

# In Search of Accurate Measures of Income Inequality across Japanese Households<sup>†</sup>

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## Appendix

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This appendix describes the procedure we employ to merge cells with no observations with neighboring cells. The first step is to merge no-observation cells with the neighboring cells in the area of residence category. As households living in Tokyo area are more likely to be undersampled than those living in other areas, there are numerous no-observation cells for the 23 Tokyo wards. We therefore merged the cells of households living in the 23 Tokyo wards with those living in designated cities, since the level of income of households in the designated cities is likely to be close to that of households in the Tokyo 23 wards. If the number of observations is extremely small even after we have merged no-observation cells with the neighboring cells in the area of residence category, we merge them with the neighboring cell in the age category. This is the general strategy we followed for collapsing the cells.

In addition to this general strategy, we used the following strategy for specific household groups for which there were only a small number of observations. First, two-or-more-person households (couple, single-parent-with-children, parents-with-children, three-generation, and other) without a worker are merged as a separate household type, because the number of these households is extremely small. Thus, in the process of creating the sampling weights, there are 8 household type categories (single male, single female, couple, single-parent-with-children, parents-with-children, three-generation, other, and two-or-more-person without a worker), as shown in Tables 3(b) and 4(b). Second, the following cells are merged with the neighboring cells in the age category first: (i) two-or-more-person homeowner households without a worker whose household head is younger than age 40, (ii) single-parent-with-children households whose head is over 60 years old, (iii) parents-with-child(ren) household whose household head is over 60 years old, (iv) other households with a worker whose household head is younger than 40 years old, (v) and three-generation renter households. We merged cells (i) to (iv) with the neighboring cells in the age category, because the scarcity of observations is due to the small sample size of certain age categories. On the other hand, household group (v) is merged with the neighboring

cells in the age category for a different reason: three-generation households tend to have family members of various age categories, and many of the households have two or more workers of a different age category. Thus, the age category is less important for these than the other cells, and we merge these cells with the neighboring cells in the age category.

**Appendix B: Supplementary Tables and Figures**

Table B1(a): Inverse of the adjustment factors ( $1/w_{j,t} \equiv \hat{s}_{j,t}/s_{j,t}$ ) by weighting cell without weighting adjustment: Single-person households in the raw 1989 NSFIE data

NSFIE 1989			Renter			Home-owner				
			-40	41-60	61-	-40	41-60	61-		
Single male	No worker	Designated cities	0.0339			0.1804			0.1780	
		Tokyo 23 wards								
		Other cities in Area 1							0.2163	
		Other cities in Area 2								
		Other cities in Area 3								
		Other cities in Area 4								
	Other cities in Area 5	0.3675	0.4391							
	One worker	Designated cities	0.2239	0.0317	0.1376	0.1018	0.0914	0.1447		
		Tokyo 23 wards				0.0978				
		Other cities in Area 1	0.3680	0.1742		0.1350				
		Other cities in Area 2	0.3378	0.1349		0.1176	0.2672			
		Other cities in Area 3	0.3572	0.1010		0.1458				
Other cities in Area 4		0.3661	0.3012	0.2554		0.1232	0.1726		0.4793	
Other cities in Area 5	0.4578	0.1975	0.2889	0.2583						
Single female	No worker	Designated cities	0.1175			0.5331			0.2468	
		Tokyo 23 wards								
		Other cities in Area 1							0.1831	
		Other cities in Area 2							0.3848	
		Other cities in Area 3								
		Other cities in Area 4								
	Other cities in Area 5	0.4511	0.5204							
	One worker	Designated cities	0.2165	0.1576	0.1214	0.2173	0.1507	0.2546		
		Tokyo 23 wards		0.0669		0.0769				
		Other cities in Area 1	0.5460	0.3870		0.3195	0.5416			
		Other cities in Area 2	0.8573	0.4649		0.5319	0.7572		0.8167	0.7301
		Other cities in Area 3	0.4762	0.3083		1.0791	0.3843			
Other cities in Area 4		0.6183	0.3807	0.6244		0.3497	0.5268		0.7401	
Other cities in Area 5	0.7427	0.4270	0.8466	0.7908						

Table B1(b): Inverse of the adjustment factors ( $1/w_{j,t} \equiv \hat{s}_{j,t}/s_{j,t}$ ) by weighting cell without weighting adjustment: Two-or-more-person households in the raw 1989 NSFIE data

NSFIE 1989			Renter			Home-owner (small)			Home-owner (large)					
			-40	41-60	61-	-40	41-60	61-	-40	41-60	61-			
Two-or-more-person with no worker		Designated cities	0.0597	0.1720	0.4632	0.4272	0.9647	0.6617	1.8870	0.6823				
		Tokyo 23 wards			0.2758						0.2835			
		Other cities in Area 1		0.3545	0.6639	0.6820	1.2991	1.8019	2.1724					
		Other cities in Area 2	0.1287	0.5525	0.7611	0.5835	1.0209	1.0177	1.5545					
		Other cities in Area 3		0.2455	0.7421	0.6703	0.9064	1.3096	1.5109					
		Other cities in Area 4	0.5553	1.2757	1.2482	0.8014	1.2896	1.5129	1.7593					
		Other cities in Area 5	0.2985	0.3446	0.9289	1.1105	1.0514	1.9662	2.0983					
Couple only	One worker	Designated cities	0.7779	0.5672	0.6953	0.9304	1.0203	0.8633	1.9646	1.1708				
		Tokyo 23 wards	0.2767	0.2350	0.1844	0.4117	0.5118	0.5173	0.6651	0.5570				
		Other cities in Area 1	0.9240	0.9346	0.8435	1.3844	1.5469	1.6686	2.3103	3.0559				
		Other cities in Area 2	1.0892	0.5871	0.7676	1.8585	1.4259	1.2057	2.1002	1.4926				
		Other cities in Area 3	0.9990	1.0681	0.6329	1.5619	1.1383	1.0943	2.7340	1.8342				
		Other cities in Area 4	1.3422	1.2053	1.5985	1.7917	1.3248	0.9512	2.4999	1.8137				
		Other cities in Area 5	1.5526	1.1986	1.0485		1.5606	1.4486	2.9403	2.2225				
	Multiple workers	Designated cities	0.4521	0.4635	0.5287	0.5413	0.7044	0.7175	1.9237	0.5125				
		Tokyo 23 wards	0.2547	0.1403	0.2838		0.3353	0.2510	0.4081					
		Other cities in Area 1	0.9176	0.8287	0.5774	0.8053	1.1589	1.2348	3.0984	2.5188	2.8834			
		Other cities in Area 2	0.8925	0.4119	0.8098	1.0732	1.2230	0.8111	1.9116	1.7451	1.2994			
		Other cities in Area 3	0.9743	0.6149	0.2162	1.1179	0.8386	0.7272	1.1776	1.1651	1.2965			
		Other cities in Area 4	0.9363	1.3396	0.7160	0.9908	1.0933	0.6940	1.0419	1.4966	0.9779			
		Other cities in Area 5	1.3660	0.9594	1.1321	1.4029	1.4736	1.1404	2.2569	2.1514	2.0058			
Single parent with child(ren)	One worker	Designated cities	0.5436	0.5719	1.0197	1.0589			7.3950	3.5486				
		Tokyo 23 wards	0.5811	0.1785		0.4794								
		Other cities in Area 1	0.6110	0.5894	1.6051									
		Other cities in Area 2	0.5015	0.2794	1.9620	2.5162								
		Other cities in Area 3	0.7748	0.6834	1.4281									
		Other cities in Area 4	0.7816	0.5392	2.9540	1.8061								
		Other cities in Area 5	0.9558	0.8642	1.8474	2.3009								
Parents with child(ren)	One worker	Designated cities	0.9868	0.9746	1.1018	1.5903	1.7405	3.3213						
		Tokyo 23 wards	0.4673	0.4734	0.4711	1.0312		1.4256						
		Other cities in Area 1	1.5896	1.7319	1.7997	2.3580	2.9290	4.6456						
		Other cities in Area 2	1.3046	1.4065	2.1284	2.0828	2.9528	3.4589						
		Other cities in Area 3	1.4398	1.5777	1.6921	2.0154	2.6560	4.1759						
		Other cities in Area 4	1.6522	1.8394	1.4694	2.5325	3.0820	3.7129						
		Other cities in Area 5	1.8627	1.9707	2.0121	2.6623	3.1599	4.9080						
	Multiple workers	Designated cities	0.6383	1.5307	0.6519	2.2384	1.5811	5.2958						
		Tokyo 23 wards	0.2913	0.9350	0.2804	1.5774	0.7873	4.7298						
		Other cities in Area 1	1.3596	2.5815	1.4728	3.8788	2.8636	10.1408						
		Other cities in Area 2	1.3707	2.0888	1.7985	3.4515	2.3607	6.2546						
		Other cities in Area 3	1.1672	2.4751	1.2024	3.4844	2.0604	7.0880						
		Other cities in Area 4	1.4152	2.2890	1.2665	3.7172	2.3094	7.0411						
		Other cities in Area 5	1.5813	2.3636	1.7099	4.1136	3.3242	7.8342						
Three generations	One worker	Designated cities	0.6202	0.8442	0.9284	0.1907	1.9422	1.4187	0.3678					
		Tokyo 23 wards												
		Other cities in Area 1					2.7208	1.5737	5.1974	2.7252	0.2530			
		Other cities in Area 2					1.7522	1.6212	3.0333	2.1240	0.2764			
		Other cities in Area 3					1.9582	1.3736	4.1655	2.1517	0.2302			
		Other cities in Area 4					1.8772	1.4299	0.1470	3.2118	1.9111	0.2847		
		Other cities in Area 5					2.2295	1.7529	0.1681	3.5575	2.1830	0.5053		
	Multiple workers	Designated cities	0.4857	0.7248	0.7359	0.3788	2.1209	0.9362	0.4397					
		Tokyo 23 wards	0.3375		0.2971		1.1422	0.6071	0.3790					
		Other cities in Area 1	0.8873	1.8788	1.5288	0.7637	4.2904	2.4000	1.1948					
		Other cities in Area 2	0.9221	2.4523	1.1932	0.5275	3.7546	1.7876	0.6442					
		Other cities in Area 3	0.7303	1.3167	0.8222	0.4945	2.6820	1.5446	0.7756					
		Other cities in Area 4	1.1120	2.0239	0.8924	0.5789	2.7241	1.6408	0.9149					
		Other cities in Area 5	1.1430	2.2081	1.3317	0.7012	3.8031	2.2475	1.0880					
Other	One worker	Designated cities	0.0727	0.0895	0.1154	0.0821	0.2125	0.4140						
		Tokyo 23 wards						0.0939						
		Other cities in Area 1						0.0938	0.0918	0.1646	0.2197	0.5865	0.5357	
		Other cities in Area 2						0.1485	0.1428	0.3138	0.1482	0.5297	0.5084	
		Other cities in Area 3						0.1268	0.2622	0.1826	0.2181	0.4839	0.5026	
		Other cities in Area 4						0.2258	0.2900	0.3796	0.3885	0.6607	0.4894	
		Other cities in Area 5						0.2848	0.1677	0.3308	0.3067	0.8883	0.6965	
	Multiple workers	Designated cities	0.1436	0.0451	0.0662	0.3204	0.0463	0.0803	0.6393	0.0760	0.1015			
		Tokyo 23 wards				0.2642								
		Other cities in Area 1				0.1734	0.0798	0.1251	0.9582	0.0998	0.2074	2.3030	0.2957	0.5098
		Other cities in Area 2				0.4011	0.1253	0.1080	0.8244	0.1652	0.1633	1.7323	0.3523	0.4163
		Other cities in Area 3				0.3043	0.0840	0.2061	0.7141	0.0759	0.1835	1.2876	0.3015	0.2918
		Other cities in Area 4				0.7187	0.2532	0.0863	0.9933	0.1699	0.2949	1.8333	0.4367	0.6406
		Other cities in Area 5				0.5386	0.2456	0.2939	0.9073	0.2505	0.4227	1.9531	0.5620	0.7081

Table B1(c): Inverse of the adjustment factors ( $1/w_{j,t} \equiv \hat{s}_{j,t}/s_{j,t}$ ) by weighting cell without weighting adjustment: Single-person households in the raw 1999 NSFIE data

NSFIE 1999			Renter			Home-owner					
			-40	41-60	61-	-40	41-60	61-			
Single male	No worker	Designated cities	0.0192			0.0760		0.2731			
		Tokyo 23 wards						0.1305			
		Other cities in Area 1									
		Other cities in Area 2									
		Other cities in Area 3									
		Other cities in Area 4									
	Other cities in Area 5	0.2197	0.3333								
	One worker	Designated cities	0.2722	0.0817	0.1775	0.1478	0.1785	0.1293			
		Tokyo 23 wards	0.4956	0.1321		0.2844	0.0364				
		Other cities in Area 1									
		Other cities in Area 2					0.4466	0.2391	0.2560		
		Other cities in Area 3					0.3604	0.0894	0.3434	0.3229	
Other cities in Area 4		0.3452					0.2028	0.2880			
Other cities in Area 5	0.4025	0.2928	0.2555	0.2543	0.1895	0.3715					
Single female	No worker	Designated cities	0.0974			0.4526		0.3292			
		Tokyo 23 wards						0.2012			
		Other cities in Area 1									
		Other cities in Area 2							0.4271		
		Other cities in Area 3									
		Other cities in Area 4									
	Other cities in Area 5	0.3842	0.5624	0.6354							
	One worker	Designated cities	0.1443	0.2301	0.1919	0.0830	0.3736	0.2881			
		Tokyo 23 wards	0.4773	0.5283		0.6521	0.0926				
		Other cities in Area 1									
		Other cities in Area 2					0.5016		0.4495	0.4884	
		Other cities in Area 3					0.5328		0.3377	0.9092	0.5589
Other cities in Area 4		0.4740					0.3938		1.0312	0.6414	
Other cities in Area 5	0.5529	0.4702	0.5015	1.0646	0.6838	0.6362					
					0.6177	0.7264					

Table B1(d): Inverse of the adjustment factors ( $1/w_{j,t} \equiv \hat{s}_{j,t}/s_{j,t}$ ) by weighting cell without weighting adjustment: Two-or-more-person households in the raw 1999 NSFIE data

NSFIE 1999			Renter			Home-owner (small)			Home-owner (large)			
			-40	41-60	61-	-40	41-60	61-	-40	41-60	61-	
Two-or-more-person with no worker		Designated cities	0.1273	0.2013	0.6240	0.3303	0.9811	0.7536	1.1766			
		Tokyo 23 wards			0.2668		0.5198		0.5864			
		Other cities in Area 1		0.2134	1.0552	0.6376	1.5194	0.9197	2.4303			
		Other cities in Area 2	0.2532	0.1014	0.7071	0.3534	1.2918	1.1759	1.7225			
		Other cities in Area 3		0.2020	0.9021	0.6844	1.1517	0.6987	1.4369			
		Other cities in Area 4	0.3076	0.5699	1.0820	0.6266	1.4626	1.0649	2.0847			
		Other cities in Area 5	0.5002	0.5216	0.9686	0.6645	1.2673	1.5905	2.3552			
Couple only	One worker	Designated cities	0.5090	0.5407	0.6977	0.5090	0.8061	0.7412	1.2281	0.7837		
		Tokyo 23 wards	0.2862	0.3040	0.5428	0.8184	0.5724	0.4090	0.6674	0.7835		
		Other cities in Area 1	1.0950	1.0355	1.2484	1.2946	1.5845	1.5617	2.5115	2.4318		
		Other cities in Area 2	0.9518	1.0064	1.1508	0.5540	1.6864	1.3146	2.3106	1.8143		
		Other cities in Area 3	0.7874	1.0843	1.0648	1.3651	1.5813	1.2803	1.9277	1.5528		
		Other cities in Area 4	1.3700	1.2237	1.0021	0.8406	1.5895	1.2060	2.9351	1.6813		
			Other cities in Area 5	1.4555	1.2288	1.2698		1.7003	1.4789	3.2805	2.7671	
	Multiple workers	Designated cities	0.4580	0.5924	0.4456	0.3829	0.6914	0.4325	0.1712	0.5812	0.5712	
		Tokyo 23 wards	0.4257	0.3241	0.2339		0.3319	0.3782			0.4920	
		Other cities in Area 1	1.0772	0.8504	0.8539	1.0416	1.3457	1.3032	1.9622	2.1052	1.9067	
		Other cities in Area 2	0.8298	0.9727	0.7518	1.5597	1.4087	1.2832	1.9567	1.9163	1.3703	
		Other cities in Area 3	0.9545	0.9437	1.0345	1.1812	0.9663	0.7616	1.9886	1.0683	1.0623	
Other cities in Area 4		1.1389	1.1481	0.7884	1.0038	1.3185	0.9710	2.9910	2.1020	1.0795		
		Other cities in Area 5	1.2976	1.3687	0.9966	1.6046	1.4756	1.2448	2.0824	2.7477	1.7828	
Single parent with child(ren)	One worker	Designated cities	0.6682	0.7922		0.9361	1.3631					
		Tokyo 23 wards	0.2328	0.4911			1.0260					
		Other cities in Area 1	0.9696	1.2778			2.9639					
		Other cities in Area 2	0.7889	1.0797		2.5501	3.2596		6.9571	6.6941		
		Other cities in Area 3	0.9398	1.4227			2.7429					
		Other cities in Area 4	0.8377	0.9707		3.5738	2.3015					
		Other cities in Area 5	1.4383	1.6225		3.2672	2.8901					
Parents with child(ren)	One worker	Designated cities	1.0746	1.7399		1.2264	1.7436		1.1622	2.6820		
		Tokyo 23 wards	0.5030	0.6100		0.5926	0.9293			2.0502		
		Other cities in Area 1	1.6577	2.3351		1.7789	3.2504		2.6865	4.8686		
		Other cities in Area 2	1.2270	1.9581		1.3052	2.9014		2.1307	4.1935		
		Other cities in Area 3	1.4694	1.8823		1.6659	2.9492		2.0211	4.0098		
		Other cities in Area 4	1.5980	2.2042		1.9949	2.9116		2.3572	4.6042		
			Other cities in Area 5	2.0253	2.5004		1.8783	3.2695	3.1871	4.7966		
	Multiple workers	Designated cities	0.9945	2.4228		0.8912	3.3060		1.2008	5.4584		
		Tokyo 23 wards	0.5536	1.3857		0.5737	1.9910		1.3665	4.6277		
		Other cities in Area 1	1.7402	3.8495		1.6031	6.7537		2.3359	10.7634		
		Other cities in Area 2	1.3529	2.5951		1.7565	5.4230		2.2317	7.8817		
		Other cities in Area 3	1.5954	4.4690		1.4730	5.6435		1.8109	6.7774		
Other cities in Area 4		1.1618	2.7869		1.5061	4.9036		1.7145	7.6907			
		Other cities in Area 5	1.8964	3.0413		1.8664	5.3944	2.4764	7.8930			
Three generations	One worker	Designated cities				0.7499	0.3812		0.7617	1.0532	0.3588	
		Tokyo 23 wards										
		Other cities in Area 1		0.5597		1.8820	1.4998	0.2055	3.2590	2.4009	0.2565	
		Other cities in Area 2				1.0983	1.8187		2.9903	2.1067	0.2208	
		Other cities in Area 3				1.2251	1.2582		2.8445	1.6888	0.3248	
		Other cities in Area 4				1.3992	1.7956	0.2041	2.6303	2.3183	0.5102	
			Other cities in Area 5		0.5618		2.0573	1.4427	0.1640	2.7330	2.7029	0.4161
	Multiple workers	Designated cities		0.2619		0.8138	0.8551	0.0992	1.2344	0.9115	0.3500	
		Tokyo 23 wards		0.1464			0.3800		1.1214	0.6945	0.1043	
		Other cities in Area 1		0.6686		1.9387	1.3458	0.5851	3.3925	2.2553	0.8474	
		Other cities in Area 2		0.7581		2.7441	1.1148	0.3786	2.9444	1.8937	0.5594	
		Other cities in Area 3		1.1017		1.3296	0.9700	0.4910	2.2300	1.3932	0.4606	
Other cities in Area 4			0.8854		1.5222	1.1774	0.4870	2.3022	1.8395	0.7032		
		Other cities in Area 5		1.0427		2.2912	1.0937	0.4785	3.6447	2.2335	0.7602	
Other	One worker	Designated cities		0.0805	0.1028		0.1247	0.1255		0.2924	0.2773	
		Tokyo 23 wards									0.0503	
		Other cities in Area 1		0.2017	0.0988		0.2385	0.1937		0.5300	0.4967	
		Other cities in Area 2		0.2381	0.1901		0.3283	0.1756		0.6046	0.4924	
		Other cities in Area 3		0.1943	0.1455		0.2990	0.2233		0.4396	0.3473	
		Other cities in Area 4		0.2538	0.1686		0.4928	0.1984		0.6865	0.3270	
			Other cities in Area 5		0.3300	0.2920		0.4090	0.2580	0.6633	0.6376	
	Multiple workers	Designated cities		0.2279	0.0653	0.1223	0.2610	0.0581	0.0878	0.1726	0.0706	0.0910
		Tokyo 23 wards					0.3000					
		Other cities in Area 1		0.3462	0.1410	0.1236	1.0978	0.1146	0.1507	1.9106	0.3419	0.3304
		Other cities in Area 2		0.2777	0.2012	0.1645	0.6812	0.1676	0.1740	1.5486	0.4194	0.3112
		Other cities in Area 3		0.2261	0.1678	0.1813	0.7405	0.0829	0.1383	0.7551	0.1868	0.1754
Other cities in Area 4			0.4893	0.2873	0.1923	0.8135	0.1601	0.1306	1.4768	0.5027	0.3763	
		Other cities in Area 5		0.4867	0.2975	0.1890	1.6047	0.2081	0.2947	2.6605	0.5881	0.5361

Table B2(a): Disproportionality of the NSFIE sample with provided sampling weights by population group in 1989 (single households)

NSFIE 1989			Renter			Home-owner					
			-40	41-60	61-	-40	41-60	61-			
Single male	No worker	Designated cities	0.0985			0.4061			0.8967		
		Tokyo 23 wards									
		Other cities in Area 1									
		Other cities in Area 2									
		Other cities in Area 3									
		Other cities in Area 4									
	Other cities in Area 5	0.8648	0.4589		0.7309		0.5731				
	Designated cities	0.7193						0.1152	2.0144	0.5005	2.8116
	Tokyo 23 wards								0.5047		
	Other cities in Area 1	0.7978						0.3784	0.3298		
	Other cities in Area 2	0.5980						0.4233	0.3143		
	Other cities in Area 3	0.7709						0.2770	0.2868		
One worker	Other cities in Area 4	0.7548	0.7874	0.4808	0.3820	1.1356					
	Other cities in Area 5	0.8481	0.4220	0.3955	0.4173						
	Single female	No worker	Designated cities	0.2949			1.7096			2.0944	
			Tokyo 23 wards								
			Other cities in Area 1								
			Other cities in Area 2								
Other cities in Area 3											
Other cities in Area 4											
Other cities in Area 5	1.5195	1.1750		2.2350		2.8336					
Designated cities	1.1882						0.9733	0.8274			
Tokyo 23 wards							0.7903	2.3853			
Other cities in Area 1	1.4164						0.9682	0.6986	1.2003		
Other cities in Area 2	1.5006						1.0255	2.4335	1.7550		
Other cities in Area 3	0.8553						0.7511	2.9321	1.0585		
One worker	Other cities in Area 4	1.3788	1.0523	0.6422	0.9904	1.5395					
	Other cities in Area 5	1.3722	0.7643	2.0682	1.4792						



Table B2(b): Disproportionality of the NSFIE sample with provided sampling weights by population group in 1989 (two-or-more-person households)

NSFIE 1989			Renter			Home-owner (small)			Home-owner (large)		
			-40	41-60	61-	-40	41-60	61-	-40	41-60	61-
Two-or-more-person with no worker		Designated cities	0.0910	0.3054	0.6695	0.7401	1.3336	0.9355	2.1248		
		Tokyo 23 wards			1.0537		0.7337		2.1558		
		Other cities in Area 1		0.2867	0.5282	0.6102	1.0023	1.4304	1.6990		
		Other cities in Area 2	0.0962	0.4167	0.5451	0.4449	0.7237	0.7578	1.0644		
		Other cities in Area 3		0.2021	0.5930	0.5187	0.7163	1.0736	1.1782		
		Other cities in Area 4	0.3429	0.8243	0.8173	0.5890	0.9166	1.1047	1.1978		
		Other cities in Area 5	0.1804	0.2034	0.6085	0.7863	0.7090	1.2998	1.3826		
Couple only	One worker	Designated cities	1.2620	0.8294	1.0928	1.6476	1.5745	1.2464	2.6844	1.6270	
		Tokyo 23 wards	0.6854	0.8948	0.6444	1.9983	1.2150	1.3611	1.2650	1.6752	
		Other cities in Area 1	0.7796	0.8011	0.6565	1.1362	1.3121	1.3329	1.8613	2.2867	
		Other cities in Area 2	0.8478	0.4638	0.5322	1.6808	1.0731	0.9123	1.4463	1.0573	
		Other cities in Area 3	0.8288	0.8647	0.4753	1.3468	0.9076	0.8493	2.1207	1.3687	
		Other cities in Area 4	1.0097	0.8515	1.2768	1.5205	0.9781	0.6459	1.7789	1.2026	
		Other cities in Area 5	1.1472	0.7328	0.6533	1.1083	0.9411		1.9555	1.4298	
	Multiple workers	Designated cities	0.6979	0.6992	0.7657	1.1184	0.9846	0.9823	5.3999	1.0153	0.7021
		Tokyo 23 wards	0.6870	0.4385	0.5181		0.8367	0.7636			0.6853
		Other cities in Area 1	0.7760	0.6744	0.4695	0.7088	0.9396	0.9161	2.1728	2.0222	2.1953
		Other cities in Area 2	0.7827	0.3416	0.4721	0.8413	0.9507	0.5630	1.5142	1.2414	0.9334
		Other cities in Area 3	0.7677	0.4652	0.1749	0.8646	0.6511	0.5470	0.9113	0.8075	0.9768
		Other cities in Area 4	0.6643	1.0955	0.4539	0.8743	0.8005	0.5100	1.2528	1.1124	0.8228
		Other cities in Area 5	1.0119	0.6696	0.7332	1.0121	0.9999	0.7329	1.2581	1.3842	1.2869
Single parent with child(ren)	One worker	Designated cities	0.8257	0.7043		2.0206	1.3601				
		Tokyo 23 wards	2.0410	0.7048			1.0815				
		Other cities in Area 1	0.4703	0.4588			1.3351				
		Other cities in Area 2	0.4358	0.2251		1.5768	1.8717	5.6584	2.7192		
		Other cities in Area 3	0.5905	0.5484			1.1597				
		Other cities in Area 4	0.5814	0.4774		2.2796	1.3883				
		Other cities in Area 5	0.6415	0.5029		1.3041	1.5785				
Parents with child(ren)	One worker	Designated cities	1.4511	1.3437	1.8728	2.4581		2.7396	4.6146		
		Tokyo 23 wards	1.4407	1.3591	1.4252	2.7854			4.2767		
		Other cities in Area 1	1.3407	1.4495	1.6594	2.1074		2.3788	3.7360		
		Other cities in Area 2	1.0607	1.1562	1.7920	1.7743		2.3322	2.6554		
		Other cities in Area 3	1.1482	1.2794	1.3531	1.7208		2.0903	3.3519		
		Other cities in Area 4	1.2805	1.3037	1.2151	2.0125		2.5267	2.8832		
		Other cities in Area 5	1.3988	1.3286	1.5433	1.9137		2.2279	3.3833		
	Multiple workers	Designated cities	0.8833	2.3658	0.9515	3.4105	2.1135	7.5033			
		Tokyo 23 wards	0.9780	2.8699	0.7644	4.0074	1.7814	13.6155			
		Other cities in Area 1	1.1398	2.0714	1.3083	3.3642	2.3937	8.2559			
		Other cities in Area 2	1.1144	1.6765	1.4820	2.8885	1.8401	4.7174			
		Other cities in Area 3	0.8727	1.9210	1.0024	2.8888	1.5444	5.6883			
		Other cities in Area 4	1.0982	1.6514	1.0162	2.9191	2.0595	5.4833			
		Other cities in Area 5	1.1053	1.5284	1.2096	2.8629	2.2794	5.2752			
Three generations	One worker	Designated cities				1.4719	1.7165	3.0624	2.3294	0.7477	
		Tokyo 23 wards									
		Other cities in Area 1		0.6613		2.3822	1.3714	0.1832	4.1469	2.2023	0.2190
		Other cities in Area 2				1.3452	1.2208		2.3952	1.6756	0.2292
		Other cities in Area 3				1.6556	1.1303		3.2333	1.6481	0.2243
		Other cities in Area 4				1.4695	1.0151	0.1061	2.7767	1.4483	0.1610
		Other cities in Area 5		0.5034		1.6229	1.2771	0.1213	2.4672	1.5431	0.3062
	Multiple workers	Designated cities		0.7356		1.4260	0.9563	0.6815	2.9978	1.3391	0.5661
		Tokyo 23 wards		1.2217			0.7296		2.9003	1.5849	0.9236
		Other cities in Area 1		0.7109		1.5408	1.2565	0.5934	3.6796	1.9673	0.9748
		Other cities in Area 2		0.6695		1.9688	0.9379	0.3754	2.7537	1.3222	0.4738
		Other cities in Area 3		0.5230		1.0679	0.6482	0.3312	1.9061	1.1418	0.5973
		Other cities in Area 4		0.6760		1.5682	0.6540	0.4615	2.1049	1.2431	0.6622
		Other cities in Area 5		0.7723		1.5133	0.8678	0.4334	2.4509	1.4270	0.7002
Other	One worker	Designated cities				0.1963	0.1711	0.4152	0.5098		
		Tokyo 23 wards							0.3663		
		Other cities in Area 1		0.0791	0.0682	0.1476	0.1705	0.4579	0.4318		
		Other cities in Area 2		0.1290	0.1218	0.2293	0.0962	0.4013	0.3372		
		Other cities in Area 3		0.0975	0.1806	0.1424	0.1935	0.3508	0.3956		
		Other cities in Area 4		0.1504	0.3424	0.2806	0.3025	0.4755	0.3091		
		Other cities in Area 5		0.1681	0.1056	0.2139	0.1949	0.5841	0.4462		
	Multiple workers	Designated cities	0.3238	0.0933	0.1586	0.3866	0.0987	0.1488	0.9538	0.1316	0.1280
		Tokyo 23 wards				0.5674					
		Other cities in Area 1	0.1327	0.0658	0.0787	0.7508	0.0793	0.1380	1.9799	0.2476	0.3983
		Other cities in Area 2	0.2806	0.0997	0.0850	0.6055	0.1245	0.1053	1.1300	0.2450	0.2999
		Other cities in Area 3	0.2320	0.0684	0.1104	0.5971	0.0610	0.1479	0.8927	0.2219	0.1876
		Other cities in Area 4	0.5548	0.2108	0.0736	0.7781	0.1312	0.2101	1.4504	0.3183	0.4734
		Other cities in Area 5	0.3657	0.1637	0.1239	0.6010	0.1691	0.2685	1.2480	0.3911	0.4504

Table B2(c): Disproportionality of the NSFIE sample with provided sampling weights by population group in 1999 (single households)

NSFIE 1999			Renter			Home-owner					
			-40	41-60	61-	-40	41-60	61-			
Single male	No worker	Designated cities	0.1207			0.4356			2.6932		
		Tokyo 23 wards							0.5817	1.8042	
		Other cities in Area 1									
		Other cities in Area 2									
		Other cities in Area 3									
		Other cities in Area 4									
	Other cities in Area 5	1.2690	1.5729								
	One worker	Designated cities	1.1483	0.7621	0.9820	2.3214	3.3016	0.9288			
		Tokyo 23 wards	1.3343	0.7785		1.3171	0.3773				
		Other cities in Area 1									
		Other cities in Area 2									
		Other cities in Area 3									
		Other cities in Area 4									
	Other cities in Area 5	1.0290	0.5229	1.8267	1.1020						
Other cities in Area 4	1.1597	0.8849	0.9934	1.0891	0.9419	1.7574					
Other cities in Area 5	1.3170	1.3882	0.8192	0.9201							
Single female	No worker	Designated cities	0.3067			1.2599			1.7514		
		Tokyo 23 wards							1.3064	1.1697	
		Other cities in Area 1									
		Other cities in Area 2									
		Other cities in Area 3									
		Other cities in Area 4									
	Other cities in Area 5	0.8774	1.2575								
	One worker	Designated cities	0.8870	1.0777	1.2993	0.7328	2.0100	1.6353			
		Tokyo 23 wards	1.2824	1.1735		1.7673	0.9750				
		Other cities in Area 1									
		Other cities in Area 2									
		Other cities in Area 3									
		Other cities in Area 4									
		Other cities in Area 5							1.1772	1.0528	1.0937
Other cities in Area 3		1.7156							0.9432	3.7024	1.5390
Other cities in Area 4	1.0758	0.8118	1.2196	1.2676	1.1443						
Other cities in Area 5	1.2109	0.9468	1.2605	1.1097	1.1586						

Table B2(d): Disproportionality of the NSFIE sample with provided sampling weights by population group in 1999 (two-or-more-person households)

NSFIE 1999			Renter			Home-owner (small)			Home-owner (large)		
			-40	41-60	61-	-40	41-60	61-	-40	41-60	61-
Two-or-more-person with no worker		Designated cities	0.2280	0.3179	0.9648	0.5608	1.4813	1.3045	1.6768		
		Tokyo 23 wards			0.8680		1.3147		1.5830		
		Other cities in Area 1		0.1640	0.8107	0.5122	1.2198	0.7640	1.9126		
		Other cities in Area 2	0.1863	0.0848	0.5128	0.3105	0.9281	0.7870	1.1642		
		Other cities in Area 3		0.1502	0.8167	0.5633	1.0281	0.5417	1.1963		
		Other cities in Area 4	0.2026	0.3717	0.5955	0.4699	1.0631	0.7643	1.4533		
		Other cities in Area 5	0.3072	0.3434	0.6470	0.4477	0.8526	1.0682	1.4974		
Couple only	One worker	Designated cities	0.7767	0.8308	1.0610	1.0171	1.2175	1.1569	1.8079	1.1541	
		Tokyo 23 wards	0.8459	0.9926	1.8687	1.9320	1.3678	0.9857	1.2847	2.2641	
		Other cities in Area 1	0.9172	0.8337	0.9575	1.0389	1.3547	1.2879	1.9510	2.0064	
		Other cities in Area 2	0.7321	0.7578	0.8756	0.3781	1.2164	0.9403	1.5689	1.2163	
		Other cities in Area 3	0.7029	0.9925	0.9506	1.2319	1.4338	1.1679	1.7858	1.3127	
		Other cities in Area 4	0.9271	0.8416	0.4729	0.5411	1.1284	0.8912	2.1780	1.1963	
		Other cities in Area 5	0.9315	0.8510	0.8497		1.2118	1.0265	2.0501	1.7553	
	Multiple workers	Designated cities	0.7161	0.8587	0.7220	0.9786	1.1062	0.6813	0.7065	1.1732	0.9248
		Tokyo 23 wards	1.0700	0.9234	0.7390		0.8410	1.0086	1.1732	1.3185	
		Other cities in Area 1	0.8994	0.6521	0.6958	0.8799	1.1576	1.0347	1.5344	1.7227	1.6701
		Other cities in Area 2	0.6128	0.7187	0.4966	1.2260	0.9602	0.9473	1.2767	1.3842	1.0004
		Other cities in Area 3	0.8216	0.8605	0.8933	1.0943	0.8828	0.6940	1.6591	0.8788	0.9470
		Other cities in Area 4	0.8156	0.7624	0.6530	0.7273	0.9277	0.7815	2.1773	1.5314	0.7617
		Other cities in Area 5	0.8614	0.7937	0.5863	1.0872	0.9633	0.8089	1.0813	1.6887	1.1349
Single parent with child(ren)	One worker	Designated cities	0.9655	1.2207	1.8424	2.1726	5.0517	4.7781			
		Tokyo 23 wards	0.7343	1.4753		2.5407					
		Other cities in Area 1	0.7182	1.0374	2.6092						
		Other cities in Area 2	0.5968	0.8101	1.9242	2.5063					
		Other cities in Area 3	0.7747	1.1968	2.2372						
		Other cities in Area 4	0.5678	0.7252	2.6661	1.4843					
		Other cities in Area 5	0.8668	0.9512	2.1153	1.8961					
Parents with child(ren)	One worker	Designated cities	1.4568	2.2094	1.7324	2.3308	1.8795	3.5475			
		Tokyo 23 wards	1.0822	1.6380	1.2166	2.0869		4.6908			
		Other cities in Area 1	1.2653	1.6416	1.3421	2.4843		1.8918	3.4673		
		Other cities in Area 2	0.9126	1.3609	0.9787	2.1202		1.5004	3.0235		
		Other cities in Area 3	1.0472	1.3275	1.1577	2.0567		1.3768	2.6506		
		Other cities in Area 4	1.0324	1.4446	1.2697	1.9203		1.5429	3.0781		
		Other cities in Area 5	1.2147	1.4960	1.1591	2.0679		1.9158	2.8264		
	Multiple workers	Designated cities	1.2625	3.2049	1.2572	4.5206	1.4358	7.2053			
		Tokyo 23 wards	1.2820	3.7961	1.4710	4.4152	3.4019	10.6820			
		Other cities in Area 1	1.2645	2.6961	1.1900	5.1735	1.6426	8.0395			
		Other cities in Area 2	0.9373	1.8294	1.2437	4.1742	1.5168	5.4820			
		Other cities in Area 3	1.0955	3.1670	0.9902	3.9478	1.2019	4.6180			
		Other cities in Area 4	0.7571	1.7276	0.9582	3.3813	1.1209	5.3665			
		Other cities in Area 5	1.0602	1.8220	1.0909	3.3355	1.3326	4.5279			
Three generations	One worker	Designated cities	0.5482		1.1320	0.5910	0.1563	1.0145	1.4692	0.4568	
		Tokyo 23 wards			1.2261	1.0590		2.4421	1.7807	0.1955	
		Other cities in Area 1			0.8162	1.2601		2.3939	1.6177	0.1441	
		Other cities in Area 2			0.7369	0.8147		1.8123	1.0768	0.2306	
		Other cities in Area 3			0.9625	1.2039		0.1532	1.8116	1.5922	0.3075
		Other cities in Area 4			1.2501	0.9743		0.0811	1.7671	1.6321	0.2527
		Other cities in Area 5									
	Multiple workers	Designated cities	0.4220	0.3142	1.3933	1.1989	0.1167	1.5032	1.1511	0.4057	
		Tokyo 23 wards	0.3266		0.7066	2.4755	1.4282	0.2520			
		Other cities in Area 1	0.4363		1.2996	0.9228	0.4282	2.6601	1.5974	0.6431	
		Other cities in Area 2	0.5546		2.0290	0.7693	0.3240	2.2758	1.3365	0.4157	
		Other cities in Area 3	0.7319		0.8867	0.6393	0.3275	1.5938	0.9343	0.3189	
		Other cities in Area 4	0.4946		1.1685	0.8225	0.3471	1.6532	1.3141	0.4805	
		Other cities in Area 5	0.6205		1.4001	0.6078	0.3141	2.2413	1.2997	0.4293	
Other	One worker	Designated cities	0.1757	0.1902	0.2139	0.2296	0.4730	0.3519			
		Tokyo 23 wards						0.1285			
		Other cities in Area 1			0.1584	0.0771		0.1903	0.1519	0.4510	0.3757
		Other cities in Area 2			0.1825	0.1379		0.2319	0.1287	0.4169	0.3366
		Other cities in Area 3			0.1558	0.1391		0.2437	0.1821	0.3334	0.2388
		Other cities in Area 4			0.1717	0.0879		0.3459	0.1249	0.5219	0.2339
		Other cities in Area 5			0.2127	0.1886		0.2745	0.1712	0.4019	0.4019
	Multiple workers	Designated cities	0.5139	0.1284	0.2514	0.4058	0.1081	0.1542	0.1707	0.1256	0.1568
		Tokyo 23 wards				0.7843					
		Other cities in Area 1	0.2505	0.1114	0.0938	0.8685	0.0892	0.1191	1.4229	0.2751	0.2513
		Other cities in Area 2	0.2406	0.1465	0.1565	0.5504	0.1258	0.1185	1.0599	0.2726	0.2142
		Other cities in Area 3	0.1786	0.1281	0.1664	0.6103	0.0660	0.0992	0.6198	0.1268	0.1194
		Other cities in Area 4	0.3661	0.1959	0.1196	0.5584	0.1103	0.0893	1.0733	0.3518	0.2613
		Other cities in Area 5	0.3123	0.1804	0.0984	0.9954	0.1319	0.1611	1.6754	0.3474	0.2941

Table B3: Transition of income inequality measures by different weights

		Initial income						Pre-tax income						Disposable income						Disposable income +imputed rent					
		1989	1994	1999	2004	2009	2014	1989	1994	1999	2004	2009	2014	1989	1994	1999	2004	2009	2014	1989	1994	1999	2004	2009	2014
<b>Gini coefficient</b>																									
Household	No weight	0.336	0.339	0.359	0.339	0.410	0.412	0.310	0.316	0.318	0.303	0.327	0.331	0.292	0.299	0.306	0.295	0.319	0.323	0.282	0.288	0.293	0.282	0.297	0.298
	NSFIE weight	0.355	0.362	0.385	0.347	0.434	0.423	0.334	0.342	0.347	0.314	0.357	0.350	0.316	0.326	0.337	0.306	0.351	0.344	0.309	0.315	0.325	0.297	0.329	0.318
	Census weight	0.371	0.383	0.396	0.434	0.445	0.436	0.346	0.359	0.359	0.365	0.372	0.370	0.330	0.346	0.354	0.364	0.375	0.378	0.325	0.339	0.344	0.352	0.359	0.359
Equivalentized	No weight	0.323	0.328	0.347	0.331	0.398	0.399	0.290	0.294	0.293	0.293	0.302	0.303	0.269	0.274	0.280	0.283	0.294	0.296	0.259	0.262	0.266	0.269	0.272	0.271
	NSFIE weight	0.303	0.308	0.329	0.317	0.371	0.365	0.282	0.286	0.290	0.288	0.302	0.297	0.261	0.267	0.277	0.278	0.293	0.290	0.253	0.257	0.264	0.265	0.274	0.269
	Census weight	0.321	0.334	0.347	0.378	0.391	0.388	0.294	0.305	0.304	0.314	0.319	0.317	0.275	0.288	0.296	0.311	0.319	0.322	0.267	0.278	0.284	0.297	0.301	0.302
<b>Relative poverty rate</b>																									
Household	No weight	0.178	0.201	0.226	0.163	0.279	0.305	0.123	0.137	0.133	0.111	0.131	0.134	0.121	0.132	0.134	0.119	0.136	0.142	0.117	0.125	0.126	0.116	0.121	0.122
	NSFIE weight	0.205	0.233	0.258	0.166	0.306	0.314	0.154	0.163	0.159	0.114	0.166	0.158	0.153	0.165	0.163	0.127	0.173	0.164	0.152	0.160	0.157	0.132	0.157	0.143
	Census weight	0.217	0.233	0.262	0.265	0.302	0.315	0.155	0.165	0.170	0.169	0.182	0.185	0.159	0.169	0.176	0.181	0.194	0.203	0.156	0.169	0.175	0.181	0.189	0.189
Equivalentized	No weight	0.152	0.175	0.206	0.146	0.254	0.280	0.083	0.090	0.094	0.094	0.096	0.094	0.082	0.088	0.097	0.100	0.107	0.109	0.075	0.081	0.091	0.095	0.096	0.094
	NSFIE weight	0.117	0.138	0.171	0.125	0.220	0.231	0.074	0.082	0.091	0.086	0.098	0.093	0.073	0.080	0.095	0.093	0.107	0.106	0.069	0.075	0.090	0.089	0.098	0.092
	Census weight	0.147	0.167	0.188	0.202	0.232	0.253	0.095	0.104	0.109	0.117	0.123	0.125	0.096	0.105	0.115	0.128	0.139	0.149	0.090	0.097	0.110	0.122	0.133	0.138
<b>MLD</b>																									
Household	No weight	0.254	0.275	0.325	0.232	0.476	0.450	0.172	0.179	0.180	0.161	0.188	0.191	0.156	0.167	0.176	0.160	0.191	0.196	0.143	0.151	0.156	0.144	0.159	0.159
	NSFIE weight	0.289	0.316	0.374	0.238	0.530	0.466	0.203	0.215	0.218	0.173	0.228	0.216	0.187	0.204	0.217	0.172	0.236	0.223	0.175	0.185	0.197	0.161	0.200	0.184
	Census weight	0.304	0.329	0.370	0.412	0.523	0.458	0.217	0.234	0.233	0.241	0.249	0.240	0.205	0.228	0.243	0.263	0.281	0.277	0.195	0.216	0.227	0.246	0.256	0.246
Equivalentized	No weight	0.223	0.244	0.290	0.213	0.431	0.404	0.144	0.148	0.147	0.147	0.157	0.155	0.128	0.135	0.143	0.144	0.160	0.161	0.116	0.120	0.126	0.129	0.133	0.130
	NSFIE weight	0.183	0.200	0.245	0.189	0.353	0.323	0.135	0.139	0.144	0.141	0.156	0.149	0.119	0.126	0.139	0.138	0.159	0.154	0.110	0.114	0.124	0.124	0.135	0.128
	Census weight	0.208	0.231	0.262	0.297	0.369	0.345	0.148	0.161	0.160	0.174	0.176	0.173	0.135	0.151	0.163	0.189	0.197	0.201	0.125	0.138	0.148	0.173	0.174	0.174
<b>LV</b>																									
Household	No weight	0.727	0.835	1.048	0.576	1.695	1.498	0.363	0.385	0.385	0.332	0.394	0.397	0.354	0.389	0.411	0.361	0.446	0.456	0.316	0.340	0.353	0.322	0.355	0.353
	NSFIE weight	0.834	0.961	1.202	0.577	1.876	1.529	0.442	0.475	0.474	0.357	0.489	0.452	0.433	0.486	0.520	0.390	0.561	0.522	0.395	0.427	0.457	0.360	0.461	0.411
	Census weight	0.842	0.932	1.119	1.092	1.777	1.409	0.466	0.506	0.504	0.519	0.535	0.503	0.475	0.542	0.586	0.647	0.706	0.659	0.442	0.505	0.538	0.602	0.638	0.576
Equivalentized	No weight	0.600	0.703	0.896	0.506	1.483	1.306	0.283	0.298	0.299	0.292	0.314	0.306	0.274	0.299	0.324	0.316	0.365	0.365	0.240	0.256	0.274	0.277	0.289	0.281
	NSFIE weight	0.452	0.536	0.718	0.430	1.174	1.010	0.263	0.278	0.290	0.278	0.315	0.295	0.251	0.276	0.312	0.299	0.364	0.343	0.226	0.241	0.271	0.264	0.298	0.275
	Census weight	0.519	0.598	0.732	0.758	1.170	1.023	0.293	0.324	0.325	0.360	0.359	0.351	0.294	0.339	0.376	0.463	0.481	0.479	0.265	0.301	0.334	0.424	0.415	0.410

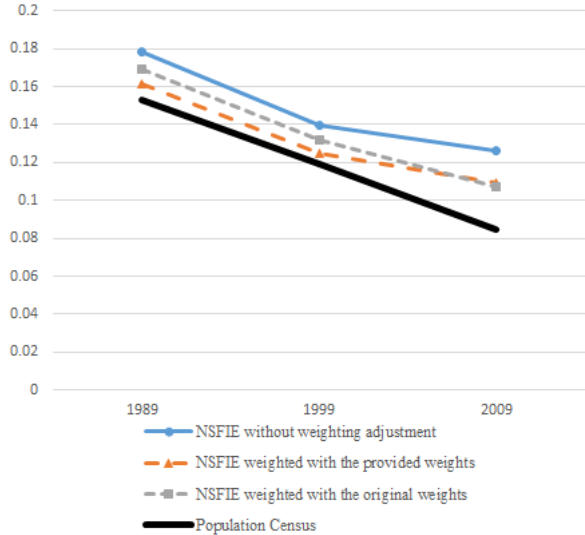


Figure B1: Share of self-employed households



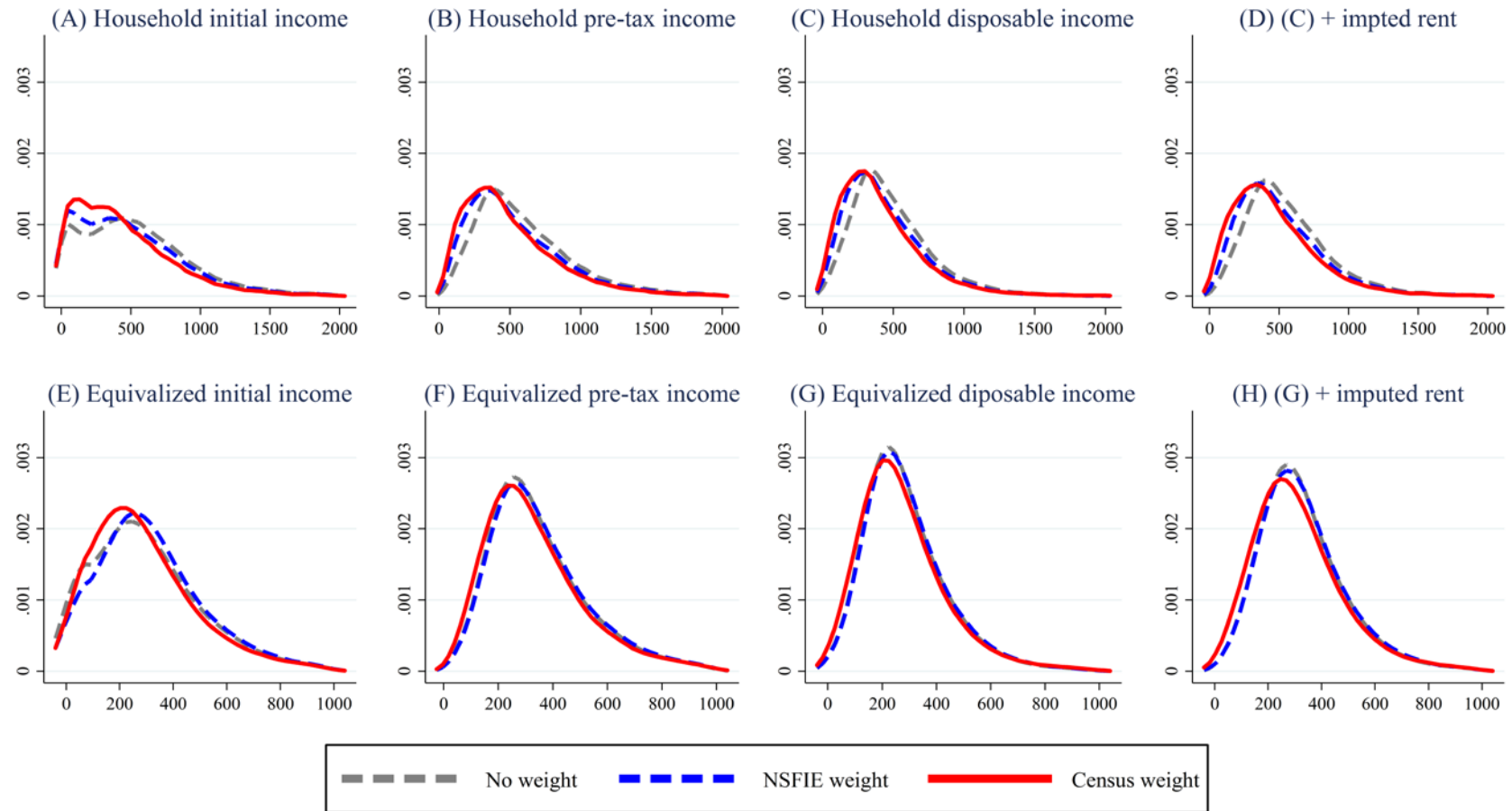


Figure B2: Kernel density of income by weights in 2009