Dynamic Changes of Social Mobility in Japan 1955-95

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Abstract

Many past researches on social mobility exhibits that mobility chance (unequal opportunity in intergenerational mobility) in industrialized societies is stable over time. However, those studies do not thoroughly capture dynamic changes in mobility chance because they do not identify and examine the three types of effects; period effect, cohort effect, and age effect. Focusing on 'overall' and 'class-specific' mobility chances, this paper explores the dynamic changes of intergenerational mobility in Japan by using the SSM national survey data collected every 10 years from 1955 to 1995.

The results of analysis to mobility tables which are made by the classification of six social classes exhibit that overall mobility chance measured by 'achieved ratio of perfect mobility' was equalized by the period effect in the period of 1955-65, and since 1965 it has been affected by the cohort effect that brought constancy for the cohort born in 1900-29, equalization for the cohort in 1930-49 cohort, and increase of inequality for the cohort in 1960-69.

When class-specific mobility chance (degree of class inheritance) is measured by log of odds ratio, all types of effects are found. However, the age effect is found in only one of six classes and stable over time. Therefore, the major determinants to form the changes in overall mobility chance were the cohort and the period effects. Most of the cohort effects found in four classes have intensified inequality, but progressed very gradually. The period effects in four classes happened temporally at different periods, but most of the effects had strong influence in bringing equality. Eventually, the class-specific period effects equalized the overall mobility chance in Japan until the 1950-59 cohort.

The analysis identifying the three types of effects shows the complicated dynamics of changes that the past studies have overlooked. The gradual cohort effects and the intermittent period effects that were inherent to individual classes contributed to the changes of overall mobility chance over time.

1. Temporal Change of Mobility chance

2. Three Types of Effects to Change: Period, Cohort, and Age Effects

Figure 1.1   Example of Cohort Effect

Figure 1.2   Example of Age Effect

Figure 1.3 Example of Period Effect
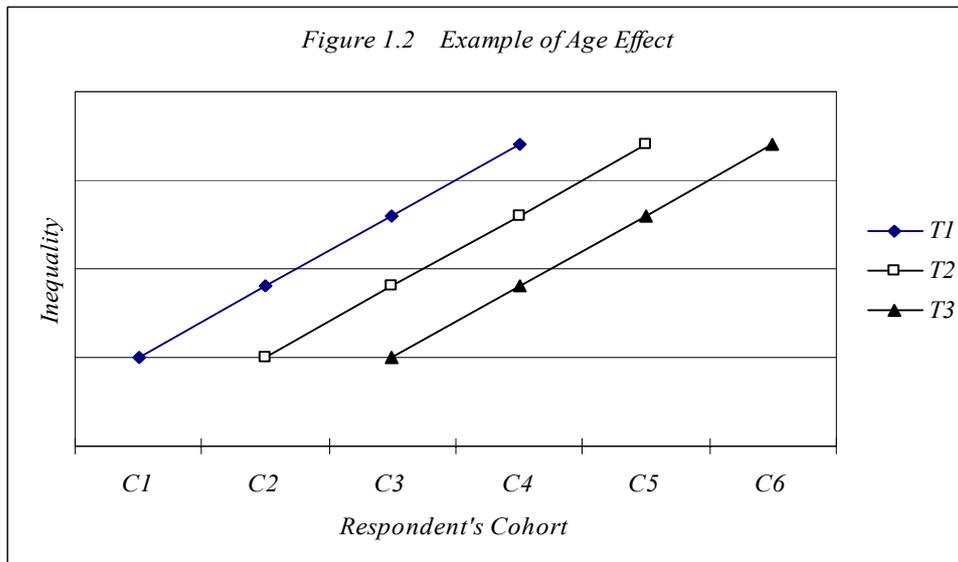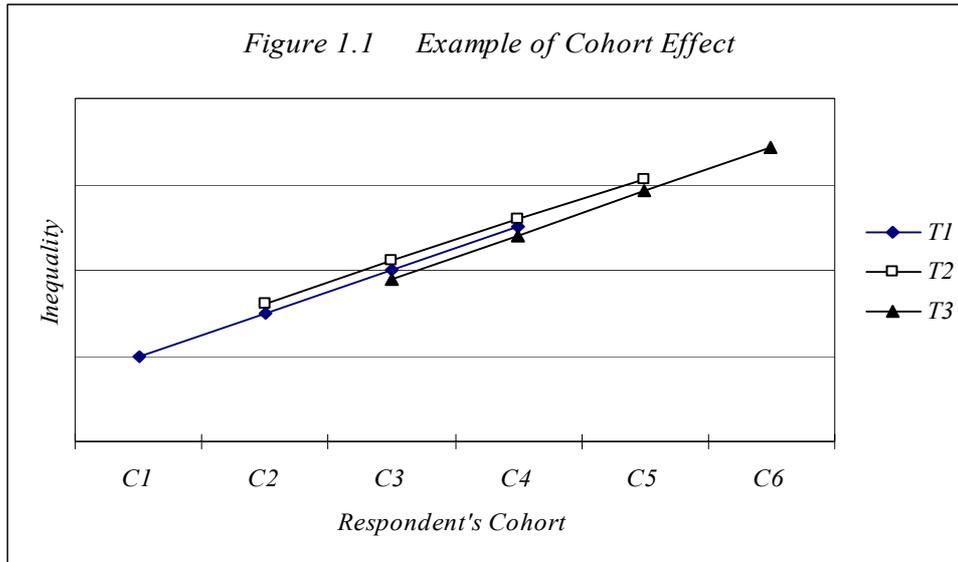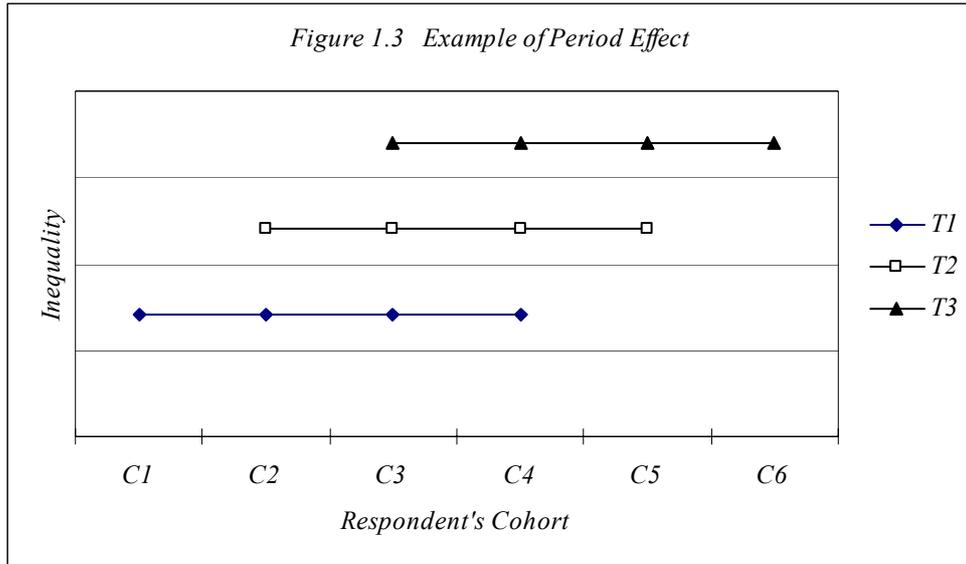
3. Data

Table 1   Classification of Classes

CLASS	Occupation	Employment Status	Size of Company (number of employee)
Upper White-collar	professional	all	all
	managerial	manager	30 or more
	managerial	employee	30 or more
White-collar Employee	managerial	employee	less than 30
	clerical/Sales	employee	all
Blue-collar Employee	manual	employee	all
Self-employed White-collar	managerial	manager/self-employed	less than 30
	clerical/Sales	manager/self-employed	less than 30
Self-employed Blue-collar	manual	manager/self-employed	all
Farmer	farmer	all	all

Table 2   Characteristics of Classes (1995 Data)

Mean (Standard Deviation)

Class	Education (year)	Annual Income (10,000 yen)
Upper White	14.6(2.28)	790.5(489.3)
White-collar Employee	13.2(2.37)	556.1(254.4)
Blue-collar Employee	11.1(2.03)	435.8(197.2)
Self-employed White-collar	12.6(2.62)	661.7(465.8)
Self-employed Blue-collar	10.8(2.24)	526.7(304.9(
Farmer	10.1(2.38)	336.9(212.7)
Total	*12.4(2.70)*	*559.9(355.3)*
n	*2166*	*2015*
F	*176.9***	*70.2***

** significant at 1 percent level

4. Changes of Overall Mobility Chance

4.1 Achieved Ratio of Perfect Mobility

$$Achieved\ Ratio\ of\ Perfect\ Mobility = \frac{Observed\ Gross\ Mobility\ Rate}{Expected\ Gross\ Mobility\ Rate}$$

$$Gross\ Mobility\ Rate \quad = \quad (N - \sum_i F_{ii}) / N$$

$$Expected\ Gross\ Mobility\ Rate = (N - \sum_i E_{ii}) / N \qquad for \quad E_{ii} = F_{i.} \times F_{.i} / N$$

Table 3   Achieved Ratio of Perfect Mobility

	Surveyed Year				
	1955	*1965*	*1975*	*1985*	*1995*
a. Observed Gross Mobility Rate	.473	.627	.655	.673	.673
b. Expected Gross Mobility Rate	.709	.819	.837	.850	.844
c. Achieved Ratio of Perfect Mobility (a / b)	.667	.766	.783	.792	.797
(N)	*(1853)*	*(1857)*	*(2304)*	*(1981)*	*(1930)*

4.2 Fitting by Regression Model

Table 4   Numbers of Samples

Birth Cohort (year of birth)	Surveyed Year				
	1955	*1965*	*1975*	*1985*	*1995*
1890-99	244				
1900-09	390	212			
1910-19	418	362	253		
1920-29	501	479	450	296	
1930-39		572	608	499	386
1940-49			663	554	490
1950-59				441	495
1960-69					301

Figure 2   Changes of Achieved Ratio of Perfect Mobility
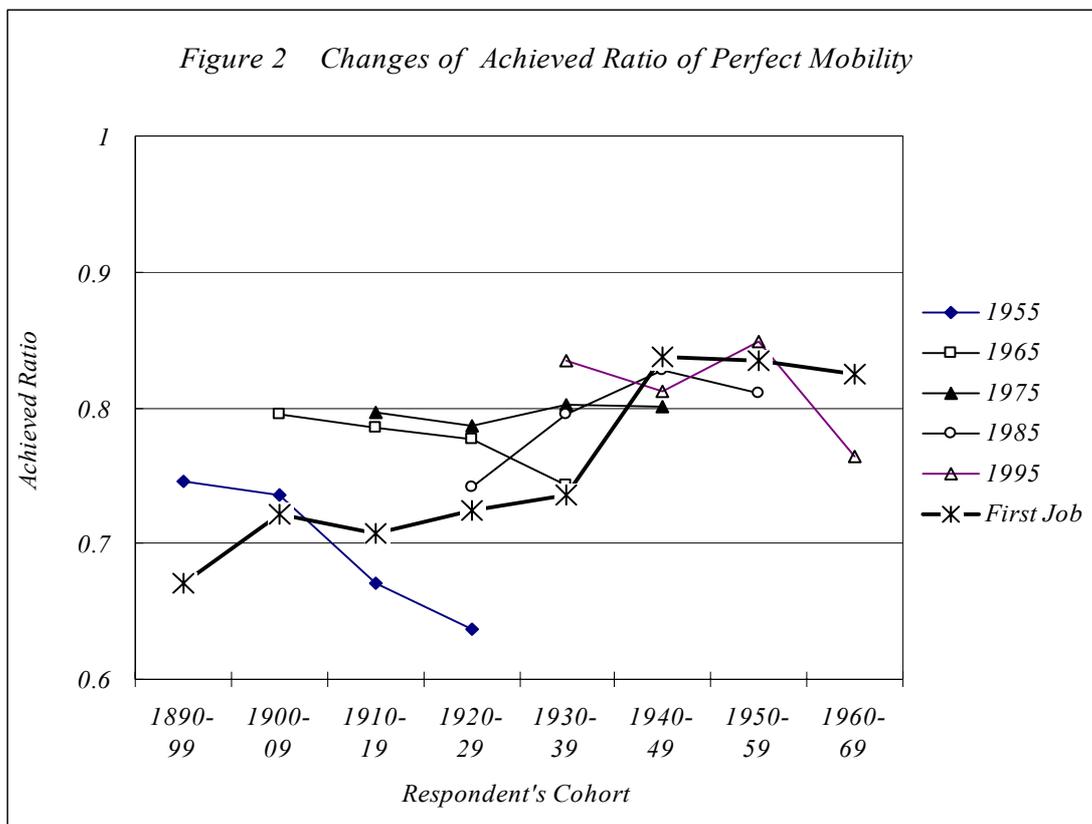
Model 1: $Y = a + b_1 X$

Model 2: $Y = a + b_1 X + b_2 X^2$

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Table 5   *Results of Regression Analysis to Achieved Ratio of Perfect Mobility*

Independent Variable	Model 1			Model 2			
	R^2	a	b_1	R^2	a	b_1	b_2
Time	.498	.699	.025	**.602**	.631	.084	-.010
Cohort	.182	.721	.012	.183	.728	.008	.000
Age	.042	.743	.009	.071	.647	.070	-.009

4.3 Intragenerational Mobility and Intergenerational Mobility

5. Changes of Class-specific Mobility Chance

5.1 Changes of Class Inheritance

$$\theta_i = \log \frac{F_{ii} \cdot F_{i'i'}}{F_{ii'} \cdot F_{i'i}}$$

Table 6   *Results of Regression Analysis to Log of Odds Ratios*

CLASS	Independent Variable	Model 1			Model 2			
		R^2	a	b_1	R^2	a	b_1	b_2
Upper	**Time**	.235	2.290	-.143	.257	2.549	-.365	.037
White-collar	**Cohort**	.243	2.375	-.114	**.369**	1.695	.245	-.040
	Age	.033	1.623	.068	.046	2.144	-.264	.047
White-collar	**Time**	.102	1.097	-.099	.109	1.254	-.233	.023
Employee	**Cohort**	.009	.697	.023	.082	1.235	-.262	.032
	Age	.312	1.563	-.218	**.390**	2.898	-1.067	.121
Blue-collar	**Time**	.330	1.735	-.215	**.415**	2.383	-.770	.093
Employee	**Cohort**	.178	1.648	-.124	.181	1.785	-.197	.008
	Age	.002	1.165	-.022	.011	1.714	-.371	.050
Self-employed	**Time**	.063	1.642	.091	.111	2.112	-.311	.067
White-collar	**Cohort**	.438	1.067	.189	.467	1.463	-.020	.023
	Age	.563	3.121	-.345	**.570**	3.595	-.646	.043
Self-employed	**Time**	.010	1.724	-.035	.041	1.367	.272	-.051
Blue-collar	**Cohort**	.137	1.169	.100	.145	1.375	-.009	.012
	Age	**.526**	2.726	-.316	.526	2.695	-.297	-.003
	Time	.196	1.997	.170	**.502**	3.254	-.907	.180
Farmer	**Cohort**	.268	1.806	.156	.274	2.005	.051	.012
	Age	.075	2.975	-.133	.101	2.021	.473	-.087

Figure 3.1   Upper White-collar

Figure 3.2   White-collar Employee

Figure 3.3   Blue-collar Employee
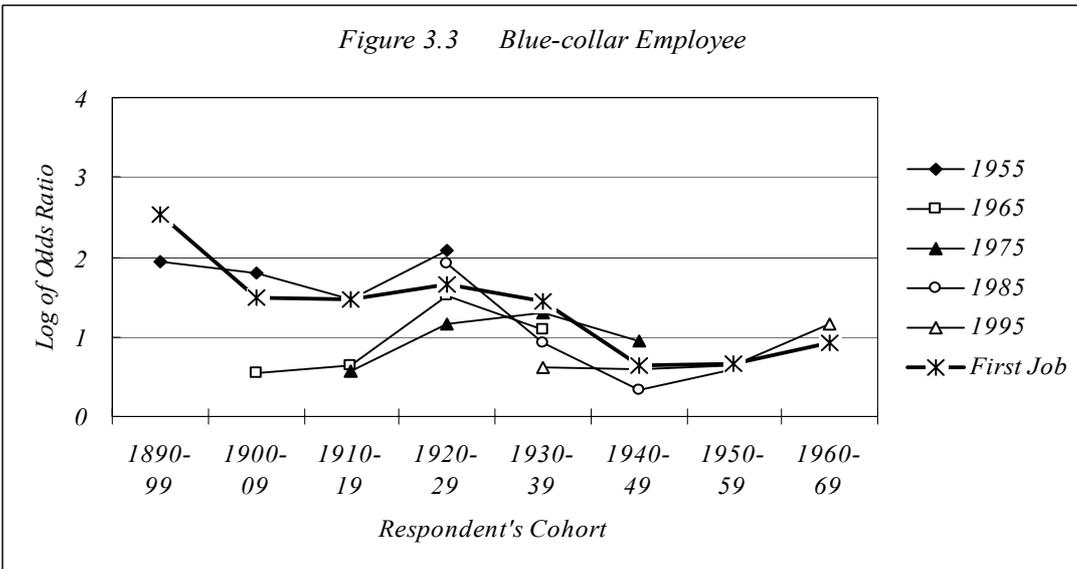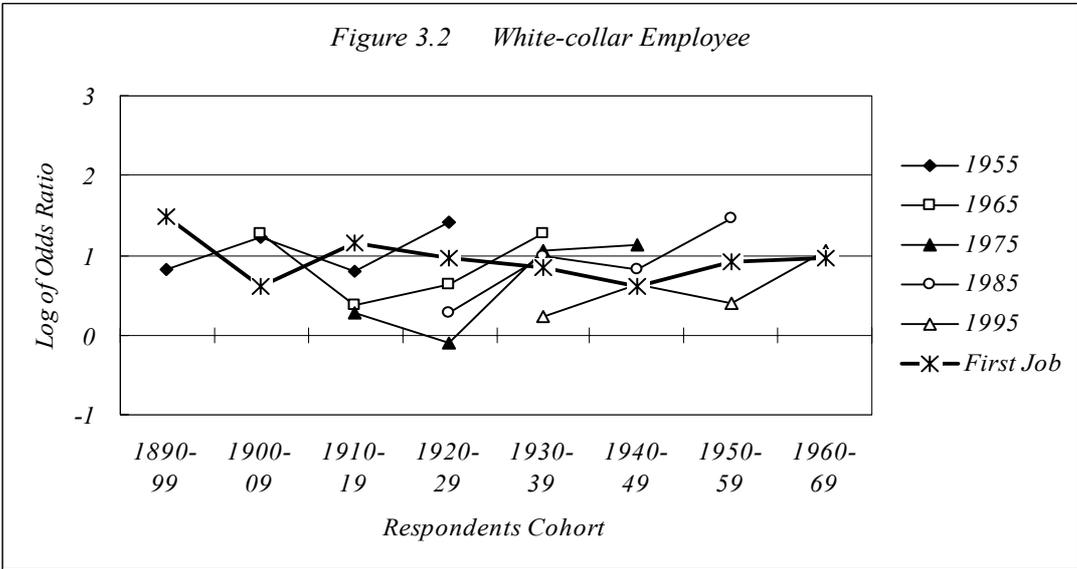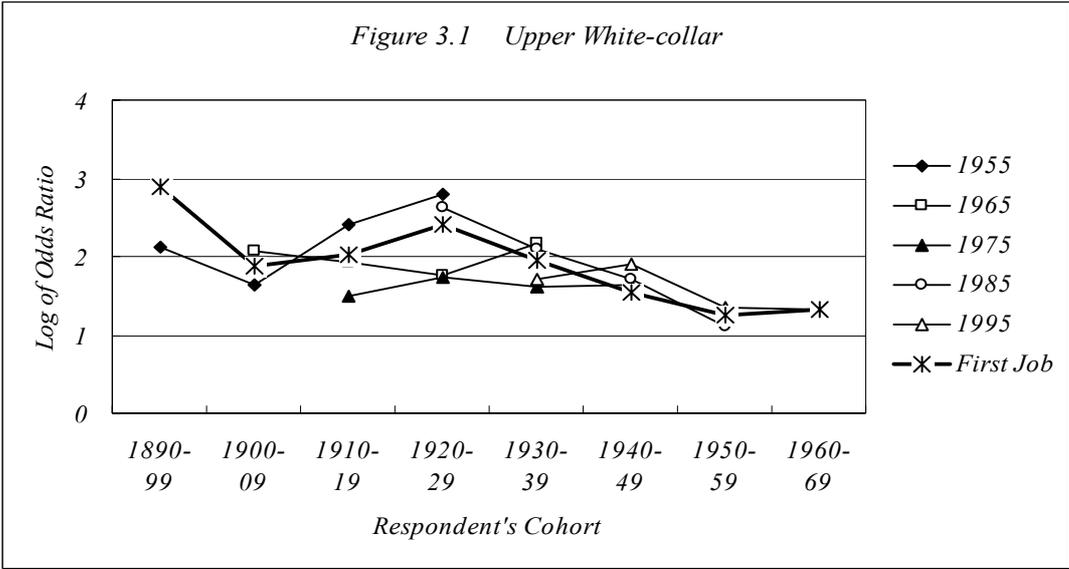
Figure 3.4   Self-employed White-collar
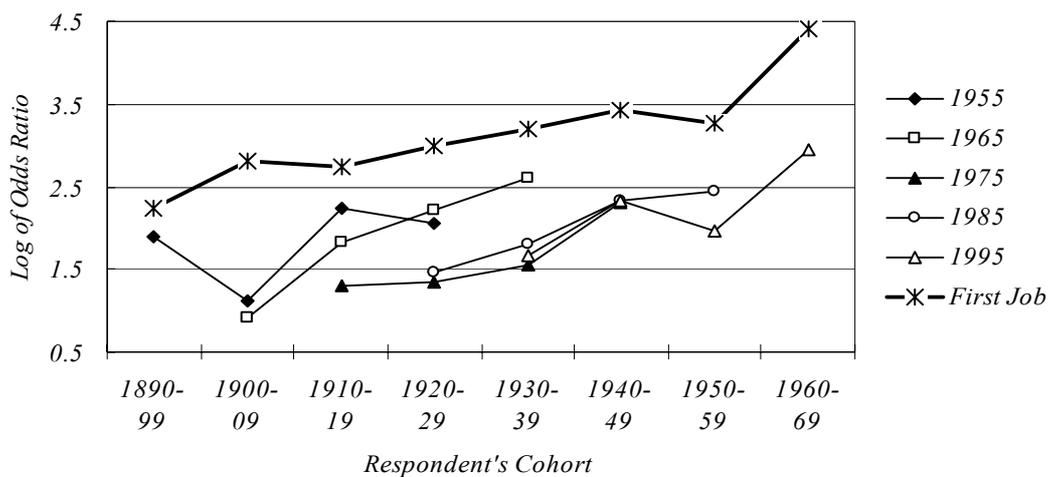
Figure 3.5   Self-employed Blue-collar
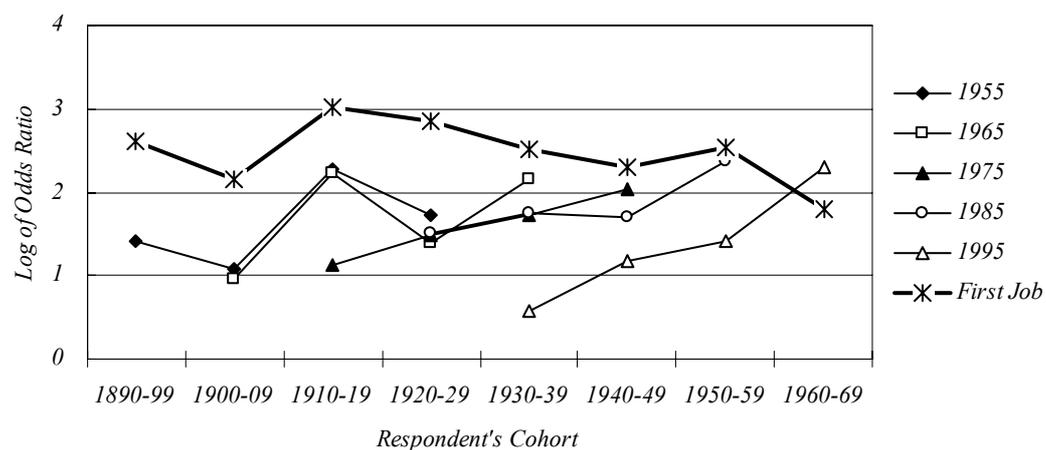
Figure 3.6   Farmer
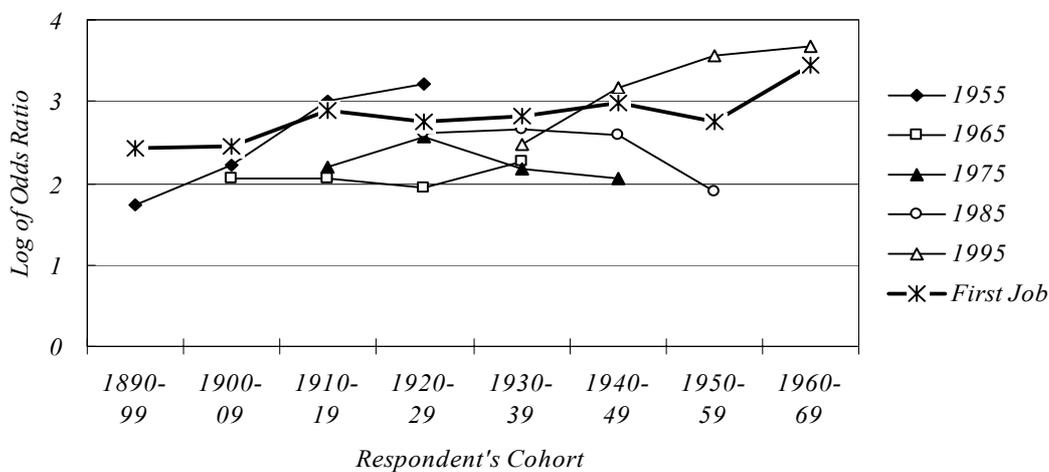
5.2 Effect of Intragenerational Mobility

6. Overall and Class-specific Mobility Chance

Table 7   Changes of Mobility Chance

	Period effect	Cohort effect	Age effect
Achieved Ratio of Perfect Mobility	*a*)Equalized in 1955-65	After 1965 *b*) Constant in 1900-29c. *c*) Equalized in 1930-49c. *d*) Inequalized in 1960-69c.	
Log of Odds Ratio			
Upper White-collar		**Equalized in 1930-59c.**	
White-collar Employee			Equalized as Age Increases
Blue-collar Employee	**Equalized in 1955-65**	After 1965 Inequalized in 1900-29c. **Equalized in 1930-49c.** Inequalized in 1950-69c.	
Self-employed White-collar	Equalized in 1965-75	Inequalized in newer cohorts at 1955-65 & 1975-95	
Self-employed Blue-collar	Eequalized in 1985-95	Inequalized in newer cohorts until 1985	
Farmer	**Equalized in 1955-65** Inequalized in 1985-95		

7. Conclusion