 'clear back', but all but Sanyo had to open the back of six of the fridges we tested by about 10 cm."	Refrigerator	1981, 2(72)
"Our conclusion is that we would not be persuaded to replace our current fridge by the words of the advert"	Refrigerator	1985, 2(96)

Source: *Kurashi no Techo*, 1975–1990.

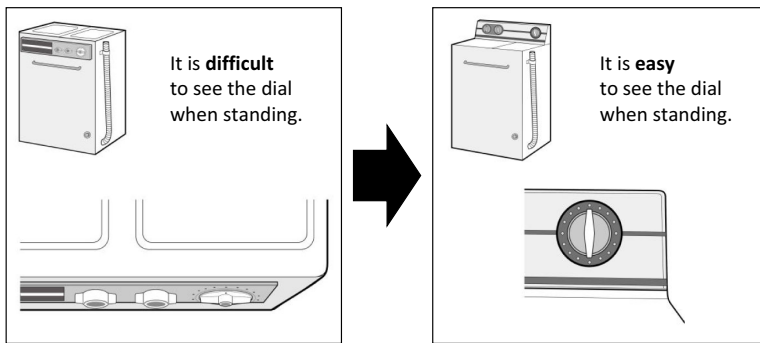


Figure 5. Redesign in response to housewives' voices. Note: These illustrations were depicted by the authors based on photographs published in *Kurashi no Techo* (First Century No.79; First Century No.84).

cleaning were sometimes helpful.⁸² These findings demonstrate that housewives remained concerned about the usability of appliances.

Housewives also criticized the gap between advertised and actual usability. For example, they exposed the deceptiveness of manufacturers' claims that fully automatic washing machines saved water but caused severe damage to clothes and that refrigerators did not fit on the wall as

⁸²"Takai Denki Sōjiki to Yasui Denki Sōjiki o Tesuto suru [Testing expensive vacuum cleaners and cheap ones]," *Kurashi no Techo*, Volume of "the Third Century" (including issues 201–300), no. 25 (1990): 14–25.

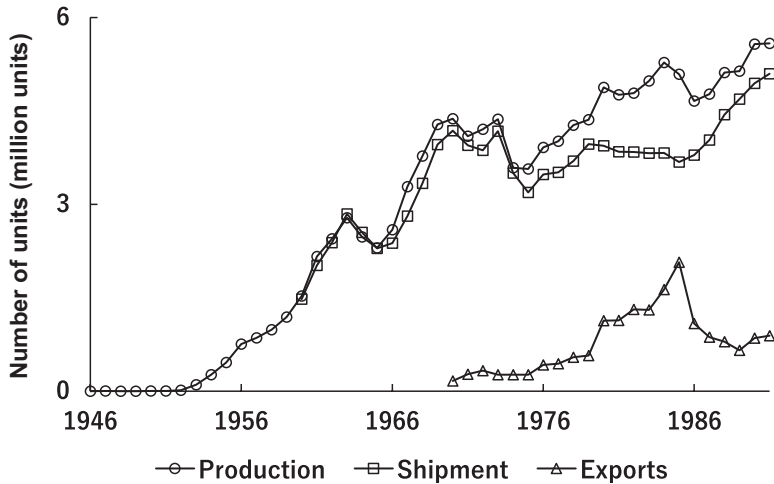


Figure 6. Japanese production, shipment, and export of washing machines. (Source: Masayuki Ohnishi. *Sentakuki Gijutsu Hatten no Keitouteki Chōsa* [Historical development of electric washing machine technologies]. *Kokuritsu Kagaku Hakubutsukan Gijutsu no Keitōka Tyōsya Hōkoku* [National Museum of Nature and Science: Technology Systematization Survey Report], 16 (2011): 147–227).

advertised.⁸³ They criticized marketing strategies, urged other housewives not to be fooled by manufacturers' claims, and stated that basic research was more important than manufacturers' marketing strategies.⁸⁴ Housewives were critical of manufacturers' advertising and sought information that was more relevant to their daily lives. During the period of stable economic growth, they did not accept the technological performance and lifestyle proposals of major home appliance manufacturers as valuable but critically evaluated them from their own perspectives.

The housewives' focus on usability led appliance manufacturers to improve their usability. Ikegami, a former editorial staff member at *Kurashi no Techo*, said that editors "collected two to three times more data than what was on paper [. . .] and made it available only to the manufacturers."⁸⁵ Kishinoue, another former member of the editorial

⁸³ "Zenjido Sentakuki o Tesuto suru [Testing fully automatic washing machines]," *Kurashi no Techo*, Volume of "the Second Century" (including issues 101–200), no. 62 (1979): 38–51. Also see "230-L Kurasu no Denki Reizōko o Tesuto suru," 38–51.

⁸⁴ "Ōgata no Denki Reizōko 6-Shu o Tesuto suru," 40–51. Also see "Denki Sojiki o Tesuto suru: 6-Shurui no Shōhin Tesuto [Testing electric vacuum cleaners: 6 product tests]," *Kurashi no Techo*, Volume of "the Second Century" (including issues 101–200), no. 65 (1980): 44–55.

⁸⁵ Kenji Ikegami, in discussion with the authors, 27 Apr. 2023.

staff of *Kurashi no Techo*, explained that “our suggestions were reflected, especially in terms of usability. Often, we would see obvious improvements not in the next generation, but five or six years later.”⁸⁶ Onishi, who was the chief engineer of Toshiba’s home appliance division, also noted that when a product test by *Kurashi no Techo* gave high marks to a particular induction-heating rice cooker, other home appliance manufacturers began to imitate this product.⁸⁷ Improved home appliances quality and usability contributed to increased overseas export volume (see Figure 6).

Conclusion

Looking at the Japanese economic miracle from the perspective of housewives makes it possible to revise the narrative about this impressive phenomenon and to offer a new understanding of its process. Unlike the arguments in mainstream literature over the last decade, innovation was not the sole result of male engineers in manufacturing firms developing products based on the best technology and offering them to society. Our article enabled us not only to reintroduce consumers to this narrative but also to adopt a gendered approach. Women contributed to the development and improvement of home appliances from the 1950s to the 1990s through their critical voices and the intermediation of popular media.

Contrary to the stereotype of submissive and passive Japanese housewives, we found that these women actively sought to simplify their lives and voiced their preferences to appliance manufacturers rather than silently accepting the options presented to them. They held significant decision-making power within their households, particularly in purchasing household appliances. However, their individual influence was insufficient to sway major companies. This is where housewife magazines played a crucial role. By targeting housewives as their audience, these publications captured their dissatisfaction with household appliances and requests for improvements, which were then conveyed to manufacturers. Our findings also demonstrate that appliance manufacturers did not disregard the housewives’ feedback but made efforts to incorporate them into their products. Manufacturers paid close attention to the magazines that conveyed the perspectives of housewives, and there is evidence that the requests expressed through these magazines eventually influenced product development.

⁸⁶ Akihiko Kishinoue, in discussion with the authors, 27 April 2023.

⁸⁷ Masayuki Ōnishi, *Seikatsu Kaden Nyūmon: Hatsumeī no Rekishi to Shikumi* [Introduction to household appliances: history and mechanism of development] (Tokyo, 2010).

These results question and revise the prevailing narrative that innovation was solely driven by male-dominated technicians, often associated with Japan's rapid economic growth. Within the existing narrative, Japanese housewives are either excluded or portrayed as passive supporters of their husbands. However, our research reveals that housewives, who spent significant time at home and felt responsible for enhancing their lives, actively expressed their opinions to manufacturers through housewife magazines. This rectifies an imbalance in management history that has almost ignored socially vulnerable groups, providing deeper insights into the true historical mechanisms. Our contribution lies in addressing this gender dimension, which has seldom been explored in Japanese business history research on innovation and economic growth, as well as in global business history.

Moreover, one must add that it was all the easier for Japanese companies to accept the co-development of products with housewives because they generally followed a mode of incremental innovation that allowed them to listen to women's voices. In this sense, women have helped to maintain industrial companies in a style of innovation that does not aim to break new ground but to constantly improve products. They also have their place in the social processes that explain why many Japanese companies have suffered from the innovator dilemma.⁸⁸ The improvement of existing products and co-development practices with users has hindered the emergence of disruptive innovation. Here, too, it is not just the blind faith of male engineers in technology that kept manufacturing firms focused on incremental innovation, as highlighted in recent work, but the will to address issues raised by female consumers.⁸⁹


Our article is, therefore, an invitation to rethink Japanese technological and industrial development in the second half of the twentieth century. The focus on companies and their engineers has led to a distorted view of the process of economic growth and social modernization. This paper is certainly based on an industry with a peculiar relationship with women since its production is essentially aimed at women. The gender dimension is undoubtedly less visible and less significant in sectors such as the automotive industry. Our aim is not to assert that Japanese industrial history should be reread through the prism of gender studies but that business historians should give greater consideration to the role of consumers, whether men or women, in the process of co-creating manufactured goods.

⁸⁸ Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (Boston, 1997).


⁸⁹ Takashi Yunogami, *Nihongata Monozukuri no Haiboku : Zerosen Handōtai Terebi* [The defeat of Japanese manufacturing: zero-sen, semiconductors, and television] (Tokyo, 2013).

Despite the valuable insights this research provides, there are certain limitations and avenues for further investigation. First, while our study focuses on the electric appliance industry and the role of housewives, it is important to acknowledge that the gender dimension may vary across different sectors. Future research could explore the influence of women as consumers and co-developers in other industries to gain a more comprehensive understanding of their broader impact. Additionally, although our findings demonstrate the significance of incremental innovation and the willingness of Japanese companies to listen to women's voices, further research could delve deeper into the more specific mechanisms through which women's feedback was incorporated into product development processes. Moreover, while our research challenges the prevailing narrative, it is crucial to continue to examine the intersectionality of gender, class, and other social factors to fully comprehend the complexities of Japanese industrial history. Finally, expanding the scope beyond the Japanese context and conducting comparative studies across different countries and time periods would contribute to a more global understanding of the role of consumers in co-creating manufactured goods. By addressing these limitations and exploring new directions, future research can build upon the foundation laid by this study and provide a more nuanced and comprehensive analysis of the dynamics between consumers, gender, and innovation in the business realm.

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