

Table 7-1. Logistic Regression Predicting Self-reported Health

Independent variables	Model 1	Model 2	Model 3	Model 4
Male	-0.103	-0.047	-0.097	-0.077
Age	0.048 **	0.041 **	0.033 **	0.029 **
Class (Prof-managerial)				
Routine non-manual	0.287 +	0.194	0.177	0.215
Self-employed	0.401 **	0.317 *	0.336 *	0.376 *
Farm	0.280 +	0.111	0.138	0.224
Manual	0.516 **	0.348 *	0.407 **	0.455 **
Education (years)		-0.004	0.003	0.010
Income (in 10 million yen)		-0.013 **	-0.013 **	-0.013 **
Income missing		-0.258 *	-0.244 *	-0.273 *
Chronic conditions			1.865 **	1.436 **
Visit to doctor				1.128 **
Intercept	-4.409 **	-3.680 **	-3.758 **	-3.788 **
-2 Log Likelihood	4809.153	4607.261	4263.133	4134.999
Sample size	3992	3870	3870	3848

Notes: \*\* p<.01, \* p<.05, + p<.10

The category in parentheses for the class variable is the base reference.

Table 7-2. Logistic Regression Predicting Change in Self-reported Health

Independent variables	Model 1	Model 2	Model 3	Model 4
Male	-0.165 *	-0.129 *	-0.156 **	-0.150 +
Age	0.049 **	0.047 **	0.042 **	0.040 **
Class (Prof-managerial)				
Routine non-manual	0.553 **	0.520 **	0.514 **	0.531 **
Self-employed	0.497 **	0.467 **	0.478 **	0.485 **
Farm	0.412 **	0.379 *	0.396 *	0.431 **
Manual	0.442 **	0.410 **	0.434 **	0.439 **
Education (years)		-0.001	0.002	0.005
Income (in 10 million yen)		-0.004 *	-0.004 +	-0.003 +
Income missing		-0.091	-0.072	-0.089
Chronic conditions			0.890 **	0.692 **
Visit to doctor				0.428 **
Intercept	-4.642 **	-4.449 **	-4.358 **	-4.296 **
-2 Log Likelihood	4550.264	4396.617	4303.052	4256.849
Sample size	3968	3847	3847	3826

Notes: \*\* p<.01, \* p<.05, + p<.10

The category in parentheses for the class variable is the base reference.

Table 8 Logistic Regression Predicting Smoking, Drinking, Walking, and Access to Medical Information

Independent variables	Smoking		Drinking	
	Model 1	Model 2	Model 1	Model 2
Male	3.221 **	3.250 **	2.241 **	2.219 **
Age	-0.013 +	-0.015 *	-0.040 **	-0.035 **
Class (Prof-managerial)				
Routine non-manual	0.172	0.049	-0.198	-0.108
Self-employed	0.126	-0.032	-0.390 **	-0.307 *
Farm	-0.527 **	-0.725 **	-0.581 **	-0.416 **
Manual	0.251 +	0.052	-0.253 *	-0.106
Education (years)		-0.045 +		0.022
Income (in 10 million yen)		-0.002		0.004 *
Income missing		-0.319 *		-0.063
Intercept	0.513	1.077 +	2.894 **	2.228 **
-2 Log Likelihood	3591.331	3470.253	4344.404	4208.171
Sample size	3985	3863	3972	3853
Independent variables	Walking		Medical Information	
	Model 1	Model 2	Model 1	Model 2
Male	0.087	0.079	0.113	0.050
Age	-0.045 **	-0.046 **	0.002	0.007
Class (Prof-managerial)				
Routine non-manual	-0.155	-0.280 *	-0.473 **	-0.314 *
Self-employed	-0.239 *	-0.386 **	-0.441 **	-0.292 *
Farm	0.461 **	0.317 *	-0.552 **	-0.303 *
Manual	0.093	-0.106	-0.571 **	-0.353 **
Education (years)		-0.075 **		0.036 +
Income (in 10 million yen)		0.005 **		0.006 **
Income missing		-0.042		0.002
Intercept	3.700 **	4.450 **	-0.354	-1.242 *
-2 Log Likelihood	5296.848	5110.593	4771.540	4635.381
Sample size	3985	3863	3410	3319

Notes: \*\* p<.01, \* p<.05, + p<.10

The category in parentheses for the class variable is the base reference.

Table 9 Relationship between Health-related Activities and Health Outcomes

	Chronic disease	Visit to doctor	Physical pain	Activity restriction	Depression	Self-reported health (poor health)	Change in self-reported Health (got worse)
Smoking	++		+				
Drinking				---		--	
Walking	--	--	--	--	--	--	--
Medical info			--		--	--	--

Note: The relationship is after controlling for gender, age, class, education, and income. When there are two signs, the effect of health-related activities is significant at .01 level. When there is one sign, the effect is significant at .05 level of significance. When there is no sign, there is no statistically significant association.

## Chapter 6

### Inheritance, Pensions, Childbirth, Child-rearing and the Inequalities They Bring: A Case Study of Impact on Net Financial Assets

Matsuura Katsumi

#### 1. Differentials in Matters where One Has no Choice

There are all sorts of opinions as to when a situation can be described as 'fair.' However, few would accept as fair a situation where economic differentials between people widen to the point of no return due to factors over which they have absolutely no control. Once people start to feel that their social status and livelihood are threatened by the factors causing those differentials, or the scale of the differentials, their dissatisfaction will become deeper still.

##### 1.1 Parental Socioeconomic Status and Children

Historically speaking, one of the biggest factors influencing people's social status and economic conditions has been the social standing and economic capacity of their parents. Modern society has destroyed the old class system whereby the lives of children were constrained by the social origins of their parents. Practically no-one mourns the passing of the class society, for the simple reason that since children cannot choose their parents, rigid class systems appear obviously unfair. There is less consensus, however, on whether one can tolerate the existence of socioeconomic differentials inherited by children from their parents, and if so, to what degree they can be tolerated. A society in which children's economic circumstances are substantially influenced by parental assets, and their transfer through gift or inheritance, to the point where economic differentials are so wide that they cannot be overcome by a lifetime of hard work – such a society cannot be considered healthy.<sup>1</sup> This would lead to further problems too, since 'inequality of outcome' in the parental generation leads directly to 'inequality of opportunity'<sup>2</sup> in the children's generation (Kunieda 2002).

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<sup>1</sup> Another route by which parental economic power is transmitted to children is of course through education. Chapter 3 of an earlier work (Matsuura and Shigeno 1996) demonstrates that parental income influences choice of private elementary and junior high schools that are thought to provide good educational conditions. However, the question of education is beyond the scope of the present chapter.

<sup>2</sup> On inequality of opportunity, see Satō in chapter 1 of the present volume.

## 1.2 Cohorts and the Pension System

Along with their parents, another thing that children cannot choose is the timing of their birth – the cohort in which they are born, to put it in sociological terms. The young cohort subsidizes the old cohort through the public pension system, and this is not much of a problem so long as economic conditions permit children to believe that tomorrow will be more prosperous than today, that their generation will enjoy a more affluent lifestyle than that of their parents. If the children's generation has become wealthy, or expects to become wealthy, its members will feel they can afford to support the relatively impecunious parental generation. But in a situation where tomorrow will *not* necessarily be more prosperous than today, the public pension system becomes a mechanism that transfers wealth from a young cohort that is relatively poor to an old cohort that is relatively wealthy. When that happens, and particularly when the speed of the transfer systematically accelerates, the relatively poor younger cohort will naturally start to feel that things are less than fair. In Japan, the advent of the low birth rate / ultra-aging society means that an absolute decline in the population is a certainty. The forced transfer of income from the young generation to the old generation through the public pension system will inevitably pose a threat to the livelihoods of succeeding generations. The problem is that Japan tried to build a pension system based on a *savings model*, in which each generation would pay for its own pensions by saving money while economically active, but has ended up with one based on a *tax-and-spend model*, in which unfair premiums effectively function as a tax on younger cohorts to help pay for the pensions of older ones.

## 1.3 How Childbirth and Child-rearing Widen Differentials

The bearing and rearing of children are activities closely related to the intergenerational transfer of income through inheritance and public pensions. If there are no children, then there is no incentive for the parental generation to leave money to be inherited. When there are few children, a minority of them will inherit a larger amount of wealth than before. Thus there is a strong possibility that the declining birth rate will have the effect of widening differentials.

Under the present pension system with its unfair treatment of cohorts, one of the big problems that arises when the population goes into absolute decline is that income tends to be transferred from households bringing up relatively many children to

those with relatively few or none at all. Giving birth to children is a voluntary choice made by parents, and bringing them up should be a source of happiness. Children will support society in the future, and a society without children cannot survive. In that sense, childbirth and child-rearing are activities endowed with profound social significance. In Japan the social support for those activities is far from adequate, as I have tried to show in previous research on the lengths of time children have to wait for a place at a day-care center, and on the difficulties faced by women who want to combine childbirth and mothering with regular employment (Matsuura and Shigeno 1996, 2005). This inadequate level of care imposes a heavy economic burden on families that tends to put them at the wrong end of widening differentials. Worse still, it also tends to transmit those wider differentials to the next generation [since families with many children will have to share inherited wealth more thinly than those with few children .

#### 1.4 Objective of This Chapter

In this chapter I propose to look at the impact on economic differentials between people caused by inheritance and the pension system – two things over which people have no choice – and how it varies according to family child-rearing circumstances, for which I will use types of family , numbers of adult and child members etc. as a proxy. I will examine differentials specifically in terms of net financial assets,<sup>3</sup> using the 1996 and 2002 editions of the Survey on Family Budgets and Savings (*Kakei to Chochiku ni kan-suru Chōsa*) carried out by the Ministry of Posts and Telecommunications (MPT) and the Ministry of Internal Affairs and Communications ,Japan Post.<sup>4</sup>

1996 was a year in which the economy showed a slight recovery. Gross National Income (GNI) grew by 3.2% in real terms, the household saving rate was 9.9%, the unemployment rate<sup>5</sup> was 3.4%, and the TOPIX stock index averaged the year at 1470.9. In 2002 GNI showed a real-term 0.4% decline, the household saving rate was 6.4%, the unemployment rate was 5.4%, and the TOPIX stock index averaged the year at 843.3. Hence the analysis in this chapter will be comparing a year in which Japan was

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<sup>3</sup> Ideally one would hope to focus on net assets, including housing and land (cf. Matsuura 2002). However, since data on net assets cannot be obtained from the 2002 survey, here I will narrow the focus to net financial assets.

<sup>4</sup> The Ministry of Posts and Telecommunications (Yuseishō) was merged with several other bodies to form the Ministry of Internal Affairs and Communications (Sōmushō) in the bureaucratic restructuring of 2001. Japan Post (Nippon Yusei Kōsha) was created in 2003 as a public corporation in charge of the postal service.

<sup>5</sup> Using the Japanese government's definition of 'total unemployment,' excluding job-seekers working part-time, married women with husbands in employment, anyone considered not to be seeking work, etc.

doing relatively well, despite being after the bursting of the bubble economy, and a year in which the recession got a lot worse, with a series of financial crises. We will be able to look for connections between the severity of Japan's economic problems, on the one hand, and the causes and degree of differentials, on the other.

The argument will be structured thus. In Part 2, I will look at the situation regarding inheritance, with special reference to taxation, analyzing the differentials between cohorts in benefits and burdens. I will also break down the costs associated with marriage, childbirth and child-rearing. In Part 3, I will outline differentials in net financial assets among groups of people defined according to whether or not they have experienced inheritance of wealth and receipt of pensions. I will also discuss differentials in levels of consumption between age cohorts. In Part 4 I will present the results of GMM (Generalized Method of Moments) estimates for correlations between net financial asset accumulation and patterns of inheritance, pension receipt and family formation. I will then briefly summarize my conclusions. If I may briefly state my conclusion in advance, I find the following substantial differences between 1996 and 2002, both in the factors causing differentials and in the scale of differentials:

- i. The experience of inheriting wealth, or the expectation of doing so, had a major influence on household accumulation of net financial assets. The effect was in the order of ¥4-5 million in 1996, swelling to ¥8.2-10.2 million in 2002.
- ii. The effect on net financial assets of receipt of pensions and enrollment/non-enrollment in a pension program was not clearly discernible in 1996. But in 2002 differentials were clearly observable, both in relation to receipt/non-receipt of pensions and in relation to type of pension. Net financial assets of Households not enrolled in pension programs showed a deficit of ¥2-2.2million relative to households that were enrolled in programs but not yet receiving pensions.
- iii. Family type, the variable used to study the effect on net financial asset accumulation of childbirth and child-rearing, showed no influence in 1996. But in 2002 the net financial assets of families with [one or more] children were lower than those without children. The deficit was around ¥3-4 million for nuclear families (parents + children), and ¥6.2-7.2 million for three-generation households.

iv. Net financial assets decline at 30-33 year by the time people reach their early thirties, nowadays is the main period for marriage and childbirth.

## 2. Problems in Contemporary Japan with Inheritance Tax, the Pension System, and Child-rearing

### 2.1 Inheritance patterns

There is very little published research on the proportion of household assets accounted for by inheritance, reflecting the severe lack of data on this topic.<sup>6</sup> Even the definition of assets held by the children's generation varies from one analyst to another (Ishikawa 1991).<sup>7</sup> Among the few studies that have been published, my own collaboration with Toshiaki Tachibanaki uses data from surveys on household budgets and savings trends from the Management and Coordination Agency (MCA; Sōmuchō) for the period 1986-89, when land and stock prices were at all-time highs (Matsuura and Tachibanaki 1993), and finds that during that period inheritance accounted for 36.6 to 40.0% of family assets, including financial assets, land, housing, and leaseholds. Takeda and Tachibanaki (1992) used another MPT survey, on 'Household Budget Asset Selection' (MPT 1990) to estimate that inheritance accounted for 40% of net assets and 5% of financial assets.

Let us now consider what kind of government policies have been taken in connection with inheritance. Since the late 1980s the government of Japan has pursued a policy of reducing inheritance tax. In 1987 the top rate of inheritance tax was 75%, but it was reduced to 70% in 1988 and to 50% in 2003. The threshold at which the tax kicks in has also been raised, from ¥40 million + ¥8 million X the number of legally-defined heirs in 1990 to ¥50 million + ¥10 million X the number of legally-defined heirs in 1995. These various measures had the combined effect of reducing the average rate of

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<sup>6</sup> In this chapter I include *inter vivos* gifts, i.e. intergenerational transfers of wealth made while the parent is still alive, in the category of inheritance.

<sup>7</sup> For an empirical survey on inheritance in Japan see Campbell (2004). For a debate on the importance of inheritance in overall household assets, see Kotlikoff and Summers (1981), Kotlikoff (1988) and Modigliani (1988). Kotlikoff and Summers define wealth accumulated during the life-cycle as the sum of savings from earnings + interest on those savings, and the residue [at death] as inherited wealth. They find that inheritance accounts for 80% of household assets. In contrast, Modigliani defines wealth accumulated during the life-cycle as the sum of earnings income during each phase in the cycle, plus interest, minus consumption, with the residue of that being inherited wealth. Under his formulation, inheritance accounts for just 20% of household assets. For a broadly inclusive survey of these issues, see Ishikawa (1991), chapter 7 (Tomi no Keisei to Bunpai; The Formation and Distribution of Wealth).



inheritance tax across the inheriting population from 22.2% in 1991 to 10.8% in 2004. In contrast, the rate of taxation levied on interest income is a standard 20%. Even the interest on the slender savings of a person living below the poverty line is taxed at 20%. That gives you some idea of how favorably inherited wealth has been treated in recent years.

One outcome of the inheritance tax reduction policy has been to reduce the number of people who have to pay it. In the late 1980s, some 6-7% of those who died left estates that were big enough to be subject to inheritance tax. By 2002 that figure had fallen to 4.5%.<sup>8</sup> In that year the mean value of assets acquired per inheritor was about ¥2.9 million. Inheritance tax targets particularly wealthy individuals, and even among that group the population is skewed toward higher income brackets. For instance, according to the annual report from the National Tax Agency, in 2002 estates valued in excess of ¥1 billion accounted for 2.3% of cases and 16.8% of total taxable value, those in the ¥500 million to ¥1 billion range accounted for 6.0% of cases and 16.9% of value, those in the ¥100 to ¥500 million range for 73.0% of cases and 59.7% of value, and those in the sub-¥100 million range for just 18.7% of cases and 6.7% of value.

The policy of reducing inheritance tax on very wealthy individuals was designed to make it easier to transfer wealth to the next generation, and for the owners of small and medium-sized enterprises (SMEs) to pass on management of those enterprises to their children. The owners of SMEs constitute the wealthiest status group in Japanese society. The objective of facilitating the transfer of assets between generations for this group constitutes a deliberate attempt to translate outcome inequality in one generation into opportunity inequality for the next generation. This kind of clear and deliberate widening of differentials has been a feature of government policy in Japan since the 1990s.

One important caveat is required before we go any further. The surveys that I use in this chapter on family budgets and savings include hardly any of the super-wealthy households that might be expected to have estates worth in excess of ¥1 billion. The same goes for other big Japanese government surveys such as the National Survey of Family Income and Expenditure and the Survey of Household Economy, and for similar surveys conducted in Europe and North America. The kind of super-rich people who make it into the *Forbes* magazine rankings do *not* make it into the survey data we are about to analyze. To put it another way, there is a distinct possibility that analysis based on the available survey data will underestimate the inequality of

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<sup>8</sup> This figure comes from materials on inheritance tax and gift tax distributed at a meeting of the Government Tax Advisory Commission (Zeisei Chōsakai) held on 23 May 2006.

distribution in Japan and other industrialized countries alike.<sup>9</sup>

The following estimates will verify that the net financial assets of inheriting households (including those likely to inherit in future) are larger than those of non-inheriting households (including those not likely to inherit in future).<sup>10</sup> I call this hypothesis 1.

## 2.2 The Pension System and Cohorts

In Japan there are three main types of public pension: (1) mutual-aid pensions (*kyōsai nenkin*), for public employees; (2) employee pensions (*kōsei nenkin*), for workers at large and middle-sized corporations; and (3) national pensions (*kokumin nenkin*), for self-employed people and workers at small businesses. Of the three, the national pension scheme was the last to be launched, back in 1961. Its inauguration marked the start of a universal pension system, in which everyone in the country was supposed to be enrolled in one or another of the three programs.<sup>11</sup> This is often cited as one of the biggest systemic differences between Japan and the United States, where only a relatively small part of the population is covered by public pensions.

Since the tripartite system is based on occupational distinctions, it follows that in Japan the kind of pension fund you pay into, and the kind of pension you receive, will reflect one's occupational history. The first two of the systems entail the employer and employee each paying 50% of the premiums. In some big corporations, it is not unknown for the employer to pay a share of the premiums in excess of the 50% stipulated by law. Compared with employees of small businesses, those working for big businesses or for the state tend to enjoy greater stability of employment and higher remuneration, so it is often the case that their pension premiums are also far higher. Consequently the pensions paid out by the mutual-aid and employee programs are generally higher than national pensions.

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<sup>9</sup> In March 2005, Japan's biggest bank, Mizuho, announced that it had developed a private bank specifically for people with financial assets in excess of ¥500 million. People in this bracket are not covered in the samples used for this chapter.

<sup>10</sup> The influence of inheritance tax and gift tax on inheritance strategies will tend to vary according to the parental motivation in making a bequest (Kunie 2002). Page (2003) uses differences in inheritance tax between states to demonstrate the effect of taxation levels on inter vivos gift-giving in the US case.

<sup>11</sup> Such at least is the theory. In practice, however, some 40% of people supposed to be covered by the national pension scheme are not paying their contributions. This very high level of delinquency – despite the fact that enrollment in the scheme is supposed to be compulsory – is often ascribed to two reasons. First, some of the people supposed to enroll in the scheme know about its financial weakness and are suspicious that they may not actually get the pensions they are supposed to be paying for; and second, some people are simply too poor to pay the contributions.

If public pensions are based on sound actuarial principles, to insure against the risk of pension recipients living longer than expected, then the system will be fair and there can be no transfer of income between generations, since the amount paid by each cohort in premiums will match the amount received in pension payments (Tajika, Kaneko and Hayashi, 1996). However, if the system works on the taxation model, transferring income from young cohorts to old cohorts, there is a possibility that the scale of the transfer will be bigger for the mutual-aid and employee pension systems than for the national pension system, since the former two cover people with higher pre-retirement incomes.

### *Benefits Received by Cohorts*

Much research has already been published on the topic of just how big the gap between generations has grown regarding the burdens and benefits of pension systems.<sup>12</sup> The 2003 Economic White Paper carried out a broad-ranging accounting of financial burdens and benefits between generations, including social security, taxation etc. It found that the cohort [born] before 1941 had received a net ¥64.99 million; the 1942-51 cohort had received a net ¥1.94 million; the 1952-61 cohort had suffered a net loss of ¥9.52 million; the 1962-71 cohort a net loss of ¥17.32 million; the 1972-81 cohort a net loss of ¥18.81 million; and the cohort from 1982 onwards was looking at a net loss of ¥52.23 million (per capita). Looking just at the employee pension system, the White Paper found that the total of employer and employee contributions had greatly exceeded pensions paid out for those born in 1930, but that for those born in 1970 the pattern had reversed, with pension payments [likely to] exceed premium contributions.<sup>13</sup>

### *The Pension System and Expectations of Negative Returns*

There is a further serious problem with public pensions that impacts on social security and economic differentials. The calculations used to set premiums and pay-outs have

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<sup>12</sup> On the pension system, see for example Takayama (2004).

<sup>13</sup> In the context of the 2004 pension reform, the Ministry of Health, Labor and Welfare stated that pension payments do exceed contributions, narrowly defined as the premiums paid by the employee, excluding the employer's premium. A better comparison] to assess the value to the household of future receipts from a public employee pension would be not the cost of employee contributions to that pension, but the amount of pension payments that might be expected if s/he did not enroll in the employee pension scheme, instead taking the money saved in premiums by employee and employer alike and putting them into a personal pension scheme in the private sector. See also Hashimoto and Yamaguchi (2005).

consistently over-estimated future birth-rates and interest rates (Yashiro 1999 etc.). This continued inaccuracy in forecasting has had the effect of increasing the lifetime income of old cohorts more than might otherwise have been expected, while correspondingly decreasing the lifetime income of young cohorts beyond expectations. The generation currently receiving pensions can hardly be expected to pay back the ¥400 trillion by which pension payment commitments are now thought to exceed reserves. That would entail a massive cut in pension payments and a massive hike in taxation for this generation, which is not a realistic option. This means that younger cohorts will inevitably receive less in pensions than they pay in premiums, so that the public pension programs effectively become a form of forced investment in an instrument that is bound to show negative returns. No rational householder would invest in an asset that is bound to show a negative return. If one invests, of one's own free will, in an asset that turns out to generate a loss, then that is one's own responsibility. But when one is forced to invest in an asset that can only result in the investor incurring a loss, and when that investment actually threatens one's lifetime financial planning, then one will naturally be deeply resentful. That is the situation for younger cohorts in Japan right now.

In the estimates that follow, I will verify two further hypotheses: that households receiving pensions have greater net financial assets than those that are not receiving pensions or are not enrolled in pension funds (hypothesis 2); and that differences in pension payments between the three different types of public pension create a further set of differentials among people enrolled in different programs (hypothesis 3).

### 2.3 The Private Burden of Childbirth and Child-rearing and Immature Public Support

In Japan some 70% of women quit work on the occasion of marriage or childbirth. Especially where two or more children are born, the inadequate provision of day-care centers and other support sometimes means that the mother is effectively forced to quit. If a woman quits work because of marriage or childbirth, it is extremely difficult for her to return to the workforce later on in a position with good working conditions. The main reason for this is that age discrimination in employment is legal in Japan. It is legal, for example, to restrict a job opening to applicants under the age of 30, or 25. Indeed, there is an age limit of 29 for sitting the examination for employment doing ordinary clerical work as a public official. For career-track public officials, the age limit is 33. The average age at first marriage for a woman living in metropolitan Tokyo is 30. If she gets married, has a baby, and quits work, she will almost certainly be debarred from future

employment as a public official because of legalized age discrimination.<sup>14</sup> This means that in most cases having a baby effectively forces the mother to abandon her career. Here is another striking difference between Japan and the United States, where age discrimination is illegal.

In Japan, most women who seek to return to the labor market some years after giving birth end up in part-time employment, earning hourly wages that correspond to somewhere between a third and a half of the effective hourly remuneration for similar work done as a regular employee. Let us see what that means in terms of wages earned over a lifetime, using mean figures from the 1997 White Paper on the National Lifestyle (*Kokumin Seikatsu Hakusho*). A woman who graduates from a two-year junior college and gets employed in a clerical position that she holds until the age of 60 can expect to earn a total of ¥236 million in her lifetime. If she quits that job for childbirth/child-rearing and manages to get a similar position as a regular employee five years later, her lifetime earnings will total ¥173 million – a loss of ¥63 million. If however she returns from her five-year absence and gets a part-time job, her lifetime earnings will pan out at ¥51 million – a loss of ¥185 million. Faced by this yawning chasm in earning potential, it is hardly surprising that many women choose not to give birth, or limit themselves to a single child.<sup>15</sup>

Big intergenerational differentials in pension payments and the problem of accumulated pension fund deficits create concerns about Ricardian equivalence and the interconnections between generations. It may not be possible for negative assets to be inherited within a single household. Because children can deny inherit negative assets legally.

If uncovered pension debts are passed on to later generations then that is a form of negative inheritance between cohorts. The inability of the pension system to function as originally planned is a problem intimately linked to the falling birthrate.<sup>16</sup> Under such a

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<sup>14</sup> In a study I participated in (Matsuura and Shigeno 2005), we studied the career patterns of women in the greater Tokyo region who quit work for marriage and/or childbirth, and found that the success rate at subsequently getting employed as a public official or regular employee at a major corporation was a rather depressing 0.0%.

<sup>15</sup> If we consider marriage as a preliminary to childbirth, differences in asset ownership between single women and married women become another important research focus here. In a panel survey on consumer life covering the period 1993-1995 (Matsuura and Shigeno 2000), it was found that single women held financial assets worth on average ¥2.75 million, and that 91.3% of single women had at least some financial assets [OK?保有率]. By contrast, the value of financial assets held by married women averaged ¥0.99 million, and only 70.5% reported having some financial assets. This was a statistically significant difference.

<sup>16</sup> In 2004 the Cabinet Office conducted a special opinion poll to help draft policy on the falling birth rate (Naikaku-fu 2004). Some 71.9% of respondents said that “influence on social security, such as pensions and medical costs” was particularly important.

pension regime, it is advantageous to the household economy to have as few children as possible and rely upon other people's children to subsidize one's future pension (Matsuura and Shirahase 2002). In short, the pension system itself contains the potential to further depress the birthrate.

Even if we leave the topic of pensions for a moment, there are plenty of other connections between childbirth/child-rearing and economic differentials. Just take a look at some of the reasons cited for feeling uneasy about child-rearing by respondents to a 2004 survey on social consciousness carried out by the Prime Minister's Office (Sōrifu 2004). No less than 39.1% of those surveyed chose the response "Children's future education will cost money," and 18.1% chose "Bringing up children when they are still small will cost money." In addition to these very simple economic concerns, 21.6% chose the response "I will lose my free time," and 12.8% chose "I won't be able to work the way I want to." It is easy to surmise from these responses that the economic burden of raising children is contributing to the widening of differentials. Even so, public assistance for childbirth and child-rearing remains feeble (Matsuura and Shigeno 2005). The fact that marriage and childbirth are likely to bring women a massive decline in financial asset ownership and a major new economic burden in child-rearing costs suggests that there are differences in the acquisition of net financial assets according to life-cycle phase and household type.

I will therefore seek to verify two more propositions in my analysis below: that households with children have fewer net financial assets than those without children (hypothesis 4) and that even for younger people, net financial assets do not just rise in a single steady trend, but show a temporary downturn in the course of marriage and childbirth (hypothesis 5).

### 3. Differentials in Assets etc. Seen in Data Sets and Groups

#### 3.1 Data

As mentioned earlier, in this analysis I will be using the 1996 and 2002 editions of the Survey on Family Budgets and Savings (*Kakei to Chochiku ni kan-suru Chōsa*), which I will refer to simply as the 1996 survey and the 2002 survey.<sup>17</sup> The 1996 survey had 3,942 respondents and the 2002 survey had 5,596. Excluding respondents who gave no

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<sup>17</sup> For detailed data from these two surveys, see the Report on the Fifth Survey Regarding Financial Asset Choice Etc. in Household Budgets (Japan Post Research Institute, 1996) and the Report on the Eighth Survey Regarding Financial Asset Choice Etc. in Household Budgets (Japan Post General Research Institute, 2003).

answer on the items necessary for my analysis, the samples number 2,281 in 1996 and 4,534 in 2002.

In this chapter I am focusing on the influence on household net financial assets of inheritance and pensions, but in this regard the survey items are slightly different between the 1996 survey and the 2002 survey. For example, on the question of pensions, the 1996 survey asks whether the householder and/or his/her spouse is/are receiving an employee pension, a mutual-aid pension, a national pension or no pension. The 2002 survey asks whether or not the householder is already receiving a public pension of some kind, and does not directly ask about the spouse. It uses the same categories of pension as in 1996, but adds one extra category – *onkyū*, an old form of employee pension paid to retired soldiers etc.

As for annual income, the 1996 survey asks about tax and social insurance contributions, making it possible to calculate disposable income. Those items were omitted from the 2002 survey, meaning that we only have data on pre-tax income. Consequently I have had to use somewhat different explanatory variables and operating variables for the two surveys.

### 3.2 Differentials in Net Financial Assets etc. According to Presence/Absence of Income through Inheritance and Pensions

Table 1 shows the households in the sample population broken down into four groups according to (1) whether or not the household has experience of inheritance (includes prospects of receiving inheritance) and (2) whether or not the head of household is receiving a public pension, and tabulates annual income, financial assets, debt, net financial assets and home ownership for each group. Comparing 1996 with 2002, we can see at once that there was a sharp decline in mean and median levels of financial assets and net financial assets for all four groups. Clearly the very poor state of the Japanese economy from 1996 to 2002 had an impact across the board on household asset accumulation.

In both 1996 and 2002, net financial assets were highest for the group with inheritance and pension income, and lowest for the group with neither. In 2002 the median net financial asset level for the group with both was ¥10 million, while median net financial assets for the group with pensions but no inheritance was ¥5.5 million, indicating the substantial effect of inheritance.

The home-ownership ratio is clearly higher for the inheriting groups: in the 2002 survey, for example, 94.8% of respondents in the group with pension and

inheritance owned their own house, whereas only 75.3% of those with a pension but no inheritance were home-owners. Likewise in the no-pension groups, 59.9% of those with inheritance were home-owners against 40.3% of those with neither pension nor inheritance. This suggests that inheritance and pension patterns are connected to net financial assets, or, through differences in housing acquisition, to more general asset differentials.

<Table 1 about here>

Table 1 Net financial assets seen in terms of inheritance and pensions

### *Consumption Levels*

One measure of welfare being is consumption, defined here as monthly living expenditure divided by a equivalent scale to the square root of the number of household members. In 1996 monthly consumption averaged ¥165,800 for the group with inheritance and pension, ¥167,000 for the group with inheritance but no pension, ¥159,800 for the group with pension but no inheritance and ¥162,800 for the group with neither pension nor inheritance. The relevant test statistic for the average differential showed  $F=0.78$  and  $p=0.50$ , so that there was no significant difference between the four groups. In 2002, however, the corresponding figures for the four groups were ¥170,700, ¥170,900, ¥153,200, and ¥160,500. Test statistics for the average differential showed  $F=15.18$  and  $p=0.00$ , so that a statistically significant difference had emerged between the four groups. The emergence of differentials in living standards as expressed in consumption levels probably was a factor making people more aware of differentials between groups.

### 3.3 Differentials in Consumption Levels between Old and Young Cohorts

When we speak of the children's generation being more prosperous than that of the parents, we mean that the younger generation enjoys a higher level of consumption. Using equivalency measures to calculate consumption across cohorts, I propose to investigate whether this condition has been established in Japan (see figure 1). The low level of consumption among younger cohorts born after 1960 is very striking. In 2002 the cohort born in 1960-64 had average monthly consumption of ¥157,700, and the 1965-69 cohort ¥152,500. The parental cohorts born in 1930-34 and 1935-39 registered ¥163,300 and ¥162,700 respectively. The younger cohorts were clearly consuming less than the older cohorts. Under normal circumstances retired generations are supposed to



spend less than active generations, because they are spared work-related expenditure. But the results here are the other way round, giving the impression that the era when each generation could expect to do better than the one before is already over, and we are now in reverse mode. Under such conditions, it will surely not be possible to obtain broad cross-generational support for a policy under which the younger generation is forced to subsidize the older generation through the public pension system. The highest level of consumption in 2002 was ¥179,400, registered by the 1947-49 cohort – the so-called Dankai generation. This cohort, the cherished offspring of the high-growth era, conspicuous in so many ways, continues to stand out from the crowd in terms of consumption too.

<Figure 1 about here>

Figure 1: Consumption level differentials between cohorts

#### 4. Factors Creating Differentials in net financial assets

##### 4.1 Formulation

##### Concrete Estimation Formula

In the analysis that follows, I will look at the effect on accumulation of net financial assets of (1) experience of inheriting wealth; (2) receipt of pension and type of pension; (3) family type; and (4) age. To do so I will mainly use equation 1 below:

##### Equation 1

$$\text{Net financial asset}_i = \text{Constant} + \sum A_j \text{ Age variable}_i + \sum B_j \text{ Pre-tax income variable}_i + C \text{ Home-ownership dummy}_i + D \text{ Inheritance dummy}_i + \sum E_j \text{ Pension variable}_i + \sum F_j \text{ Family-type variable}_i + \text{Error term}_i$$

The inheritance dummy includes prospect of receiving inheritance as well as experience of inheritance. This seems appropriate because the prospect of inheriting can influence household budget activity just as the reality of inheriting can.

Before I commence this analysis, allow me to remind the reader that when discussing pensions, ‘employee pensions’ (*kōsei nenkin*) ‘mutual-aid pensions’ (*kyōzai nenkin*) and ‘national pensions’ (*kokumin nenkin*) are all sub-categories of ‘public

pensions' (*kōteki nenkin*).

In my analysis of the 1996 survey data, my variables related to pensions fall broadly into the following three sets:

- (1) 'Receiving employee pension' dummy, 'receiving mutual-aid pension' dummy, 'receiving national pension' dummy, 'not enrolled in public pension' dummy.
- (2) 'Receiving national pension' dummy, 'receiving public pension' dummy, 'not enrolled in public pension' dummy.
- (3) 'Aged 65-plus and receiving public pension' dummy, 'aged 65-plus and receiving national pension' dummy, 'aged under 65 and receiving public pension' dummy and 'aged under 65 and receiving national pension' dummy, 'not enrolled in public pension' dummy.

In all three cases the dummy for 'enrolled in public pension scheme but not receiving a pension' is a default value.

As for the 2002 data, I divided it into the following three sets:

- (1) 'Receiving public pension' dummy x 'respondent enrolled in employee pension scheme' dummy, 'receiving public pension' dummy x 'respondent enrolled in mutual-aid or *onkyū* pension scheme' dummy, 'receiving public pension' dummy x 'respondent enrolled in national pension scheme' dummy, 'not enrolled in public pension' dummy.
- (2) 'Receiving public pension' dummy, 'not enrolled in public pension' dummy.
- (3) 'Aged 65-plus and receiving public pension' dummy, 'aged under 65 and receiving public pension' dummy and 'aged under 65 and receiving national pension' dummy, 'not enrolled in public pension' dummy.

In all three cases the dummy for 'enrolled in public pension scheme but not receiving a pension' is a default value.

There were two reasons for the somewhat different choice of variable sets: one is the differences in the questions used in the two surveys, the other is that a difference was identified in the effect of national pensions between the two years.

In my analysis of family types I divided the sample into single-person households, married couples without children, married couples with children, three-generation households and others. I used married couples without children as my fixed value. 'With children' was the sum of the married couples with children and the

three-generation families.<sup>18</sup> As for age, bearing in mind the possibility that its influence could be affected by lifestyle effects and could decline during the marriage and childbirth period, I included not only age but also its square and its cube. Likewise for annual income, I included the item itself and its square. I use the home-ownership dummy as a substitute variable for property assets.

#### 4.2 Coding Conditions

It is predicted that the code for coefficient D (inheritance) will be positive. It is predicted that the code E relating to variants connected to pension receipt will be positive for all coefficients relating to pension receipt dummies where income transfer arises from the pension system. If the effect on income transfer varies according to the type of pension received, it is predicted that there will be statistically significant differences in the coefficients for each type of pension. The code for the 'not enrolled in public pension' dummy coefficient will probably not be fixed in advance. However, if the reason for non-enrollment is economic hardship revealed by inadequate accumulation of assets, then that coefficient is predicted to be significant and negative when compared with the fixed value for 'enrolled in public pension scheme but not receiving a pension.'

Turning now to coefficient F for the family-type dummy, where the economic burden of child-rearing costs on the household budget is great, the code for the coefficients relating to the two dummies for child-rearing budgets of married couples with children and three-generation households will probably be significant and negative.

In order to clarify the effects of the explanatory variables for the pension-receiving dummy and the family-type dummy, a Wald test was also carried out to estimate values for variables other than those found not to be statistically significant.

In this estimation, since pre-tax income and the dummy for home-ownership are endogenous variables, and the variables relating to income and assets are treated as explained variables and explanatory variables, error terms are expected to show an irregular distribution. Therefore a econometric method using GMM techniques was applied. In order to facilitate reading of the results, the values of net financial assets divided by a hundred and show in units of 1,000. Since these are linear functions, the

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<sup>18</sup> One could more directly extrapolate the effect of childbirth and child-rearing on household budgets if only one could include households with no children at all. However, this was not always possible with the data at my disposal and so I was obliged to adopt the approach used here.

value shown for each coefficient is its limit effect.<sup>19</sup> Descriptive statistics are given in table 2.

<Table 2 about here>

Table 2: Descriptive statistics for 1996 and 2002

#### 4.3 Estimation Results for 1996

Results were as displayed in table 3. Columns 1, 3 and 5 display results where all explanatory variables are included; columns 2, 4 and 6 show results after applying a Wald test to exclude pension-receipt and household-type variables not found to be statistically significant. First of all, if we look at limiting conditions for over-identification, results in all six columns reach the 10% level. We may therefore conclude that there is no problem with orthogonality condition between operating variables and error terms.<sup>20</sup> Resulting from wald tests, we should choose results in columns 2, 4 and 6, I will mainly address those results in my discussion below.

##### *Effect of experience/prospect of inheritance*

The experience or prospect of inheritance was positive and significant at the 1% or 5% level for all cases. The coefficient was 0.51 (column 2), 0.38 (col.4) and 0.40 (col. 6). The net financial assets of households with experience or prospect of inheritance amounted to some ¥4 to 5 million more than those without. That figure exceeded the median net financial assets of the no inheritance/no pension group, which was only ¥3.2 million yen, and was about 50% of the median figure for the group receiving pension but no inheritance, which stood at ¥9.12 million [(table 1)].

##### *Effect of receiving pension*

No statistical significance could be observed for the ‘receiving employee pension’

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<sup>19</sup> The maximum effect on net financial assets of any explanatory variable is the cash amount of the explained variable and the explanatory variable, divided by 1,000. If we call that parameter  $\beta$ , then we can obtain the maximum effect by the formula  $1,000 \times \beta$ .

<sup>20</sup> For the specific contents of the instrumental variable, see the notes on tables 3 and 4.