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Labor-Saving Durables, Women's Labor-Force Participation, and Government Macroeconomic Policy: The Case of Postwar Britain

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The postwar era witnessed substantial changes in women's formal workforce participation and economic status, driven by equal pay legislation and labor-saving durables that removed most of the fatigue from household tasks. To explore the importance of the postwar "industrialization of the home," we focus on the UK, where successive governments both restricted the diffusion of labor-saving durables and blocked equal pay legislation, as part of deflationary strategy. We explore the negative impacts of these policies and show that when the restrictions were relaxed in the 1970s, consumer durables ownership and married women's contributions to household incomes rose substantially.

1. Introduction

The "industrialization of the home" (Cowan 1983, p. 5) has potentially important implications regarding interactions between the household and corporate sectors, enabling many housework tasks to be at least partially substituted by automatic and semi-automatic machines (Bowden and Offer 1994; Scott and Walker 2017). This paper examines the causes of Britain's relatively late adoption of labor-saving durables, from both macro- and microperspectives, together with its economic implications. Historical data on the diffusion of consumer durables are generally problematic. For example, even the USA has only national data from the *Census of Population*, (or county-level data from this source) for a small number of durables at ten year intervals, with some gaps.[1] We use nationwide household surveys from the early 1950s; trade sources (for cross-national data for 1959 and Anglo-American comparisons for the 1950s–1970s); and the official UK Family Expenditure Survey, providing annual microdata from 1969 onwards.

[1] Daniele Coen-Pirani, Alex Leon, and Steven Lugauer, 'The effect of household appliances on female labor force participation: evidence from microdata, *Labor Economics*, 17 (2010), 503–513; Martha J. Bailey and William J. Collins, 'Did improvements in household technology cause the baby toom? Evidence from electrification, appliance diffusion and the Amish', *American Economic Journal: Macroeconomics* (3, 2011), 189–217.

As part of the macrolevel analysis we discuss how, in addition to the usual constraints to durables ownership (the "lumpiness" of major durable purchases and consumer resistance and inertia), successive British governments deliberately sought to constrain the sales of consumer durables, as part of "stop-go" aggregate demand management policy, periodically imposing punitive sales taxes and credit regulations. Meanwhile government constrained women's earned incomes, by blocking equal pay legislation until the 1970s, long after its implementation in most major industrial nations. Thus, potential trade-offs between labor-saving durables adoption and women's labor force participation were weakened by negative policy interventions on both the demand and supply sides. We examine the impacts of these interventions.

We then examine the shift to more rapid adoption for labor-saving durables in Britain during the 1970s, owing to equal pay legislation and much lower sales taxes on consumer durables. We find that substantially lower prices (largely due to lower sales taxes) had considerable impacts on accelerating major appliance ownership. At the microlevel, we model households' ownership of refrigerators and washing machines over 1969–1981 and identify working wives' earnings potential as a key intra-household determinant of labor-saving durables' ownership. Women's rising absolute and relative (to men's) incomes became key factors in durables' accelerated diffusion.

2. Potential drivers, substitution effects, and constraints on labor-saving durables' adoption

Entertainment consumer durables typically diffuse rapidly, as an hour's entertainment provides much higher utility than an hour of work saved (while the male breadwinner might prioritize his entertainment over reducing his wife's housework) (Bowden and Offer 1994; Scott 2023). Moreover, while all family members typically gain from entertainment durables, labor-saving durables principally benefit the housewife, by reducing the time and effort of housework.

Literature on the social embeddedness of economic action at the household level highlights potentially important trade-offs in households' consumption decisions, stemming from their socio-economic conditions. Becker's (1965, pp. 496 & 514, 1991) *New Home Economics* views the household as a location of both production and consumption. His model incorporates leisure, as households are both production units and utility maximizers. Such "common preference" models assume that households have joint goals, maximizing a single utility function, thereby ignoring power asymmetries within the household (Kamleitner, Marckhgott, and Kirchler 2018). Trade-offs between wives' formal labor market earnings and strategies to reduce the time and effort of housework have been explored in game-theoretic "bargaining" models, which take power asymmetries into account. These typically find that the husband and wife's relative incomes have major impacts on the allocation of household resources; corroborating historical work on household members retained and pooled earnings (Lundberg and Pollak 1996, p. 144).

As households gain recurring income through the labor of their members, household decision-making could potentially follow a variety of patterns, based on who is in charge of, and manages, the income (Pahl 1995, 2008; Webley et al. 2001). One approach argues that a household member's earnings confer strategic or "bargaining" power, with greater access to household income for personal use and more "say" in household decision-making (Kamleitner et al. 2018). Given that husbands typically had higher hourly earnings, men

would therefore specialize in paid work, and women in housework, despite exacerbating within-household inequalities. Furthermore, when they had children, the wife's long-term earning power would fall, as labor market human capital declines with time out of the workforce, thereby reducing her bargaining power regarding household spending decisions (Webley et al. 2001).

There is a long-standing and ongoing debate around justice in the sexual division of labor and gender imbalances in work and leisure as part of the feminist challenge (Berik and Kongar 2021; Gimenez-Nadal and Sevilla 2012), and gender inequalities at the household-level, in both current and potential earnings. These have implications for investment decisions regarding labor-saving appliances. Prior literature discusses the substitution effect of married women's housework, and paid work, time allocation. Vanek's (1974, pp. 116–118) analysis of the USA found that, while 1970s American women not in the labor-force did as much housework as their forebears in the 1930s, women in paid employment spent substantially less time on housework (26 hours, compared to 55 for other married women). A substantial, though small, effect was still evident after taking account of marital status, family income, women's education, and family composition.

Evidence focusing on core household tasks—meal preparation, laundry, and cleaning (rather than activities such as childcare and shopping, which have some leisure elements) indicate much larger reductions in housework time (Greenwood, Seshadri and Yorukoglu 2005, p. 113). Moreover, the effort associated with housework has fallen much faster than the time spent; while the diffusion of entertainment durables has increased opportunities for housework to be undertaken jointly with leisure, for example watching TV while clothes washing, cleaning, or child care (Bowden and Offer 1994 p. 744; Vanek 1974, p. 119). Yet surveys generally showed that housewives who participated in the formal labor market received little more help with housework from their partners than full-time housewives and such help mainly involved noncore housework activities such as shopping (Gershuny 1992, pp. 7–8; Vanek 1974, p. 118).

Gershuny's analysis for the UK, using mass observation diaries, found that middle-class women's housework hours rose substantially from the mid-1930s to mid-1960s, owing to the declining availability of domestic servants. Meanwhile from 1950 to the early 1970s working-class women's unpaid work time fell substantially, converging with middle-class women during the 1960s and 1970s. For married working-class women the downward trend in hours began during the 1960s, but again thereafter converged with middle-class hours (Gershuny 1992, pp. 16–17). Aggregate data may thus mask significant differences between socioeconomic groups, owing to a "class composition effect," as identified for the USA (Trentmann 2016, p. 259). While working-class wives substituted durables for fatiguing tasks such as washing and cleaning, middle-class housewives were more likely to outsource services such as clothes washing, especially in an era when full employment made paid help increasingly expensive.

While at the macrolevel women's labor participation is driven by the diffusion of durables, research at the household-level explores the impacts of household characteristics, including women's employment, on the choice for durables' adoption. For example, Bose, Jain, and Walker (2022), pp. 3–4 & 27–30, argue that rising female employment increases labor-saving durables' adoption through household income effects or "independent incomes" effects (women's employment status increasing their bargaining power within the household). They also note a third channel—domestic servants, though in the European context this would probably be mainly limited to higher income groups, as most female un/semi-skilled jobs would also be open to domestic servants (in contrast to the USA, where domestic service was

segmented from more attractive jobs, largely owing to racial segregation and discrimination) (Bose, Jain, and Walker 2022, p. 30).

3. Labor-saving durables' diffusion in the early postwar era

From 1953/4 to 1980, the proportion of British household expenditure devoted to durable goods remained relatively stable, at around 7.0–7.5 percent, or about 6–8 percent of household income (Department of Employment 1981, pp. 42, 165). However, a large proportion of durables' expenditure involves "major durables," often costing the equivalent of several weeks', or months', net income, which makes them more challenging for household budgeting, owing to their lumpy nature. For example, in Britain, the average cost of an electric refrigerator in January—April 1951 was £72.50 and an electric washing machine averaged £44.20 (at a time when weekly wages for adult male manual workers averaged £8.01).[2] For affluent households, there were alternative means of accessing clothes washing and food-storage services. The fridge could be substituted by phoning an order to the local "superior grocer," to be delivered the same day by the delivery boy on his bicycle and Britain had a nationwide system of household deliveries for milk and other dairy products. Laundries were also popular for high-income households.

3.1 Exploring durables' ownership in the 1950s: data and method

Information on durables' diffusion in the early 1950s is provided by the National Survey of Personal Incomes and Savings (NSPIS) ("Oxford savings surveys") of 1951/2 to 1954: a series of national household studies surveying savings, durables ownership, and household composition, for all socio-economic classes. The 1953 survey has a digitized dataset, enabling econometric analysis of the drivers of durables' ownership, based on income units (hereafter I.U.s'), either a single adult with a separate income or a group of people who pooled their income. Most households represent a single I.U. (1136 out of 2095 responses), while 618 income units were one of two I.U.'s in their household.[3]

We model the probability of ownership for the two classic labor-saving durables—washing machines and refrigerators—to explore the significance of the key microlevel factors. Our models are estimated via logistic regressions for durable j, where durable ownership is captured as a binary variable (1 = owned), using the following equation:

$$D_i^j = 1\left[\alpha_i + \beta_1 \log \mathrm{Inc}_i + \beta_2 \mathrm{tenure}_i + \beta_3 \mathrm{occ}_i + \beta_4 \mathrm{age}_i + \beta_5 hh\ \mathrm{size}_i + \beta_6\ n\_\mathrm{children}_i + u_i > 0\right] \quad (1)$$

where log income is the natural logarithm of (winsorized) gross income of the I.U. Occupational effects are captured using the three categories: nonmanual, manual, and retired/unoccupied. The baseline model is explored for washing machines and refrigerators.

[2] TNA, RG 25/215, Government Social Survey, W.F.F Kemsley, and David Ginsburg, report on sent to Central Statistical Office, on expenditure of durable goods etc., from January to April 1951;. Average adult manual workers earnings based on (*UK, Department of Employment and Productivity* 1971), p. 101.

[3] Lydall, *British and Savings*, pp. 3–6. All single people aged 18 or over were treated as separate income unites unless they had an income less than £50 per year and were living with relations.

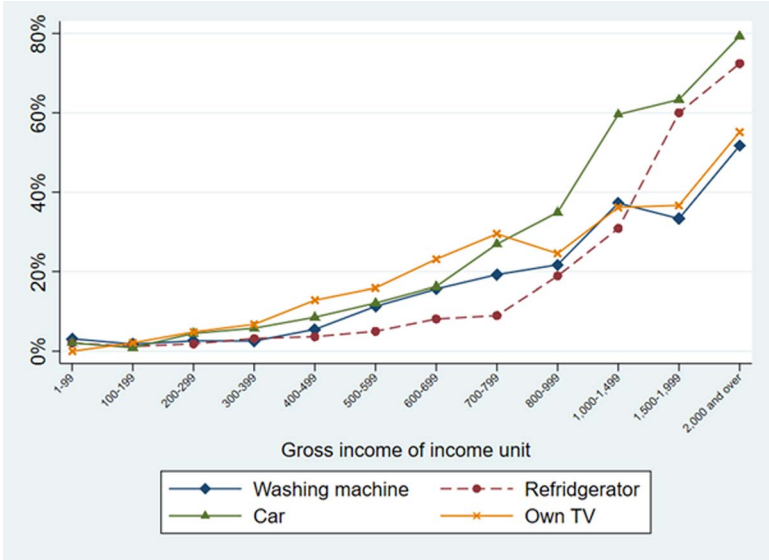

Figure 1. Durables ownership by gross income of income unit, 1953. *Note:* Figure shows the percentage of income units who owned durables in each income group. *Source:* Authors' calculations based on NSPIS 1953, SN: 2539 (UK Data Service, 1988).

The baseline model is further augmented by variables reflecting wives' employment-related characteristics, to test power asymmetries within income units. We hypothesize that ownership of labor-saving appliances is affected by inequalities in earnings and wives' higher relative earnings, implying higher bargaining power in decision-making regarding labor-saving appliances. We test this by generating a predictor variable 'Wife's bargaining power' (Eq. (2)) for each income unit i—representing the wife's employment income divided by her husband's employment income:

$$\text{Wife's bargaining power}_i = \text{Wife's employment income}_i / \text{Husband's employment income}_i \quad (2)$$

Income was the dominant driver of durables' ownership. Figure 1 shows percentage ownership for four major durables, by gross income. Age (of I.U. head) has a major impact on ownership (fig. 2), peaking in the 35–44 age range and declining substantially thereafter. This implies that older households, with set routines and methods, demonstrated increased consumer resistance/inertia for what were (in Britain) relatively new durables.

3.2 Determinants of durables ownership

Partly reflecting wealth-effects; housing tenure is an important factor for durables' adoption (Table 1), even after accounting for differences in earned income. Home-ownership implies an "aspirational lifestyle of home-owning respectability" supported by a bundle of commodities to signal status and wealth (De Vries 2008, p. 33). House-owners and mortgagees typically

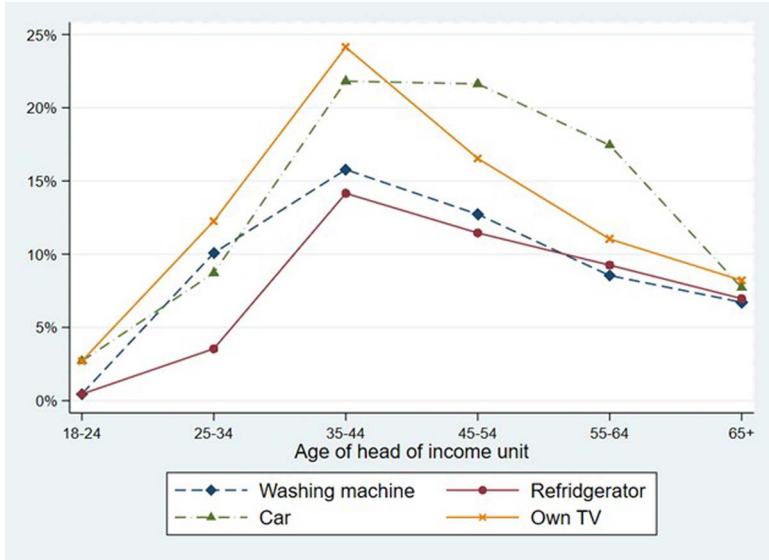

Figure 2. Durables ownership by age category of the head of income unit. *Source*: as in figure 1.

also had more modern houses, with bigger kitchens, that could more easily accommodate major appliances.

Regressing ownership of the four durables on family income (log gross family income, housing tenure, and region, the predicted probabilities (fig. 3) reveals that homeowners are more likely to own all four durables. Mortgagees' patterns of durables ownership closely replicate homeowners (except for cars), indicating that higher durables' ownership for this tenure was not primarily driven by wealth effects. Predicted probabilities for owning a washing machine, refrigerator, and a television are around 15% for homeowners, closely followed by mortgagees, with no statistically significant difference between these two categories. Having a clearing bank account (and, therefore, access to bank loans) is positively associated with refrigerator ownership, but not for washing machines (Table 2).

In the full sample, the average wife's employment income is 6.8 percent of the husband's and, for working wives, 39 percent of husband's income (Table A1), yet substantial numbers of missing employment incomes reduce the effective sample size for modelling. Exploration of marginal effects from logit models (Table 3) shows that a 10 percent increase in family income is associated with 0.7 and 0.9 percentage points (ppt) higher probability of ownership of a washing machine and a refrigerator, respectively. Partialling out the effects of other predictors, we observe that wife's employment is associated with a 2–3 ppt higher probability of having a washing machine (at $P = .07$) or a refrigerator (at $P < .05$). We also test the significance of "wives' bargaining power." Due to missing values for spouses' incomes, the sample is substantially reduced, and we do not observe statistical significance. Therefore, despite its theoretical importance, we find no evidence of a relatively high wife's income contribution to the household driving durables' ownership.

Examining inequalities in earning potentials, we explore the relative power of husband and wife, approximating their earning potentials as standardized husband's and wife's employment incomes (model c, Table 3). Looking at how "competitive" the wife or husband

Table 1. *Demographic characteristics for owners of washing machines and refrigerators in the sample, 1953.*

	Demographics in the full sample		Own washing machine		Own refrigerator	
	N	%	*N*	%	*N*	%
Housing status of income unit						
Owns outright	265	12.63	61	23.02	64	24.15
Owns with mortgage	220	10.49	52	23.64	52	23.64
Council housing/Rent free	348	16.59	29	8.33	12	3.45
Rents privately	764	36.42	59	7.72	43	5.63
Secondary I.U.	501	23.88	6	1.20	3	0.60
Occupation of I.U.						
Nonmanual	544	25.93	93	17.10	77	14.15
Manual	1083	51.62	97	8.96	73	6.74
Retired and unoccupied	471	22.45	17	3.61	24	5.10
Region						
Scotland	329	15.68	44	13.37	17	5.17
Northern England	480	22.88	58	12.08	27	5.63
Midlands and Wales	406	19.35	41	10.10	26	6.40
South and East England	883	42.09	64	7.25	104	11.78
Total	2098	100	207	9.87	174	8.29

Note: Calculations based on the unweighted sample and may not represent the population. *Source*: Authors' calculations based on NSPIS 1953, SN: 2539 (UK Data Service, 1988).

is in the labor market, the husband's employment income is twice as important as the wife's—one standard deviation from the mean of husbands' employment income is associated with 2.0 ppts and 2.6 ppts higher probability of refrigerator and washing machine ownership, respectively, while one standard deviation in wife's income is associated with only 1.0 and 1.4 ppts, respectively. In other words, the higher the wife's income is—relative to other wives—the higher the probability of durables ownership. However, the husband's income (relative to other heads of household incomes) has greater impact. The husband's, typically larger, employment income dominates family income and, in absolute terms, is substantially higher than the wife's; one standard deviation from the mean reflects a considerable shift in family income. However, every extra pound earned by the husband, or wife, has a different "value" in contributing to the probability of durables ownership.

In absolute terms a wife earns less, but every pound earned is a measure of time and effort redeployed from housework. Comparing spouses' independent income effects and partialling out other characteristics (model d) shows that a wife's earned pound is about twice more valuable "currency" in decision-making regarding time-saving appliances than the husband's. Every £10 earned by the wife is associated with 0.13 and 0.19 percentage points higher probability of owning a refrigerator and a washing machine, respectively, while a husband's extra £10 earnings is associated with 0.06 and 0.08 percentage points higher probability of

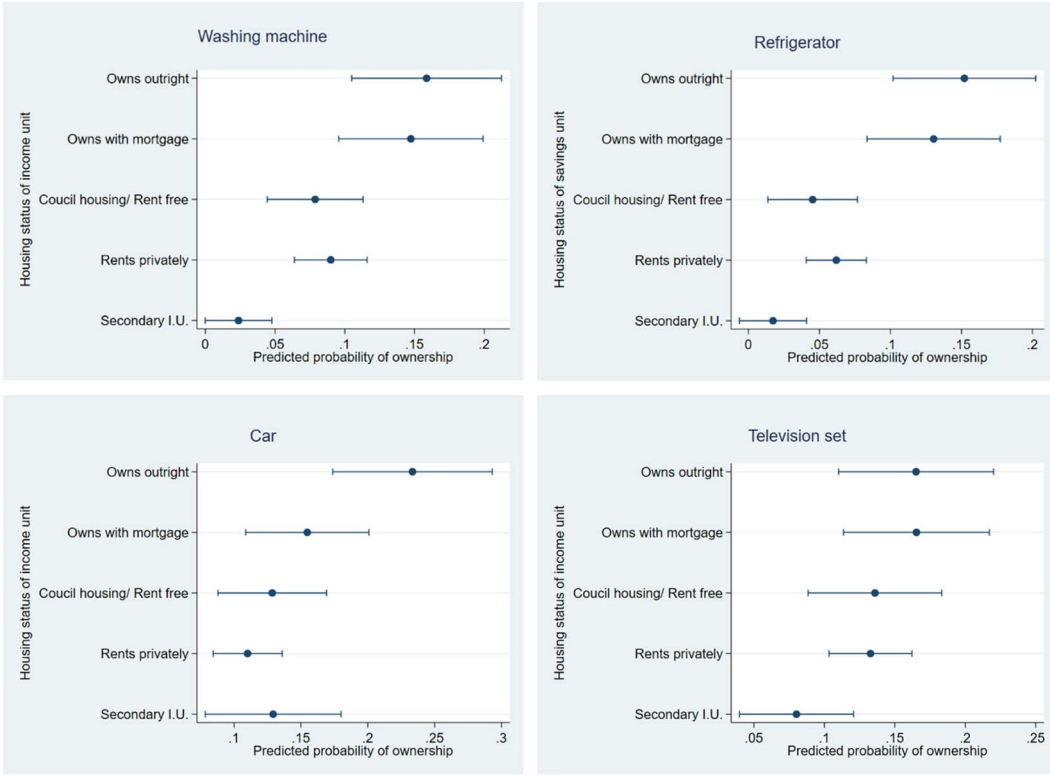

Figure 3. Predicted probabilities of durable ownership by tenure. *Notes*: Margins plots show the predicted probabilities of durable ownership, based on logistic regression models. Dependent variables are ownership of a durable, predictors are log gross family income, tenure (using council housing as a reference category), and region. The 'whiskers' reflect the 95% confidence intervals. No/small overlap between confidence intervals denote statistically significant differences between the categories. *Source*: Authors' calculations based on NSPIS 1953, SN: 2539 (UK Data Service, 1988).

ownership, respectively. This implies that it is not the absolute importance of a wife's earned income, but rather her sacrifice of time otherwise used on housework, which increases the probability of owning labor-saving durables. While working wives' income contributions were relatively small, we find a significant marginal effect of wives' earned income, implying that every "extra pound" earned by the wife matters.

4. A macroperspective of the drivers of durables' diffusion in the 1950s–1970s

By the late 1950s, it was clear that Britain's diffusion of major household labor-saving appliances lagged far behind other nations with similar per capita incomes, as shown in Table 4, for 1959. Yet Britain had high diffusion for the cheapest durable enumerated, the

Table 2. *Marginal effects of savings and access to bank account in durables ownership.*

	Washing machine		Refrigerator	
	(a)	(b)	(a)	(b)
Section A				
Log gross income	0.074***		0.082***	
	(0.012)		(0.009)	
Whether household has a bank account	0.011		0.050***	
	(0.015)		(0.015)	
Whether household has savings	0.016		0.005	
	(0.016)		(0.015)	
Wald_chi2	190.8		278.4	
Pseudo R2	0.24		0.34	
N	2094		2094	
Section B				
Savings > = £10		0.028		0.005
		(0.018)		(0.016)
Savings > = £15		0.011		−0.004
		(0.018)		(0.016)
Savings > = £20		0.01		−0.009
		(0.179)		(0.016)

Note: Section A reports marginal effects obtained from logistic regressions. Models also include age categories, number of persons in income unit, number of children, type of tenure, occupation of head, categories for the size of town (conurbation, other urban, rural) and regional controls. Section B reports coefficients estimated from the three alternative models, where the dummy for non-zero savings is replaced by dummies for the three different amounts saved, interchangeably—savings more than £10, £15, and £20. To generate a dummy for bank accounts we use nonzero values of the variable 'Amount in ordinary bank account'. For the savings -dummy we use nonzero amounts in trustee savings bank accounts or other savings accounts. To generate dummies for other savings-related variables, we use the amounts in trustee savings bank accounts and other savings bank accounts. Robust standard errors in parentheses. ***$P < .01$, **$P < .05$, *$P < 0.1$. *Source*: Authors' calculations based on NSPIS 1953, SN: 2539 (UK Data Service, 1988).

vacuum cleaner, indicating that British households had no innate aversion to electrical labor-saving appliances.

Real income growth, and real price falls, are major factors accelerating consumer durables' diffusion. Cavalcanti and Tavares (2008) found that a decrease in relative prices of home appliances (relative to general prices) led to a substantial increase in female labor force participation in Britain, accounting for 10–15 percent of the increase in female participation from 1975 to 1999—a result broadly replicated for other nations. Improvements in the performance and features of durables would have similar impacts, which are difficult to separate from price effects. This is particularly important for washing machines, with fully automatic machines not being introduced in Britain until the 1960s (around 50 years after the first semiautomatic machines were developed).

However, British households struggled to purchase refrigerators and washers, owing to their higher prices (considerably raised by unusually high sales taxes for consumer durables). American government investigators found that in 1959 representative prices for washing machines in the UK ranged from £120 to £174 (semi-automatic and automatic, respectively),

Table 3. *Exploring the effect of wife's income on ownership of time-saving appliances.*

	(a)		(b)		(c)		(d)	
	ME	SE	ME	SE	ME	SE	ME	SE
Washing machine								
Log gross family income	0.073***	0.012	0.090***	0.015				
Wife employed	0.027*	0.015						
Wife's bargaining power			0.004	0.031				
Husband's employment income (z-score)					0.026***	0.007		
Wife's employment income (z-score)					0.014***	0.005		
Husband's employment income (£00)							0.008***	0.002
Wife's employment income (£00)							0.019***	0.007
Wald_chi2	206.2		154.3		170.5		170.5	
Pseudo $R2$	0.24		0.24		0.220		0.2	
N	2096		1596		1657		1657	
Refrigerator								
Log gross family income	0.090***	0.009	0.080***	0.011				
Wife employed	0.023**	0.012						
Wife's bargaining power			−0.046	0.035				
Husband's employment income (z-score)					0.020***	0.005		
Wife's employment income (z-score)					0.010**	0.005		
Husband's employment income (£00)							0.006***	0.002
Wife's employment income (£00)							0.013**	0.006
Wald_chi2	263.1		191.1		198.2		198.2	
Pseudo $R2$	0.33		0.35		0.27		0.27	
N	2096		1596		1657		1657	

Notes: Estimates are obtained from logistic regressions. All model specifications also include age of head of income unit, age-squared, number of persons in income unit, number of children, type of tenure, occupation of head, categories for the size of town, and regional controls. Wife's bargaining power is captured as wife's employment income divided by husband's employment income. ***$P < .01$, **$P < .05$, *$P < 0.1$. *Source:* Authors' calculations based on NSPIS 1953, SN: 2539 (UK Data Service, 1988).

while refrigerator prices ranged from £95 to 151, according to capacity and the inclusion of a freezer box (Chorba 1960, p. 105). This priced many households out of the market, given that average weekly wages for full-time male manual workers averaged £13.20, while

Table 4. *Diffusion of refrigerators, washing machines, and vacuum cleaners for 10 nations in 1959.*

Nation	Refrigerators	Washers	Vacuum cleaners	1960 GDP per capita
Switzerland	50	55	80	11,707
USA	98	93	73	11,193
England & Wales	14.6	29.3	70.5	8571*
Australia	75	39	71	8539
Denmark	23	9**	69	8477
France	18	19	22	7049
Belgium	n/a	55	20	6779
Finland	14	25	14	6051
Italy	14	5	n/a	5531
Japan	3	17	2	3879

*UK data are based on England & Wales, while GDP per capita figure is for UK. **In Denmark, urban apartment buildings were usually provided with communal clothes washing facilities. ***GDP per capita is in 1990 Geary-Khamis dollars. Source, Angus Maddison (1995), Monitoring the World Economy 1830–1992 (France: OECD), pp. 195–197. *Sources*: England and Wales, Bowden, Sue. and Offer, Avner, 'Household Appliances and the use of Time: the United States and Britain since the 1920s', *Economic History Review*, XLVII, 4 (1994): 725–748, p. 746. Switzerland, France, and Italy, Mary A. Chorba, *Major Household Appliances: Production, Consumption, Trade, Selected Countries* (Washington: US Business Defence Service Administration, Consumer Durables Division, 1960); Jules Backman (1962, p. 313), *The Economics of the Electrical Machinery Industry* (New York; New York University Press.

credit regulations often demanded a minimum 50 percent deposit.[4] As a result, the diffusion of refrigerators was only 14.6 percent, slightly higher than for Finland and Italy, that had substantially lower per capita incomes. A similar pattern is evident for electric washing machines. Moreover, the US investigators who collected the data for Table 4 highlighted the impact of unusually high sales taxes and credit restrictions as the main cause of low UK sales of these durables.[5]

There are also annual data for durables' diffusion for England and Wales and for the USA, collected by Bowden and Offer (1994). These data, shown in figure 4, corroborate the findings of Table 4; vacuums had broadly similar diffusion rates, though washers and refrigerators diffused much more gradually in England and Wales compared to the United States. Labor-saving durables therefore diffused slowly during the 1950s and 1960s, both absolutely and relative to other high-income nations. Figure 5 examines UK manufacturers' delivery prices for washing machines sold in the UK from 1954 to 1973 (in 1974 data collection was terminated). Real prices for washers (before purchase tax) were relatively flat over this period, though there was a moderate fall during the 1960s when deflated by average incomes.

Reductions in purchase tax and government credit restrictions proved more important in increasing affordability. From the 1950s, consumer durables were subject to very high purchase tax rates in a deliberate effort to reduce their sales. This supported "stop-go" policy—reducing aggregate demand to avoid pressure on sterling's fixed exchange rate. Purchase tax on most household durables was equivalent to 50 percent or more of wholesale prices from April 1951—April 1958, as shown in Table 5; far higher than the sales taxes

[4] Chorba A. (1960). *Major Household Appliances: Production, Consumption, Trade, Selected Countries other Nations.* Washington: US Business Defence Service Administration, Consumer Durables Division, p. 105. Nominal wages: British Labour Statistics Historical Abstract 1886–1968.

[5] Chorba, *Major Household Appliances*, 104–105.

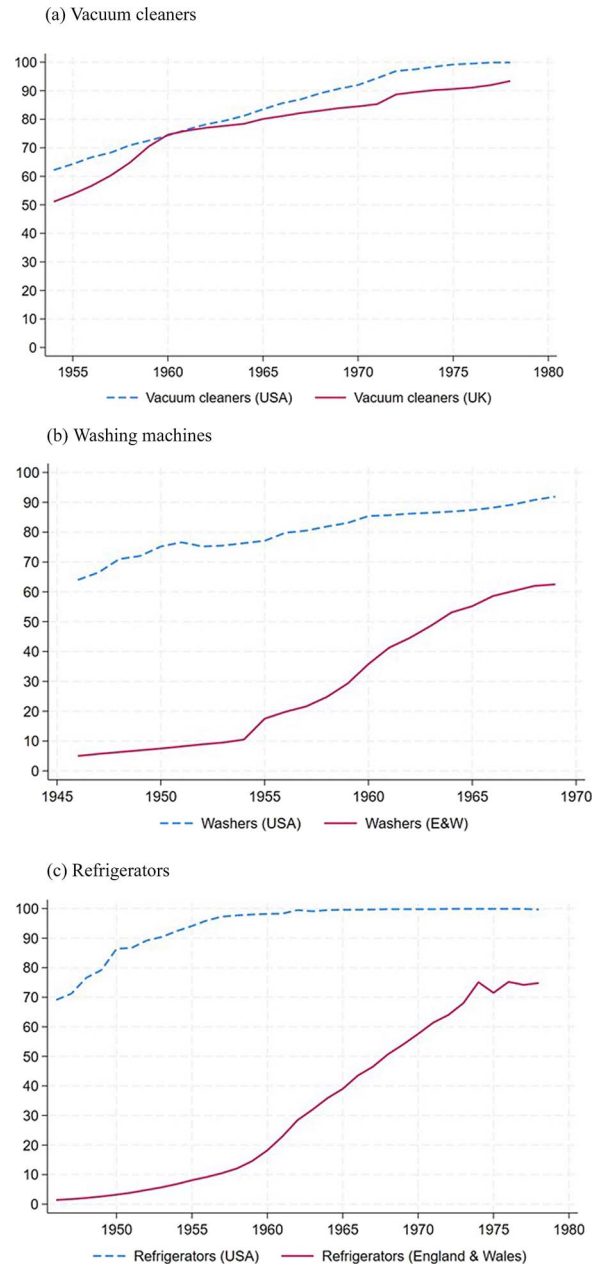

Figure 4. Diffusion rates for vacuum cleaners, washing machines, and refrigerators: UK and USA. *Sources:* Sue Bowden and Avner Offer, 'Household appliances and the use of time: the United States and Britain since the 1920s, '*Economic History Review*, 47, 4 (1994), pp. 725–748 & pp. 745–746.

for durables in most OECD nations. For example, in 1957, Britain's 60 percent purchase tax on the wholesale price of cars was roughly equivalent to a 50 percent retail sales tax,

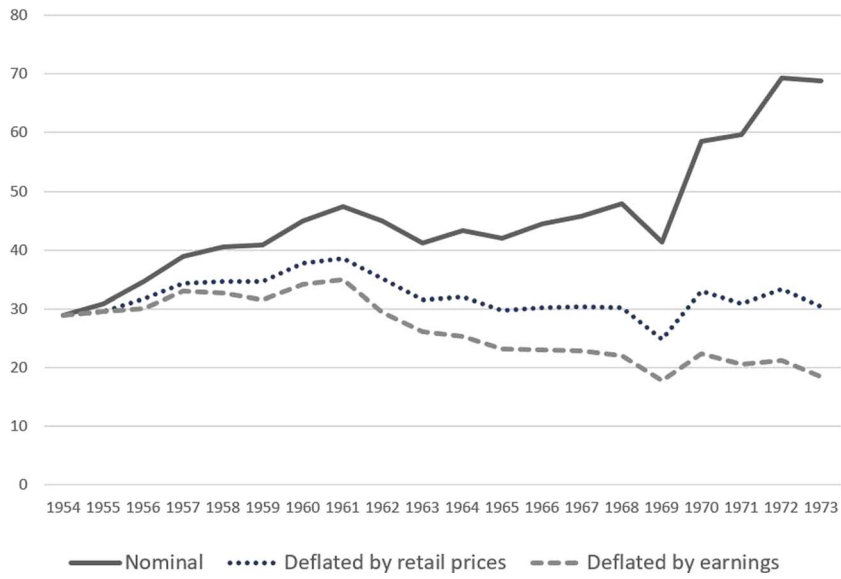

Figure 5. Average manufacturers' delivery prices for washing machines made and sold in the UK, 1954–1973 (nominal, and deflated by retail prices, and earnings. *Notes:* Price and earnings deflators based on "Purchasing Power of British Pounds from 1270 to Present," Measuring Worth, 2023 (accessed 31 May 2023). *Source:* Central Statistical Office, *Monthly Digest of Statistics,* volumes covering December 1954 to December 1974. Based on actual delivery prices.

while the equivalent sale tax rates in other major European nations were 6 percent for Germany; 7 percent for Italy; and 24 percent for France.[6] Furthermore, purchase tax rates and credit restrictions were subject to sudden, frequent, and unpredictable changes, in contrast to the lower and less volatile sales taxes in other OECD nations. Econometric analysis of monthly sales of washing machines and televisions over June 1951–September 1965, by Scott and Walker (2017), found some 18 stop-go "events" (changes in purchase tax or credit regulations), creating extreme sales volatility.

Table 5 shows rates of purchase tax and its successor, value added tax (VAT), from April 1951 to the end of the 1970s, for most household durables. Over April 1951 to April 1958 the rate varied from 50 to 66.7 percent of the wholesale price. From April 1958 to April 1973 rates were lower (between 25 and 36.3 percent). Credit restrictions were used in conjunction with purchase tax to further squeeze durables' purchases, by making it harder to purchase durables for cash or credit. The Treasury also indirectly restricted durables' diffusion by resisting attempts to introduce equal pay legislation in Britain, which they regarded as inflationary (raising household incomes) and therefore a threat to sterling. By the mid-1960s, Britain was almost the only major western industrial nation that had not adopted some form of equal pay legislation (Scott, 2024). In April 1973, purchase tax was replaced by VAT, varying from 8 to 25 percent of the retail price for most consumer durables for the rest of the 1970s.

[6] The National Archives, Kew, BT213/72, Ford Motor Co., "Purchase tax on motor vehicles," memorandum submitted to the Board of Trade, February 1957.

Table 5. *Purchase taxes on washing machines (and most household labor-saving durables) April 1951 to 1980.*

From	Purchase tax (% of wholesale price)
11-Apr-51	66.3
15-Apr-53	50
27-Oct-55	60
16-Apr-58	30
08-Apr-59	25
26-Jul-61	27.5
10-Apr-62	25
21-Jul-66	27.5
20-Mar-68	33.3
23-Nov-68	36.3
20-Jul-71	30
22-Mar-72	25
From:	VAT (% of retail price)
01-Apr-73	10.0
29-Jul-74	8.0
18-Nov-74	25.0
12-Apr-76	12.5
18-Jun-79	15.0

Source: UK Parliamentary Papers online, https://www.reading.ac.uk/lrc/e-resources/a-z-list/parliamentary-papers, 72nd Report of the Commissioners of Her Majesty's Customs and Excise for the year ended 31st March 1981, Cmnd. 8521 of 1982, p. 37.

The 1960s witnessed a substantial, but by international standards relatively slow, household shift from market services (or unmechanized housework) to labor-saving durables. Households' use of laundry/laundrette services had declined from 43 percent in the late 1940s,[7] to 32.4 percent in 1961 and 29.4 percent in 1963, further declining to 28.2 percent in 1968. Variations in laundry use by household income were also narrowing. In 1963, they varied from 22.2 percent for the lowest income quartile to 39.2 percent for the highest quartile.

Differentials in employing domestic help (including child-minding) by income had also substantially narrowed compared to the 1940s. By 1963, the variation was from 19.2 percent for the lowest household quartile to 32.5 percent for the highest quartile, while by 1968, this range had fallen to 5.4 to 14.5 percent for the lowest and highest quartiles. This suggests that both laundry and domestic services were increasingly being used for niche uses, such as dry cleaning, or child minding, that are not easily replaceable by durables.[8] While using laundry services was not strongly influenced by age, there was an increasing tendency for domestic help to be substantially higher during the child-bearing years by the late 1960s and early 1970s

[7] The National Archives, Kew, RG 23/189, W.F.F Kemsley and David Ginsburg, "Expenditure on laundries, dyeing and cleaning, mending and alterations and shoe repairing services," report for the Social Survey, Central Office of Information, August 1949, pp. 3–6.

[8] Authors' calculations using *FES* 1961–1963 and 1968 (unweighted sample). Income groups are defined by level of total weekly equivalized expenditure transactions. Use of paid help and laundry/laundrette is identified by non-zero expenditure on the corresponding expenditure items (at least one transaction over the 14-day period of observation).

(in 1968 use of domestic help peaked at 13.0 percent for the 25–34 age group, compared to 9.1 percent for all households).

5. The drivers of accelerated diffusion over 1969–1981: evidence from the family expenditure survey

The 1970s witnessed accelerated diffusion of labor-saving durables; together with the growth of both married women's formal workforce participation and hours worked (in contrast to the earlier postwar years, when married women's workforce participation grew, but their average hours worked fell (Joshi, Layard, and Owen 1985, p. S151). This was partly due to weaker constraints regarding children: the legalization of abortion in 1968 and the diffusion of the contraceptive pill, enabling effective family planning. Total period fertility rates fell from a post-war peak of 2.94 in 1964 to 2.41 in 1970 and 1.90 in 1980, remaining under 2.0 thereafter (Joshi, Layard, and Owen 1985, p. S159). Career gaps due to motherhood also shortened, as it became socially acceptable for women to return to work before their children became teenagers; by 1980 a quarter of all mothers re-entered the workforce within a year of giving birth (Dex 1988, pp. 114–115; 150–152; McCarthy 2020, pp. 324–326).[9]

Women's career prospects were also improving. Prior to the 1970s most British women, especially married women, had been confined to "secondary" labor markets, characterized by low earnings, limited training, poor promotion prospects, and weak job security. For example, the 1970 *New Earnings Survey* found that earnings flattened out for women after their twenties, compared to 30–39 for male manual workers and 40–49 for male non-manual workers (Chiplin and Sloane 1980, pp. 288–290). Britain introduced equal pay legislation in 1970 (phased in over 1970–1975); followed, in 1975, by anti-sex discrimination legislation in nonpay aspects of employment, such as hiring, promotion, training, and dismissal procedures. Their implementation was followed by a substantial rise in women's relative (to men's) incomes, while female employment significantly expanded during and after implementation and there was no significant impact on men's earnings' growth.[10]

Using data from the UK Family Expenditure Survey (FES), we explore the micro-(household-level) factors that contributed to growing ownership of durables and were likely to define their early adopters. Since 1967, FES has had an annual sample of approximately 10,000 households (and an effective sample of around 7000) (Banks and Johnson 1998, pp. 1–3; Kemsley, Redpath, and Holmes 1980, p. 1). Unlike most microdatasets, the FES is only available in a "cleaned up" format, using imputed data where possible for missing values (Banks and Johnson 1998, p. 6).

The 1969–1981 FES datasets provide annual ownership data for a range of durables (defined to also include continuous access to a durable, for example, provided by the landlord), as shown in figure 6. Among labor-saving durables, refrigerators show the largest gains over these 12 years, from 60.2 percent to 96.1 percent diffusion. Washing machines had slower diffusion, probably partly reflecting the widespread availability of laundrettes. According to the National Association of the Launderette Industry, UK laundrette numbers peaked at 12,500 in the early 1980s, thereafter declining to just 3000 by 2010.[11] Meanwhile cars had relatively slow diffusion, reflecting high purchase and running costs.

[9] Dex, *Women's Attitudes Towards Work*, pp. 114–115; 150–152; McCarthy, *Double Lives*, pp. 324–326.

[10] For a review of the literature on the impacts of British equal pay legislation see Scott (2023).

[11] BBC (2010), 'The rise and fall of the laundrette', 13 August, https://www.bbc.co.uk/news/magazine-10957093, accessed 24th June 2022.

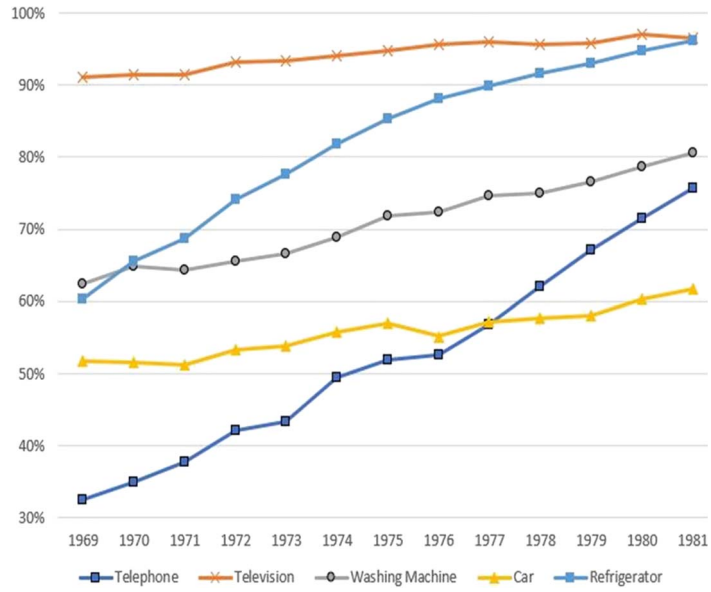

Figure 6. Percentage of households owning major durables, 1969–1981. *Source:* Authors' calculations, based on Department of Employment, *Family Expenditure Survey*, 1969–1981 SN: 3046–3058 (UK Data Service 1993).

Washing machine ownership was very sensitive to income. Figure 7 shows that household income was strongly related to ownership, with the top 10 percent of households (by expenditure) being consistently about 15 percent more likely to own a washing machine than the average household. There was little convergence over time—differences in the proportion of households with washing machines, between families with below median incomes, and the top-income cohort, only converge from about 27 percent to 24 percent.

Income decile analysis of washing machine ownership, based on the winsorized measure of gross household income, reveals close clustering for the top five deciles, but greater spacing for the bottom five. Income deciles 1–4 show substantial differences in ownership, while deciles 5–10 are spaced much closer and often overlap. This may reflect the ease of substitution by the laundrette, compared to the refrigerator, which had no strong substitutes; given that many flats or small homes would not have space in their kitchens for both a washer and fridge. This is corroborated by FES data on laundry use by tenure. For example, in 1980, 18.87 percent of households in private rental accommodation (typically with less floorspace than homeowners/buyers, or council tenants) had used laundries/laundrettes in the previous 14 days, compared to only 6.83–8.42 percent for other tenures.[12] Moreover, the main "time cost" of not having a washer was the journey to the laundrette and back, which was usually short (except in rural areas). This may also reflect the smaller kitchens of lower-income families—many kitchens in flats and small homes could not easily accommodate both a fridge and a washer, while moving the washer into the kitchen for each wash would be cumbersome.

[12] Authors' calculations using Family Expenditure Survey 1980 [data collection] SN: 3057 (UK Data Service, 1993).

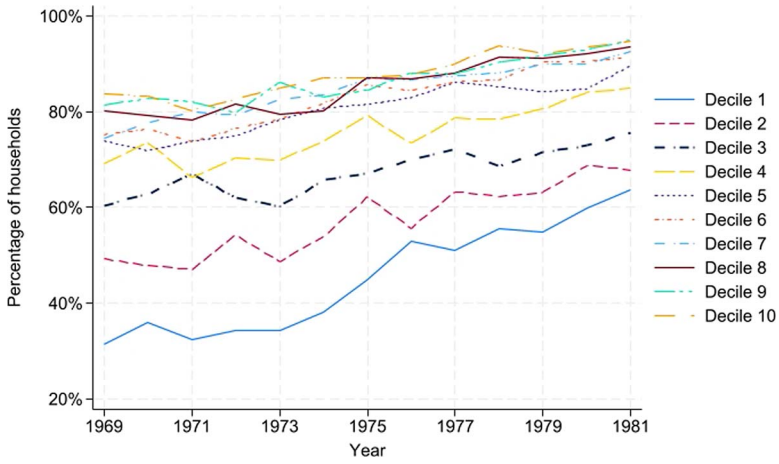

Figure 7. Washing machine ownership by income decile. *Note:* Income deciles are estimated for every year using winsorized gross household income. *Source:* Authors' calculations based on data from *Family Expenditure Survey, 1969–1981* SN: 3046–3058, UK Data Service.

Examining the impact of married women's employment and employment-related characteristics on labor-saving durables, we first explore the dynamics of working housewives' contributions to family budgets. In the 1961–1963 digitized surveys, household income or total expenditure are not recorded, so, following the approach of earlier researchers (Gazeley et al. 2017), for 1962 estimates we employ a full definition of expenditure, summing all household members' expenditures within 14 days of survey diaries, to obtain weekly equivalents. For 1968 and subsequent years, we use gross household income, as the corresponding variables are available in the digitized dataset (Table A2). We use equivalized net household income to generate income groups for 1968–1980.

The contribution of married women's earned income to family budgets grew considerably over the 1960s and 1970s, as shown in Table 6. Though as Table 7 shows, this was largely due to growing married women's labor-force participation. Women's relative earned income and labor-force participation varied substantially by socio-economic group. Table 7 shows the increase in the number of housewives with earned income, from 30 percent in 1962, to 44 percent in 1968 and 58 percent in 1980. This partly reflects smaller, planned, families, and changing social norms regarding working mothers. The growth of married women's labor-force participation was particularly rapid in higher socio-economic groups (where working wives were hitherto substantially under-represented), with participation rates in the top quartile rising by 15.9 percentage points between 1968 and 1980, compared to only 3.7 percentage points for the lowest quartile. Wives' earnings as a proportion of total household income also increased between 1968 and 1980 across income groups, with the largest gains in the top quartile.

The data also highlights a long-term trend of lower-income families becoming increasingly dependent on female earners (Brewer and Wren-Lewis 2011, pp.16 & 27). Table 8 shows that working (part-time or full-time) married women's relative contributions to net household income increased over the 1970s, particularly for the lowest quartile of household income, with an 8 percent increase over the decade, compared to about 3 percent in quartiles 3 and 4. Overall, the data imply that married women's relative (to men), and absolute, rising real

Table 6. *Wife's earnings as percentage of household income, by income group, 1962–1980.*

	Head's wife's earnings as percentage of total household income					Head's working wife's earnings as percentage of total household income (working wives only)			
	(a)					(b)			
	1962*	1968	1972	1976	1980	1968	1972	1976	1980
Income group, based on net household income									
First quartile		1.7	2.3	2.4	2.2	12.1	12.3	13.1	12.7
Second quartile		5.4	7.1	8.1	10.1	15.4	17.8	19.2	21.7
Third quartile		12.9	14.2	16.6	17.5	24.0	23.9	25.4	25.4
Fourth quartile		19.5	22.5	25.6	27.6	29.4	31.2	33.9	33.9
Full sample	10.4	10.6	12.4	14.5	15.9	23.7	24.7	26.8	27.4
Number of wives	2667	5315	5150	4957	4732	2359	2585	2676	2751
Number of households	3594	7183	7017	7203	6944	2359	2585	2.676	2751

Notes: Table refers to wives of the heads of households (HoH). Column (a) shows data for all women married to HoHs, column (b)—working HoH-wives only. Income groups are generated using quartiles to divide the distribution of equivalized net household income into four quartiles. Equivalization uses the OECD-modified scale. Wives' personal earnings are captured using last weekly net pay (main occupation) to calculate their contribution to total household expenditure. ∗Due to the absence of the total expenditure variable in the 1962 dataset, wife's contribution to total expenditure is estimated as personal earnings divided by the sum of transactions of all household members recorded in 14 days of survey diaries. *Source:* Authors' calculations based on data from Department of Employment, *Family Expenditure Survey*, 1962–1980, SN: 3043, 3045, 3049, 3053 and 3057 (UK Data Service, 1993).

incomes, together with falling real prices for durables (largely due to declining sales taxes), made investments in labor-saving appliances much more attractive, as a partial substitute for housework.

6. Wives' earning power and the adoption of time-saving durables in the 1970s

We now model the relationship between wives' earning power and the adoption of time-saving durables. We first test whether ownership of washing machines was determined by wives' employment—using FES data from 1969, when this data became annually available, to 1981, employing pooled cross-sectional Probit models. Predictors include weekly gross household income, age, age-squared, occupation of head of household, household size, number of children, number of rooms per household, housing tenure, and regional and year controls. To partial out the effect of the inaccessibility to laundry services in some areas, we generate a measure for access to laundries/laundrettes. We use the nonzero values of total expenditure on laundries/laundrettes from expenditure diaries to generate a dummy-variable for households' access to them/regular use. We estimate the marginal effects of predictors and obtain robust standard errors to address potential heteroscedasticity.

In the full sample (Table 9), as expected, we find a significant effect of income and a non-linear effect of age. Renters have lower probabilities of durables' ownership than house owners/mortgagees. There is a strong positive effect of household size and a negative effect of

Table 7. *Number of married women with nonzero earnings as a percentage of all married women, by income group, 1962–1980.*

	1962*	1968	1972	1976	1980
Income group					
First quartile	10.7	13.6	18.6	18.0	17.2
Second quartile	25.0	34.7	39.3	42.3	46.3
Third quartile	34.9	53.4	58.8	65.2	68.1
Fourth quartile	39.6	65.5	72.0	75.5	81.2
Full sample	30.3	44.3	49.9	53.8	57.8
Number of wives	2743	5438	5266	5073	4842
Number of income units	5114	9747	9101	9209	8822

Notes: The table shows data for wives of heads of income units. Income groups are generated using quartiles to divide the distribution of equivalized net household income into four quartiles. Equivalization uses OECD-modified scale. *Due to the absence of net household income variable in the 1962 dataset, households' categorization into income groups is undertaken using the sum of expenditure transactions of all household members recorded in 14 days of survey diaries, as an approximation of net household income. *Source:* Authors' calculations based on data from Department of Employment, *Family Expenditure Survey*, 1962–1980, SN: 3043, 3045, 3049, 3053, and 3057 (UK Data Service, 1993).

Table 8. *Working wives' contribution to net household income as a percentage of the head of household's contribution, by income quartiles, 1968–1980.*

	1968	1972	1976	1980
Income group				
First quartile	20.5	21.8	26.9	28.2
Second quartile	21.7	24.8	27.5	32.0
Third quartile	35.2	32.2	37.9	38.0
Fourth quartile	43.8	44.3	50.0	47.0
Full sample	32.8	33.5	38.5	39.4
Number of working wives	2359	2585	2676	2751
Number of working heads of household	5413	5261	5115	4850
Number of households	7183	7017	7203	6944

Notes: Household head's working wife's earnings (last weekly net pay in main occupation) as percentage of total net household income are divided by working household head's contribution to total net household income in the four income groups. Income groups are generated using quartiles, to divide the distribution of equivalized net household income into four quartiles. Equivalization uses the OECD modified scale. *Source:* Authors' calculations, based on Department of Employment, *Family Expenditure Survey*, 1968–1980, SN: 3045, 3049, 3053 and 3057 (UK Data Service, 1993).

number of children, suggesting that, overall, households with relatively more adults are more likely to own washing machines. Wife's employment is associated with time-saving durables ownership; households with a wife in employment are 4.6 and 4.9 ppts more likely to own a washing machine, or a refrigerator, respectively. Households with access to laundrettes are less likely to own washing machines. Homeowners outpace renters in washing machine and refrigerator adoption. Model postestimation and exploration of pairwise comparisons shows about 6 ppt difference between homeowners and mortgagees and 18 ppt between renters and mortgagees for washing machine ownership (at $P < .000$).

Table 9. *Probit regression results for labor-saving durable ownership.*

	Washing machine				Refrigerator	
	ME	SE	ME	SE	ME	SE
Gross household income (tens of pounds)	0.004***	0.000	0.004***	0.000	0.009***	0.001
Access to laundry/laundrette			−0.262***	0.004		
Whether household has a working wife			0.046***	0.003	0.049***	0.003
Age	0.011***	0.000	0.009***	0.000	0.008***	0.000
Age-squared	0.000***	0.000	0.000***	0.000	0.000***	0.000
Household size	0.069***	0.003	0.063***	0.002	0.017***	0.002
Number of children	−0.027***	0.003	−0.025***	0.003	−0.020***	0.002
Number of rooms	0.041***	0.001	0.037***	0.001	0.018***	0.001
Tenure						
Owned outright	0.022***	0.004	0.030***	0.004	0.048***	0.003
Owned with mortgage	0.050***	0.004	0.005***	0.004	0.079***	0.003
Rented privately, rent-free	−0.092***	0.004	−0.068***	0.004	−0.036***	0.003
Rented from local authority	(Reference category)		(Reference category)		(Reference category)	
Occupation						
Professional and technical workers	−0.016***	0.006	−0.007	0.005	0.051***	0.005
Administrative and managerial workers	0.009*	0.005	0.015***	0.005	0.049***	0.005
Teachers	−0.056***	0.010	−0.040***	0.009	0.034***	0.009
Clerical workers	−0.031***	0.006	−0.020***	0.006	0.035***	0.005
Shop assistants	−0.029**	0.014	−0.022	0.013	−0.009	0.012
Skilled manual workers	(Reference category)		(Reference category)		(Reference category)	
Semi-skilled manual workers	−0.045***	0.005	−0.041***	0.005	−0.022***	0.004
Unskilled manual workers	−0.080***	0.007	−0.076***	0.006	−0.059***	0.005
Members of HM Forces	0.082***	0.015	0.063***	0.015	0.060***	0.014
Retired	−0.040***	0.006	−0.033***	0.005	−0.009	0.005
Unoccupied	−0.082***	0.006	−0.068***	0.006	−0.027***	0.005
Region, year	Yes		Yes		Yes	
Pseudo R-squared	0.211		0.263		0.2761	
Observations	91,109		91,109		91,109	

Notes: The coefficients are marginal effects, robust standard errors reported. $*P < 0.1$, $**P < .05$, $***P < .01$.
Source: Authors' calculations based on Family Expenditure Survey, 1969–1981, SN: 3046–3058.

Exploration of occupational groups shows that skilled manual workers, along with managerial workers, led in adopting washing machines (Table 9). Skilled workers were ahead of teachers (with 4 percentage points difference) and clerks (2 percentage points difference), possibly due to their blue-collar work environments, where clothes were more likely to become

soiled. The social status value of consumer durables for this group may have also been an important factor, as argued in the "affluent worker" studies.[13]

Next, we explore a subsample of households with working wives (Table 10). This substantially reduces our effective sample size, eliminating households with unmarried heads and nonworking housewives; only households with nonmissing values for personal earnings of the working head of household's wife are included. We only examine households with positive head of household's personal earnings (full results are in the Supplementary material). Wives' working hours are not positively associated with owning washing machines. In fact, there is a very weak negative effect, perhaps due to heterogeneity—while working-class wives substituted durables for fatiguing tasks such as washing and cleaning, middle-class housewives were more likely to substitute durables for paid help or outsourced tasks (such as commercial laundries). The extent to which a working wife is viewed as a "breadwinner" is captured by the wife-to-husband's employment income ratio. We find no positive association with this variable, that would have implied "internal competition" (power asymmetry) in decision-making regarding family resources, based on earnings.

For household decision-making regarding expensive labor-saving durables, a more long-term view of the working wife's capacity to contribute to household income is important. We hypothesize that a woman's long-term earning capacity, proxied by personal earnings per hour, would be a strong indicator of career-orientation, as washing machines and other labor-saving durables would release valuable time that could be invested in her career.

Introducing per-hour earned income into the baseline model (Table 10, model (a3) and (a4)), long-term earnings potential is shown to be a key determinant. A professional married woman (with higher earnings per hour) was able to shift household decision-making towards washing machine purchase, with an extra £1 per hour associated with an increase in the probability of ownership of 2.8–4.4 percentage points (at $P < .01$), depending on the model. In other words, it is not the working wife's contribution in terms of merely more inputs of working hours, but the per-hour value added, or "quality" of her contribution, to the family budget and the earnings potential, that counts. Thus, an additional £1 of wife's earnings per hour is associated with a 3.6 percentage point increase in the probability of refrigerator ownership.

In comparative terms (z-scores, model (b4), Table 10), the husband's employment income has a significantly higher effect than the wife's. For refrigerator ownership, it matters how much a working wife earns compared to other women (z-score). Overall though, the importance of husbands' earnings, relative to the earnings distribution, matters about four times more. This can be explained by possibilities of more equal distribution of shopping tasks across the household. Refrigerator ownership may also reduce the breadwinner's effort and time on shopping (an activity more popular with women than men), in an era when most families had only one car—incentivizing him to invest in a durable that would reduce the frequency of supermarket visits.

In summary, our findings from the FES data suggest that households with working wives were more likely to own time-saving durables. Apart from income, homeownership, household size, and wife's employment, the important condition for adoption of both durables is a working wife's relatively high hourly earnings, as they represent the wife's long-term earning potential.

[13] For a summary of this literature, see Goldthorpe 1968, pp. 12-14. A good review of more recent studies is provided in Taylor, *Working Class Credit and Community*.

Table 10. *Determinants of labor-saving durable ownership for households with working wives.*

	Washing machine					Refrigerator			
	(a1)	(a2)	(a3)	(a4)	(a5)	(b1)	(b2)	(b3)	(b4)
Gross household income (tens of pounds)	0.004***	0.003***	0.003***	−0.031	0.003***	0.006***	0.005***	0.005***	0.001
	(0.001)	(0.001)	(0.001)	(0.021)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Wife's working hours	−0.001***					−0.000***			
	(0.000)					(0.000)			
Wife's relative earnings power		−0.002					−0.001		
		(0.001)					(0.001)		
Wife's earnings per hour			0.028***	0.044***				0.036***	
			(0.011)	(0.011)				(0.014)	
Wife's employment income (*z*-score)					−0.006**				0.007***
					(0.003)				(0.002)
Husband's employment income (*z*-score)					0.019***				0.034***
					(0.005)				(0.004)
N	28,111	28,111	28,111	28,111	28,111	28,111	28,111	28,111	28,111

Notes: The variables related to the aspects of wife's employment are explored in the sub-sample of households with working housewives only. The coefficients are marginal effects estimated from probit models, robust standard errors in parentheses. Dependent variables are washing machine ownership and refrigerator ownership. Other predictors employed in each model include head of household's age, age-squared and occupation, household size, number of children, number of rooms, type of tenure, a proxy for access to laundry/laundrette (for washing machine), year, and region (full regression results are provided in the Supplement). Model (a4) uses a proxy for permanent income, where the measure of the permanent income are the predicted values of household income based on a regression model with head of household's age, age-squared, occupation, and year-dummies. *Z*-scores of wife's and husband's employment incomes are winsorized at the 1st and 99th percentile. Standard errors in parentheses. $*P < 0.1$, $**P < .05$, $***P < .01$. *Source:* Authors' calculations based on *Family Expenditure Survey,* 1969–1981, SN: 3046–3058, UK Data Service.

7. Conclusions

Britain's exceptionalism in suppressing the diffusion of consumer durables and rejecting equal pay legislation until the 1970s shows the importance of the postwar industrialization of the home in other industrialized nations. These policies weakened incentives for married women to increase their formal workforce participation and particularly working hours (reflected in the stagnation of women's contribution to the workforce during the 1950s and 1960s; evidenced by the ratio of aggregate female/male hours earned), which only rose significantly in the 1970s (Joshi et al. 1985, pp. S15 & S171).

Household income is shown to be a strong determinant of labor-saving durables' adoption; though intra-household factors, especially married women's employment, earning potential, and the husband and wife's relative earnings (in their respective labor markets) are also shown to be important. This is in line with the findings of game theoretic bargaining models that the husband's and wife's relative incomes have strong impacts on household resource allocation. The two available digitized datasets (for 1953 and 1969–1981) both show that housewives' labor force participation was significantly associated with labor-saving durables ownership. However, during the 1950s and 1960s the high "cost" of most durables (interpreted broadly, including purchase tax, minimum HP deposits, and maximum credit repayment periods) made "investments" in consumer durables uneconomic for many households.

While we do not find support for the power asymmetries hypothesis, we identify substantial "independent income" effects for 1953—with every pound earned by the wife being associated with higher probability of labor-saving durable ownership than a pound earned by the husband, in line with the hypothesis that working wives would bargain for a trade-off between longer working hours and labor-saving durables. The analysis also indicates that by the 1970s the wife's long-term earnings potential (proxied by hourly earnings) was the key intrahousehold determinant of labor-saving durables ownership.

Our analysis also highlights the role of British governments, in making durables more expensive and blocking equal pay legislation until the 1970s. Despite some awareness by policymakers of the negative implications of their policies, successive British governments prioritized their short-term deflationary policies over labor-market considerations; though given continuing sterling crises, the short term became the long term.

Official publications

Central Statistical Office (n.d.). *Monthly digest of statistics, December 1955–December 1974*. London: CSO.
Department of Employment (1981). *Family expenditure survey 1980: Report*. London: Stationery Office Books.
Department of Employment (1993). *Family Expenditure Survey, 1962*. [data collection]. UK Data Service. SN: 3043.
Department of Employment (1993). *Family Expenditure Survey, 1968–81*. [data collection]. UK Data Service. SN: 3045–3058.
Department of Employment and Productivity (1971). *British Labour Labor Statistics. Historical Abstract 1886–1968*. London: HMSO.
Ministry of Labour (1965). *Family expenditure survey 1964:* Report. London: HMSO.
UK Parliamentary Papers online, https://www.reading.ac.uk/lrc/e-resources/a-z-list/parliamentary-papers

University of Oxford, Institute of Economics and Statistics, Central Statistical Office (1988). *National Survey of Personal Incomes and Savings, 1953*. [data collection]. UK Data Service. SN: 2539.

Archival sources

The National Archives, Kew

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Conflicts of interest

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Data availability

The data and methods underlying this article are available in the UK Data Service, at https://ukdataservice.ac.uk. The full list of data sets is available in the article and in its online supplementary material.

References

Backman, J. 1962. *The Economics of the Electrical Machinery Industry*. New York University Press: New York NY.

Banks, J., and P. Johnson. 1998. *How Reliable is the Family Expenditure Survey? Trends in Incomes and Expenditures over Time*. Institute of Fiscal Studies: London.

BBC 2010. The Rise and Fall of the Laundrette (13 August 2010). Available at: https://www.bbc.co.uk/news/magazine-10957093.

Becker, G.S. 1965. "A theory of the allocation of time." *The Economic Journal* **75**:493–517.

Becker, G.S. 1991. *A Treatise on the Family*. Harvard University Press: Cambridge, Mass.

Berik, G., and E. Kongar. 2021. *The Routledge Handbook of Feminist Economics*. Routledge: London.

Bose, G., T. Jain, and S. Walker. 2022. "Women's labor force participation and household technology adoption." *European Economic Review* **147**:104181.
Bowden, S., and A. Offer. 1994. "Household appliances and the use of time: the United States and Britain since the 1920s." *The Economic History Review* **47**:725–48.
Brewer, M., and L. Wren-Lewis. 2011. "Why did Britain's Households get Richer? Decomposing UK Household Income Growth between 1968 and 2008-09". In *IFS Briefing Note 125*. Institute for Fiscal Studies.
Cavalcanti, T.V.V., and J. Tavares. 2008. "Assessing the 'Engines of Liberation': home appliances and female labor force participation." *Review of Economics and Statistics* **90**:81–8.
Chiplin, B., and P.J. Sloane. 1980. "Sexual Discrimination in the Labour market". In *The Economics of Work and Pay*, edited by A.H. Amsden, pp. 283–321. Penguin: Harmondsworth.
Chorba, A. 1960. *Major Household Appliances: Production, Consumption, Trade, Selected Countries other Nations*. US Business Defence Service Administration, Consumer Durables Division: Washington.
Cowan, R.S. 1983. *More Work for Mother. The Ironies of Household Technology from the Open Hearth to the Microwave*. Basic Books: New York.
De Vries, J. 2008. *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present*. Cambridge University Press: Cambridge.
Department of Employment 1981. *Family expenditure survey*. Report. 1980. London: Stationery Office Books.
Dex, S. 1988. *Women's Attitudes towards Work*. Palgrave Macmillan: Houndmills.
Gazeley, I., H.G. Rufrancos, A. Newell, K. Reynolds, and R. Searle. 2017. "The poor and the poorest, 50 years on: evidence from British household expenditure surveys of the 1950s and 1960s." *Journal of the Royal Statistical Society. Series A (Statistics in Society)* **180**:455–74.
Gershuny, J. 1992. "Are we running out of time." *Futures* **24**:3–22.
Gimenez-Nadal, J.I., and A. Sevilla. 2012. "Trends in time allocation: a cross-country analysis." *European Economic Review* **56**:1338–59.
Goldthorpe, J.H., D. Lockwood, F. Bechhofer, and J. Platt. 1968. *The Affluent Worker: Industrial Attitudes and Behaviour*. Cambridge University Press: Cambridge.
Greenwood, J., A. Seshadri, and M. Yorukoglu. 2005. "Engines of Liberation." *Review of Economic Studies* **72**:109–33.
Joshi, H.E., R. Layard, and S.J. Owen. 1985. "Why are more women working in Britain." *Journal of Labor Economics* **3**:S147–76.
Kamleitner, B., E. Marckhgott, and E. Kirchler. 2018. "Money management in households". In *The Cambridge Handbook of Psychology and Economic Behaviour*, edited by A. Lewis, pp. 260–84. Cambridge University Press: Cambridge.
Kemsley, W.F.F., R.U. Redpath, and M. Holmes. 1980. *Family Expenditure Survey Handbook: Sampling, Fieldwork, Coding Procedures and Related Methodological Experiments*. HMSO: London.
Lundberg, S., and R.A. Pollak. 1996. "Bargaining and distribution in marriage." *Journal of Economic Perspectives* **10**:139–58.
Maddison, A. 1995. *Monitoring the World Economy 1830–1992*. OECD Publications and Information Center: Development Centre of the Organisation for Economic Co-operation and Development.
McCarthy, H. 2020. *Double Lives. A History of Working Motherhood*. Bloomsbury: London.
Pahl, J. 1995. "His money, her money: recent research on financial organisation in marriage." *Journal of Economic Psychology* **16**:361–76.
Pahl, J. 2008. "Family finances, individualisation, spending patterns and access to credit." *Journal of Socio-Economics* **37**:577–91.
Scott, P. 2023. "Not going out: Television's impacts on Britain's commercial entertainment industries and popular leisure during the 1950s." *Social History* **48**:475–500.
Scott, P. 2024. "From "pin money" to careers: Britain's late move to equal pay, its consequences, and broader implications." *Enterprise & Society* **25**:376–401.
Scott, P., and J.T. Walker. 2017. "The impact of 'stop-go' demand management policy on Britain's consumer durables industries, 1952-65." *Economic History Review* **70**:1321–45.

Trentmann, F. 2016. *Empire of Things. How we Became a World of Consumers, from the Fifteenth Century to the Twenty First*. Allen Lane: Milton Keynes.
Vanek, J. 1974. "Time spent in housework." *Scientific American* **231**:116–21.
Webley, P., C. Burgoyne, S.E.G. Lea, and B.M. Young. 2001. *The Economic Psychology of Everyday Life*. Routledge: London.

Appendix

Table A1. *Summary statistics for continuous variables used in modelling based on NSPIS 1953 data.*

Variable	Obs.	Mean	SD	Min	Max
Log Gross Family income of I.U. (winsorized)	2096	5.95	0.76	4.37	8.08
Gross family income of Income Unit (£, winsorized)	2096	516.36	490.39	79	3231
Number of persons in the I.U.	2098	2.32	1.44	1	9
Age of Head of I.U.	2098	46.54	17.1	15	94
Number of children (under 17)	2098	0.72	1.17	0	9
Husband's employment income (£, winsorized)	1657	419.14	311.07	0	2000
Wife's employment income (£)	1658	28.56	75.08	0	550
Wife's 'bargaining power'	1597	0.06	0.18	0	1.41

Notes. Author's calculations. Weightings are not used for estimation, and the sample means may deviate from the population means. For obtaining sample means in this table, gross family, husband's, wife's income, and log incomes are winsorized at 1% and 99% percentiles to address the impact of outliers.

Table A2. *Mean values for income, expenditure, and earnings variables used in FES 1968–1980 data.*

	1968	1972	1976	1980
Average gross weekly household income, £	29.99	43.23	81.15	145.41
Average total weekly expenditure, £	25.04	35.30	62.22	111.26
Average weekly personal earnings of the working head of household, £	16.85	24.58	41.90	76.61
Average weekly personal earnings of the working wife of the head of household, £	6.43	9.59	19.14	34.93

Note. Author's calculations using *Family Expenditure Survey* data, SN: 3045, 3049, 3053 and 3057.