

Are economic growth and well-being compatible? Welfare reform and life satisfaction in Japan

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Abstract

Whether economic growth improves the human lot is a matter of conditions. We focus on Japan, a country which shifted in the 1990s from a pattern of rampant economic growth and stagnant well-being, to one of modest growth and increasing well-being. We discuss concurrent policy reforms and analyse the changes in well-being. In particular, we assess whether the correlates of the increase in well-being are consistent with those expected from the reforms. We apply Blinder–Oaxaca decomposition to World Values Survey data. Results show that improved conditions for the elderly, parents and women, that is the primary groups targeted by the reforms, correlate with well-being increases. This evidence is consistent with the hypothesis that social safety nets can make economic growth compatible with sustained increases in well-being.

JEL classifications: I31, H50, O53, O10

1. Introduction

The relationship between economic growth and well-being has received considerable attention (Easterlin *et al.*, 2010; Sacks *et al.*, 2012). By extending the possibilities to satisfy people’s needs, economic growth is regarded as a means to improve quality of life. However, when scholars contrasted the trends of GDP per capita with those of other objective measures—such as mental illnesses, anxiety, depression and suicide rates—they found that economic growth does not always translate into better lives (Bartolini, 2018, p. 49).

Studies using subjective measures of quality of life reached similar conclusions, notably for the USA (Easterlin, 1974; Bartolini *et al.*, 2013a) and China (Brockmann *et al.*, 2009; Easterlin *et al.*, 2012; Steele and Lynch, 2013; Bartolini and Sarracino, 2015). In the case of the USA, real GDP per capita increased by more than 250% from 1946 to 2014, but there was no indication of an overall positive trend in subjective well-being.¹ Bartolini *et al.* (2013a) explain the trend since the 1970s with the trends of several economic and non-economic factors that worked against each other, and for which the combined effect was slightly negative.² Moreover, citing the cases of China and Russia, Easterlin (2013) showed that while these countries experienced unprecedented growth following the transition, their level of happiness has remained below pre-transition levels. This disconnect seems largely due to the deterioration of the social safety net and to the privatization of social insurance which accompanied the transition. That does not mean, however, that economic growth and subjective well-being are incompatible. Recently, Oishi and Kesebir (2015) and Mikucka *et al.* (2017) argued that economic growth correlates with well-being when income inequality declines and social capital increases.

These studies highlight the need to go beyond the question of *whether* economic growth affects well-being, to instead address the questions of (i) under which conditions does economic growth improve well-being and (ii) which policies can we adopt to implement such conditions. The answers could provide the groundwork to design policies to make economic growth compatible with increasing well-being over time. From this point of view, there is much to learn from the ‘positive’ examples of when growth and well-being are compatible.

We focus on Japan, a country which shifted in the early 1990s from a pattern of rampant economic growth and stagnant well-being, to one of moderate growth and increasing well-being. We use Blinder–Oaxaca decomposition to determine which changes correlate with the increase in well-being in the long-run, from 1990 to 2010. To measure well-being, we use individual responses to nationally representative surveys from the World Values Survey (WVS) concerning individuals’ satisfaction with their lives, that is life satisfaction. Results are consistent with our broader argument: it is possible to make economic growth compatible with long-term growth in well-being.

Japan constitutes an ideal case study. It experienced two phases since 1980: one of economic growth and stagnating well-being (1980–1990) and one of modest economic growth and growing well-being (1990–2010) during which Japanese people experienced healthier lives, more social relationships and higher life satisfaction. To illustrate, we contrast the trends of GDP per capita (GDP) and life satisfaction between 1981 and 2010 in Fig. 1. Life satisfaction in Japan increased in absolute terms and relative to a group of 10 other

- 1 For the trend in subjective well-being from 1946 to 1970 see Easterlin (1974); and for the period 1972–2014, many authors have documented the lack of a positive trend in the USA. For example, recently: O’Connor (2017b) and Easterlin (2017), and also those that support the view that economic growth positively affects subjective well-being (Stevenson and Wolfers, 2008).
- 2 Bartolini *et al.* (2013a) show that increases in per capita income (*per se*) positively affected subjective well-being, but over the same period, social comparisons increased (mitigating two-thirds of the benefits from greater income), confidence in institutions declined and social capital declined. The net result for Americans’ well-being is negative. Similar evidence is available for Germany (Bartolini *et al.*, 2013b).

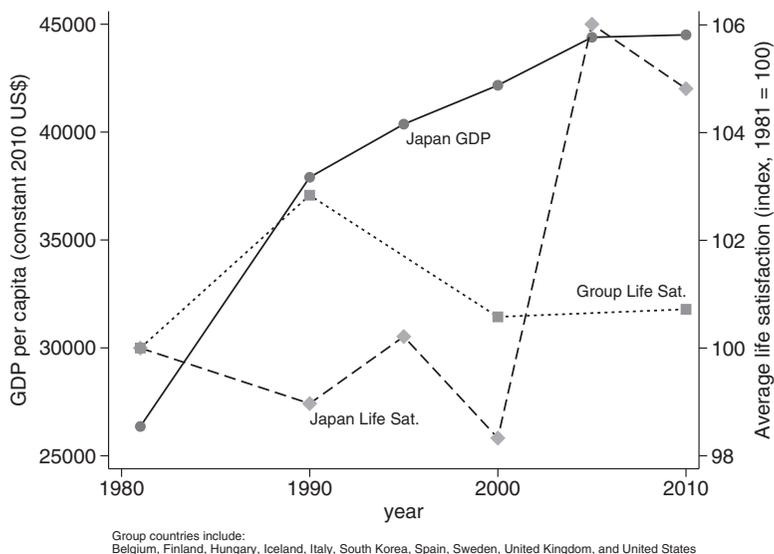


Fig. 1. Trends of life satisfaction and of GDP (constant 2010 US\$) in Japan between 1981 and 2010.

Notes: Life satisfaction data are from the WVS, whereas GDP figures, presented in real dollars with base year set to 2010, are issued from the World Development Indicators of the World Bank. The trends in life satisfaction from WVS are roughly consistent with those issued from other sources.⁴

Source: WVS data. Authors' own elaboration.

countries.³ The relative increase further highlights Japan as an exceptional case, indicating Japan underwent unique changes that are not simply the result of global trends or features of the surveys.

The transition from the first to the second phase included significant policy changes that increased social welfare spending and strengthened social safety nets. To illustrate this point, we plot life satisfaction and a measure of the scope and generosity of welfare state policies over time in Japan.⁵ As observed in Fig. 2, the trend in life satisfaction closely matches that of the Generosity Index. Thus, the Japanese case allows us to address the two

- 3 This group was selected as the complete set of countries in the WVS that were surveyed around each of the most pertinent years (1981, 1990, 2000 and 2010). Group life satisfaction is constructed as the average over the life satisfaction in each country within a period. For ease of interpretation, we transform average life satisfaction into an index in which the base year is set equal to 100. The base year is selected by country as the first year life satisfaction was observed in that country.
- 4 Additional sources include the World Database of Happiness, the Public Opinion Survey on the Life of the People and The National Survey of Lifestyle Preferences. The latter two are nationally representative surveys of Japanese residents administered by the Cabinet Office. From these sources, we compared comparable measures with aggregate life satisfaction from the WVS. Despite differences in levels, each source indicates a positive trend in the 2000s.
- 5 The Generosity Index is calculated based on replacement rates, eligibility criteria and duration of benefit payments associated with unemployment insurance, sickness pay and public pensions. It is intended to follow and further develop on Esping-Andersen's decommodification index (Scruggs *et al.*, 2017).

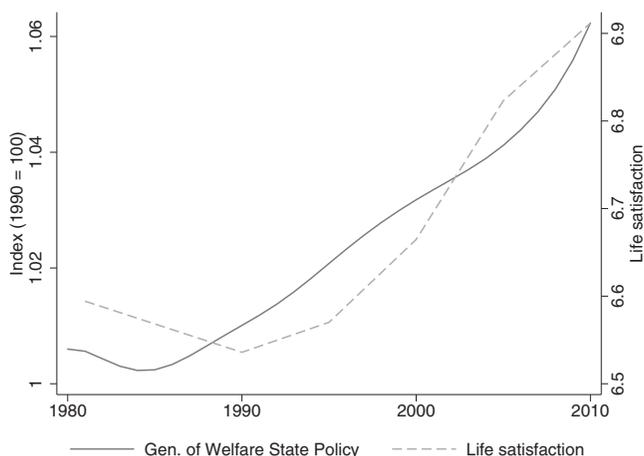


Fig. 2. Average life satisfaction and Generosity of Welfare State (Japan, 1981–2010).

Note: Lowess Smoothed Curves.

Source: WVS data, and Scruggs' Comparative Welfare Entitlements Dataset. Authors' own elaboration.

questions raised above: under which conditions is economic growth and well-being compatible, and which policy reforms could contribute.

In what follows, Section 2 summarizes the relevant literature. Section 2.1 discusses the reforms that took place in Japan in the 1990s which moved it towards a social-democratic welfare state model. In Sections 3 and 4, we describe the data and methods used in the paper. In Section 5, we illustrate our findings and in Section 6, we summarize our main results and policy conclusions.

2. Review of the literature

Economists traditionally used income to proxy utility, but in recent years a growing number of scholars have analysed subjective well-being, that is people's self-reports regarding their well-being. Subjective well-being provides a reliable and valid measure of how people fare (Diener *et al.*, 1985, 2009; Oswald and Wu, 2010). Subjective well-being includes material and non-material factors that are often difficult to measure, and thus, provide scholars with an alternative way to measure people's utility.

To date, disagreement remains over whether economic growth improves well-being. Some scholars argue that contemporary societies should not expect significant improvements in subjective well-being from economic growth (Easterlin, 1974, 2017); others show that economic growth and increasing subjective well-being are associated over time (see e.g. Deaton, 2008; Stevenson and Wolfers, 2008; Sacks *et al.*, 2012; Veenhoven and Vergunst, 2013); others still, point out that whether a relationship exists depends on the set of countries considered (developed and developing countries versus transition countries) or the period of time, that is economic growth and the trends of well-being are associated in the short run, but this association vanishes in the long run (Easterlin and Angelescu, 2009; Easterlin *et al.*, 2010; Becchetti *et al.*, 2011; Bartolini and Sarracino, 2014; Clark *et al.*, 2014; De Neve *et al.*, 2018). More recently, some scholars have argued that the question is

not *whether*, but *when* and *under what conditions* is economic growth associated with increasing subjective well-being (Oishi and Kesebir, 2015; Mikucka *et al.*, 2017). Indeed, the subjective well-being literature points to three conditions that can make economic growth compatible with subjective well-being over time: income inequality (Oishi and Kesebir, 2015; Mikucka *et al.*, 2017), social capital (Uhlener, 1989; Helliwell, 2003, 2008; Bartolini *et al.*, 2013a; Clark *et al.*, 2014) and social policy (Easterlin, 2013; Ono and Lee, 2016).

Increasing income inequality over time is negatively related to well-being (Bartolini and Sarracino, 2015; Oishi and Kesebir, 2015; Mikucka *et al.*, 2017). By increasing the opportunities to establish social comparisons, growing income inequality undermines the positive effect of income growth for well-being. Due to social comparisons, people misallocate resources towards goods and services that derive their value in comparison to the consumption of others (e.g. conspicuous consumption and positional goods). Such goods and services may improve the subjective well-being of an individual but, by their very nature, not societal well-being (Frank, 1997; Cooper *et al.*, 2001). Indeed Bowles and Park (2005) provide evidence that as income inequality rises, individuals allocate more time towards work, which they argue is due to social comparison.⁶ Increasing income inequality can also undermine well-being by reducing feelings of fairness and trust in others (Oishi *et al.*, 2011) or by weakening social linkages and feelings of cooperation (Graham and Felton, 2006; Oishi *et al.*, 2011).

Social capital—defined by OECD (2001) as ‘networks together with shared norms, values and understandings that facilitate co-operation within or among groups’—correlates positively with subjective well-being at both the individual level (Becchetti *et al.*, 2009; Clark *et al.*, 2014; Helliwell *et al.*, 2017) and aggregate level over time, within individual countries (Brockmann *et al.*, 2009; Easterlin *et al.*, 2012; Bartolini *et al.*, 2013a; Bartolini and Sarracino, 2015) and country panels (Bartolini and Sarracino, 2014). For a discussion of how social capital and subjective well-being are related, see Helliwell and Aknin (2018).

Social safety nets are positively related to life satisfaction (Di Tella *et al.*, 2003; Pacek and Radcliff, 2008; Rothstein, 2010; Boarini *et al.*, 2013; Easterlin, 2013; Ono and Lee, 2016) in developed, transitioning and less-developed countries (O'Connor, 2017a); and the association is not limited to people directly affected (e.g. unemployed) (Carr and Chung, 2014). What is more, two studies establish plausible causal links between safety net policies and the well-being of policy-targeted groups. Gregg *et al.* (2009) show single mothers in the UK experienced improved mental health and life satisfaction following a 1999 expansion of welfare benefits, intended to help low-income families, especially single parents. Grip *et al.* (2012) show greater depression rates among people affected by a reduction in pension benefits in 2006 (in particular, the 1950 birth-cohort contrasted with the 1949 cohort, whose benefits did not change).

The experience of countries that transitioned from communist economic systems provides further evidence. The post-communist countries of Eastern Europe consistently report low levels of life satisfaction which, surprisingly, declined on average after the transition.

6 Easterlin (2001) speculates and provides initial evidence that rising incomes are accompanied by rising aspirations, which are inversely related to utility. And aspirations are determined by one's past experience and social comparisons.

Much of this decline can be attributed to the loss of jobs⁷ and deterioration of the safety net. Under communism, people were guaranteed jobs, basic income, health insurance, education and other benefits. The transition to market capitalism may have paved the path to meritocracy, but it was also accompanied by a collapse of the social insurance system, which invariably resulted in greater inequality and lower well-being.

In China, life satisfaction exhibited a similar pattern of collapse and recovery following the transition, all the while growing at an average annual rate of more than 9.0%. Potential explanations for these startling facts are discussed in [Brockmann *et al.* \(2009\)](#), [Easterlin *et al.* \(2012\)](#), [Bartolini and Sarracino \(2015\)](#) and [Easterlin *et al.* \(2017\)](#). Each article partially attributes the decline in life satisfaction to increased social comparisons, especially facilitated by rising income inequality. [Bartolini and Sarracino \(2015\)](#) document the importance of social capital, estimating that nearly 19.0% of the well-being loss in China is related to a decrease in social capital. [Easterlin *et al.* \(2012\)](#) and [Easterlin *et al.* \(2017\)](#) instead emphasize the rise in unemployment,⁸ which was inversely related to life satisfaction over the full cycle from 1990 to 2010. And like in the European transition countries, with unemployment came not only income losses, but also the elimination of social benefits, which exacerbated the effects of unemployment.

In sum, the decline in Chinese well-being can be explained by (1) increasing income inequality which facilitated increasing social comparisons, (2) declining social capital and (3) increasing unemployment accompanied by a severely reduced social safety net. The recent recovery appears to be driven by improvements in trust, employment and the social safety net ([Easterlin *et al.*, 2017](#); [Morgan and Wang, 2018](#)). It is plausible that the same mechanisms are at work in other countries too, including Japan.

There are few studies that explain long-term trends in subjective well-being in Japan. In an early study, [Easterlin \(1995\)](#) documents a flat trend in satisfaction over the period 1958–1987, which occurred despite a concurrent five-fold increase in real per capita income. More recently, [Yamamura \(2011\)](#) evaluates life satisfaction in 1979 and 1996 in Japan. Over this period, life satisfaction increased; however, the causes could not be determined based on the cross-sectional regressions used in the paper. The author also shows that total government expenditures increased over the period, which would suggest a positive link to life satisfaction, but the increase was not statistically significant.

Following the review of the evidence from other countries, we expect that changes in income inequality, social capital and social safety net correlate with the rise in life satisfaction in Japan between 1990 and 2010. In the next section, we document the Japanese policy reforms of the mid-1990s and then discuss our expectations for well-being.

2.1 Social insurance system in Japan

[Esping-Andersen \(1990\)](#) provides a common framework to distinguish three types of welfare states. The essence of the typology rests on the key question: who is the main provider of the safety net? Under the social democratic model (also known as the Scandinavian model), the role of the state is most prominent, with less reliance on the family and the market. Under the conservative model, social insurance coverage is relatively narrow and the

7 [Oswald \(1997\)](#) suggests unemployment is the ‘primary economic source of unhappiness’ (p. 1828), based on analyses of changes in subjective well-being over time in the USA and Europe.

8 Due to government restructuring of state-owned enterprises and large rural to urban migration resulting from relaxed internal migration laws.

burden falls on families. Under the liberal model, social insurance becomes more of an individual matter, with greater reliance on privatized markets.

Which regime Japan belonged to was a subject of debate and remained contested for some time until [Esping-Andersen \(1997\)](#) addressed the question in a follow-up study. In essence, he argued that, prior to the 1990s, Japan's situation was rather unique in that the country was a hybrid of both the conservative and the liberal regimes, situated somewhere 'between Europe and America.'

Under the familialist system which remained prominent during the postwar period, parents and children were mutually dependent. The majority of young married couples lived with their parents. The younger couple took care of the grandparents, who often reciprocated by assisting with childcare and household chores. The arrangement was especially helpful in the case of dual-career couples as they were able to depend on their parents to take care of family matters during their absence from home.

At the same time, aspects of the liberal regime were present, in the form of corporatist or company-sponsored welfare. Indeed, Japanese corporations exemplified 'welfare corporatism' ([Dore, 1973](#)) or 'Japanese style corporatism' ([Esping-Andersen, 1997](#)) whereby a 'familialistic ideology is supported by company-provided benefits to long-term male employees' ([Brinton and Mun, 2016](#)). This corporatist model of welfare implicitly assumes a traditional division of labour between men and women: 'it implies that families will be quite dependent on the male breadwinner since coverage under social insurance assumes long, unbroken employment careers' ([Esping-Andersen, 1997](#)).

2.1.1 *Challenges to the traditional model of welfare*

Japan was not immune to the long-term process of 'de-familialization' ([Estévez-Abe and Naldini, 2016](#)) commonly observed in European society at large. Greater urbanization and industrialization put pressure on extended families and Japan witnessed a gradual decline of family and social ties. The share of three-generation-family households, a common feature of households in postwar Japan, dwindled from 54% in 1975 to 13% in 2013 ([Ministry of Health, Labour and Welfare, 2014](#)). The share of the elderly (over age 65 years) living alone doubled from 9% to 18% and the share of elderly couples living alone (without children) also doubled from 20% to 39%. [Lee \(2016\)](#) provides further empirical evidence of weakening family ties in Japan and documents the conflicting views on elder care responsibilities among Japanese families, between social expectations and individual preferences.

The corporate safety net also diminished throughout the 1990s as the Japanese economy entered a period of sluggish growth following the burst of the economic bubble in the early 1990s. During the so-called lost two decades, the economy experienced chronic deflation and low growth. A combination of increased public spending and near zero interest rates was implemented in the 1990s, but achieved little success. In the private sector, benefits became less generous as the companies pinched their expenditures.

The 1990s also witnessed a significant increase in women's labour force participation prompted by a combination of push and pull factors. The traditional male breadwinner model, which relied on a single source of income, became unsustainable amidst the economic downturn. Women's educational attainment had also been increasing steadily, which increased their incentive to participate in the labour market.

The 'good jobs' which offer job security with good benefits became fewer in number in the post-bubble period. Lifetime employment was still offered but the likelihood of getting those offers declined (Ono, 2010). The share of workers in nonstandard employment more than doubled from 15% to 38% between 1984 and 2016 (Ministry of Health, Labour and Welfare, 2014). Consequently, the population in need of social protection greatly expanded during the 1990s.

Meanwhile, the population was projected to decline: fertility was well below the replacement level and the population was ageing rapidly. In 1989, the country experienced the '1.57 shock' which was the lowest total fertility rate ever recorded in Japan at the time.⁹

These challenges called into question, the long-term sustainability of the familialist/corporatist model of social insurance. Overcoming the problems of an ageing and shrinking population could no longer be left to the market or to families.

2.1.2 Policy reform

To address these issues the government started to take a more active role in providing for the welfare of their citizens. The (liberal) market-centric regime was unsuitable for the Japanese ideology as policymakers feared rising inequality. The economic stagnation of the 1990s also showed that the familialist/corporatist model was vulnerable and unsustainable as it exposed individuals and households to excessive risk. Following these changes Japan invested in an alternative, state-centric, model of socializing risk, whereby social risk is shared equitably by society as a whole (Horioka and Kanda, 2010).

Public social expenditures (as percentage of GDP) remained stable at about 10% during the 1980s, but increased to 16% in 2000 and 23% in 2013.¹⁰ This percentage currently exceeds the OECD average of 21%, and approaches the one of Scandinavian countries', for example Sweden (27% in 2013). Much of this growth was attributed to a greater allocation of expenditures targeted at the elderly. For example, between 1990 and 2000, expenditures for elderly care alone increased from 0.57 trillion to 3.57 trillion yen, while expenditures for the support of families and small children increased from 1.6 trillion to 2.74 trillion yen (Peng, 2004). In recent years, roughly 70% of social insurance was allocated towards elderly care (Oshio *et al.*, 2014), which is a significantly larger share than in other OECD countries (Horioka and Kanda, 2010).

To further protect the well-being of the elderly population, labour market policies were introduced to protect the employment of older workers during the economic downturn of the 1990s (Genda and Rebick, 2000). The government paid employers direct subsidies specifically for the purpose of retaining and employing older workers. While the elderly workforce may have benefited from this labour market intervention, it also had the undesirable consequence of depressing youth labour market (Moriguchi and Ono, 2006).

The 2000s witnessed a flurry of reforms targeted at the elderly in the areas of pension, long-term care insurance and elderly health care (Oshio *et al.*, 2014). During 2000 and 2013, coverage of elderly care services expanded 10-fold, which was well above the OECD average (Estévez-Abe and Naldini, 2016). Previous to 2000, caring for the elderly was

9 The fertility rate declined to its lowest level of 1.26 in 2005, but has since recovered somewhat to 1.44 in 2016.

10 Figures are from the online OECD Social Expenditure Database. For more details, see <http://www.oecd.org/social/expenditure.htm>.

covered by either the welfare system or by the medical system, but both faced two constraints: the need to provide long-term care and the lengthening of the care period (Ministry of Health, Labour and Welfare, 2016). Against this backdrop, the Ministry rolled out the Long-Term Care Insurance System in 2000. It first explained to the public that traditional family support for the elderly had become unstable and untenable, and because of the weakening dependence between the elderly and family members, the country needed a long-term care system 'to support the independence of elderly people' (Ministry of Health, Labour and Welfare, 2016). To this end, the Long-Term Care Insurance System developed a broad range of integrated medical and welfare services and the elderly gained access to a wide range of service providers to choose from. In 2005, the system was revised to emphasize preventive measures in hopes of easing the burden of increasing expenditures for long-term care, for example dementia (Oshio *et al.*, 2014).

A number of work-family policies aimed at addressing low fertility were introduced in the 1990s to motivate couples to have at least two children. Pro-family policies added further momentum to a state centred safety net which was already starting to take shape. As Brinton and Mun (2016) explain, 'in the past few decades, the Japanese welfare state has joined European countries in implementing extensive work-family policies.' The Angel Plan of 1994 aimed to increase social care and support for families with small children, for example by providing childcare services (Peng, 2004; An, 2013). Toivonen (2007) points out that the Angel Plan was a key moment when the national government acknowledged that caring for children was no longer the sole responsibility of the families, but one that requires institutional support. Following the Angel Plan, the government introduced a number of measures which provided further support for families and small children. This included the New Angel Plan (1999), Declining Birthrate Plus One Initiative (2002), Next Generation Education and Support Promotion Act (2003) and Declining Birthrate Society Countermeasures Basic Law (2003) (Oshio *et al.*, 2014). Through these measures, the national government added more childcare facilities, introduced parental leave policies and enhanced income replacement levels. As an example of increasing benefits, in 1990, the monthly allowance for families with small children was nil for the first child, 2500 yen for the second child and 5000 yen for the third child and thereafter. In 2013, this allowance had been raised to 10,000 yen for the first and second child and 15,000 yen for the third child and thereafter (Chuo-hoki, 2013). In short, the period from 1990 to 2010 was a critical turning point in the development of the welfare state in contemporary Japan, when the locus shifted from the family to the state.¹¹

For women, expanding opportunities outside the family can be a cause of tension when they are at the same time expected to fulfil obligations within the family (Raymo *et al.*, 2015). Indeed, women entering the labour force, while maintaining household duties, has famously been referred to as working a second shift (Hochschild and Machung, 1989). However, when growing labour market opportunities are accompanied by institutional support, for example childcare and elderly care, such tensions can be alleviated (Ono and Lee, 2016). For example, women who cared for a family member experienced significantly

11 In spite of the drastic measures adopted by the Japanese government to intervene in the sphere of elderly care and support for families with small children, the supply of care facilities remains inadequate. The weakening of family support came suddenly. To this day, demand for elderly care and childcare facilities outnumbers supply. Japan continues to invest in the facilities, but the waiting list remains long.

lower subjective well-being (Moriyama *et al.*, 2018), but provision of family homecare services significantly reduced feelings of burden among family caregivers (Kumamoto *et al.*, 2017). Thus, providing institutional support for the elderly, families and small children may have improved the well-being of the many women who entered the labour force.

2.2 Our contribution

The relationship between economic growth and subjective well-being changed in a period when important reforms took place in Japanese society. Considering our focus on the long-term relationship between economic growth and well-being, we cannot test the causal effect of a specific policy which is, by definition, short term. Moreover, strategies focusing on one reform are not feasible because numerous reforms occurred at approximately the same time, and their effects cannot be disentangled. Based on evidence from previous studies, we use micro-data to evaluate whether the sustained increase in life satisfaction observed after 2000, especially among the elderly and women, is consistent with the expected consequences of the policy reforms of the 1990s.

3. Data

The WVS provides repeated, cross-sectional data on social capital, subjective well-being and socio-demographic and economic variables about Japan intermittently from 1981 to 2010. The Japanese sample is comprised of about 1000 observations per wave selected according to multi-stage stratified sampling (WVS, 2014).

We use the available data (from 1981 to 2010) for descriptive purposes. The econometric analysis, however, focuses on the period 1990–2010 because the change in life satisfaction that we consider occurred during that period. In contrast, life satisfaction did not change much between 1981 and 1990.

Our measure of well-being is life satisfaction as observed through answers to the question: ‘all things considered, how satisfied are you with your life as a whole these days?’. Answers range from 1 = ‘dissatisfied’ to 10 = ‘satisfied’. We focus only on life satisfaction because: (i) it provides a more pertinent and differentiated information than happiness (1–4 points scale) and (ii) happiness is usually regarded as a more emotional measure of well-being, whereas life satisfaction is considered more of a cognitive evaluation of well-being. Hence, the second is usually regarded as a more reliable measure (Diener, 2006).

Household income, financial dissatisfaction and social capital are the three main independent variables. Income is measured through respondents’ evaluations of their own net household income. In particular, respondents are asked to place themselves on a scale from 1 to 10 where each point corresponds to a specific income bracket. For the present analysis, we substituted each value on the scale with the average value of the bracket. Subsequently, the values were converted into real Yen (with a base year 2010) and log transformed.

Financial dissatisfaction is based on answers to the question: ‘how satisfied are you with the financial situation of your household?’ The answers range on a 10-point scale which we inverted so that higher values stand for greater dissatisfaction. Previous studies documented that financial dissatisfaction strongly correlates with measures of social deprivation, whereas it is weakly predicted by income. These findings suggest that, when controlling for income, financial dissatisfaction reflects social comparisons, that is people’s own evaluation of their achievements relative to the achievements of others (Brockmann *et al.*, 2009; D’Ambrosio and Frick, 2012).

We observe social capital using generalized trust, a measure of civic cooperation (civiness), and participation in groups and associations. Trust in others is measured with the answers to the question: 'Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?'. Answers are coded 1 if the respondent answers positively, 0 otherwise (Knack and Keefer, 1997). The index of civiness is based on answers to questions about whether 'avoiding a fare on public transport', 'cheating on taxes if you have the chance', 'claiming government benefits which you are not entitled to' or 'accepting a bribe' are acceptable. The answers range on a 1 (never justifiable) to 10 (always justifiable) scale. A factor analysis on the four questions indicated the stability and comparable magnitude of the factor loadings, both across waves and within waves. Thus, we created the index of civiness as the average value of the four initial variables, on a 10-point scale where higher values stand for higher civiness.

We observe respondents' involvement in social activities through answers about their participation in a number of groups and associations. The WVS includes a large battery of questions asking whether people belong or actively participate in groups or associations (for the complete list of groups or associations, see Online Appendix E). Given the various nature of participation in groups and associations, we created two dummy variables which take, respectively, the value of 1 if the respondent declared to belong to a Putnamian or to an Olsonian group, zero otherwise. The distinction between the two groups of associations is based on the authors' different views about the role of the association. Putnam *et al.* (1993) identify in associations a source of general trust and of social ties leading to governmental and economic efficiency, whereas Olson (1982) emphasizes the tendency of associations to act as lobbies to get policies that protect the interests of special groups at the expenses of the society as a whole.

We also included a standard set of socio-demographic controls such as gender, age, marital and employment status, reported health and the region where the interview was conducted.¹²

4. Method

Our aim is to explain the variation of subjective well-being in Japan and to quantify the relative importance of the changes in social capital, income and social comparisons along with the other correlates of life satisfaction. To this end, we use the Blinder–Oaxaca decomposition. This technique allows us to decompose the well-being gap between the initial (1990) and the final year (2010) of observations and to identify how well the changes in variable values and their relationships with life satisfaction explain the gap. Indeed, life satisfaction may change because people have more of what matters for well-being (e.g. health), and/or because the correlation of what matters for well-being changed (e.g. the coefficient of health in 2010 is higher than in 1990). We consider the latter effect a consequence of a change in people's preferences. The Blinder–Oaxaca decomposition allows us to account for the effect of changes in endowments and in preferences at the same time.

The decomposition method is used to study group differences for a given outcome variable by dividing them into two parts: the *explained* one, accounting for differences in observed characteristics of the population and the *unexplained* one, measuring the differences in the coefficients between two groups or periods (Jann, 2008). The latter is generally

12 For descriptive statistics, refer to Table 1 in Online Appendix A.

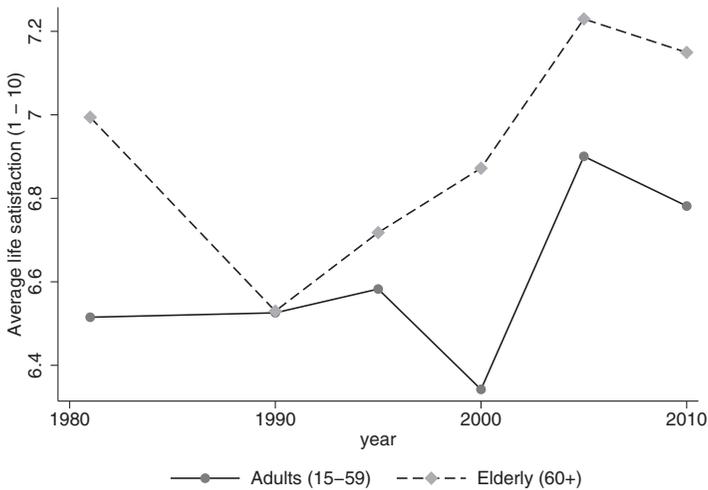


Fig. 3. Trends of life satisfaction for elderly and young people between 1981 and 2010.
 Source: WVS data. Authors' own elaboration.

considered a discrimination measure (Jann, 2008). For the purpose of the present article, the decomposition is used to identify how much of the overall gap in the average life satisfaction between two years can be ascribed to differences in the set of characteristics as presented in Equation (1) (the explained part) and to differences in how these characteristics correlate with well-being (the unexplained part). A downside of the Blinder–Oaxaca approach is that the unexplained part captures also the potential effects of differences in any unobserved variables (Jann, 2008).

Formally, the decomposition can be represented as follows:

$$\Delta LS = \underbrace{[E(X_{2010}) - E(X_{1990})]' \cdot \beta^*}_{\text{explained}} + \underbrace{[E(X_{2010})' \cdot (\beta_{2010} - \beta^*) + E(X_{1990})' \cdot (\beta^* - \beta_{1990})]}_{\text{unexplained}}, \quad (1)$$

where ΔLS is the difference in average subjective well-being between 1990 and 2010, respectively, the initial and final year of observations, $E(X)$ is the yearly average of a vector of explanatory variables—as presented in Section 3—measured at the beginning and at the end of the period of observation, β_{2010} and β_{1990} are vectors of coefficients and β^* is a vector of *non-discriminatory* coefficients to quantify how much each group of variables explains the overall difference in means. In all our estimates, we use standard errors robust to heteroskedasticity, and sample weights provided by the WVS.

We are aware that the ordered nature of the dependent variable would require ordered probit or logit techniques. However, we adopted a linear model for ease of computation and comparison of the coefficients across years.¹³ Moreover, the literature on subjective well-being demonstrated that, when the dependent variable has a sufficient number of categories, linear models provide equivalent results of their ordered counterparts. In particular,

13 Estimated coefficients are qualitatively similar to those from ordered probit estimates, which are available upon request to the authors.

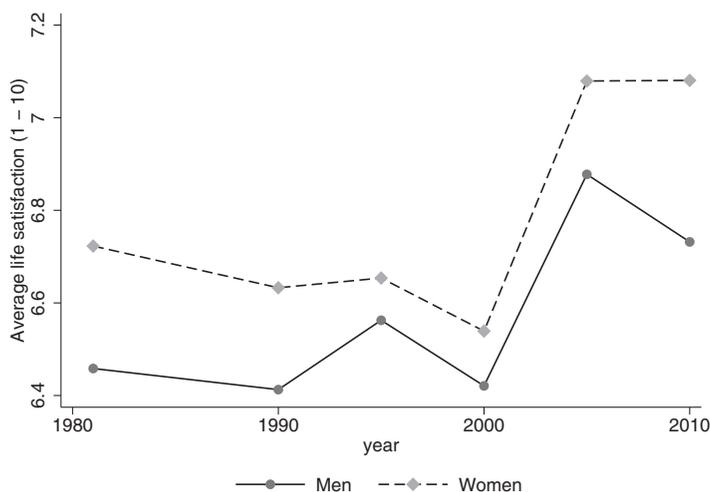


Fig. 4. Trends of life satisfaction for women and men between 1981 and 2010.

Source: WVS data. Authors' own elaboration.

Ferrer-I Carbonell and Frijters (2004) conclude that assumptions on ordinality or cardinality of the answers to a subjective well-being question are 'relatively unimportant to results.'¹⁴

5. Results

5.1 Life satisfaction trends for the elderly and women

Given the focus of the reforms, we expect that the elderly and women benefited more. The evidence is consistent with this expectation. Figure 3 presents the trends for individuals aged 60 years and over and younger people. During the period 1980–1990, life satisfaction declined in absolute and relative terms for elderly people. But after 1990, this trend reversed and life satisfaction increased in absolute and relative terms (compared with young people). This reversal is consistent with the expected consequences of the policy reforms targeting elderly people, and with government's intervention to protect the employment of older workers (which came at the expense of depressing labour market conditions for younger adults) (Moriguchi and Ono, 2006). This may explain, at least in part, the bifurcation in life satisfaction between the older and younger people in the 1990s.

The results for women are similar (see Fig. 4). Prior to 1990, the life satisfaction trends for men and women were fairly similar, but following 1990, both groups experienced an increase, women more so than men. As one of the targeted groups, the relative increase in women's life satisfaction is consistent with the policy expectations described above.

The increase in life satisfaction generally, and of the elderly and women in particular, is in line with the expected outcomes of the policy reforms of the 1990s. In the next section, we use the decomposition analysis to study which individual level changes correlate with the increases in life satisfaction.

14 Ferrer-I Carbonell and Frijters, 2004, p. 655.

Table 1. Happiness regression in Japan in 1990 and 2010 using an OLS model.

	1990		2010		Pooled	
log yearly income (real Yen 2010)	0.123	(1.21)	0.169**	(2.55)	0.168**	(3.02)
Financial dissatisfaction	-0.444***	(-14.57)	-0.389***	(-19.56)	-0.400***	(-23.59)
State of health	0.383***	(5.33)	0.526***	(10.44)	0.510***	(12.37)
Trust in others	0.293**	(2.79)	0.193**	(2.59)	0.215***	(3.52)
Index of civicness	0.0539	(1.55)	-0.00363	(-0.12)	0.0166	(0.68)
Membership in at least 1 Putnam's group	0.187	(1.52)	0.110	(1.43)	0.170**	(2.61)
Membership in at least 1 Olson's group	-0.256*	(-1.72)	-0.0535	(-0.56)	-0.0697	(-0.85)
35 ≤ age < 60 years	-0.538***	(-3.85)	-0.228*	(-1.90)	-0.259**	(-2.86)
60 years and more	-0.568**	(-2.76)	0.0346	(0.23)	0.0315	(0.27)
Female	0.000	(0.00)	0.164*	(1.78)	0.131*	(1.78)
Single	-1.233***	(-4.50)	-0.702***	(-4.31)	-0.803***	(-5.72)
Divorced/separated	-0.358	(-0.58)	-0.641***	(-3.65)	-0.510**	(-3.09)
Widowed	-0.438	(-1.18)	-0.531**	(-2.76)	-0.496**	(-2.91)
One child	-0.341	(-1.21)	0.0249	(0.16)	-0.0513	(-0.38)
Two or more children	-0.274	(-1.12)	-0.000127	(-0.00)	-0.0967	(-0.82)
Part time	0.276	(1.60)	-0.0997	(-0.79)	0.0173	(0.17)
Self-employed	0.0504	(0.29)	0.101	(0.63)	0.0602	(0.50)
Retired	0.419	(1.39)	0.0146	(0.10)	0.0861	(0.68)
Housewife	0.0993	(0.60)	0.0851	(0.65)	0.0620	(0.60)
Student	-0.246	(-0.69)	0.880**	(2.65)	0.154	(0.56)
Unemployed	0.297	(0.33)	-0.797***	(-3.71)	-0.648**	(-3.08)
Other	-0.317	(-1.15)	0.652	(1.46)	0.248	(0.78)
Constant	6.262***	(5.19)	5.314***	(6.81)	5.211***	(7.94)
Observations	740		1,653		2,393	
Adjusted R ²	0.395		0.404		0.397	

Note: *t*-statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.001$.

Source: WVS data. Authors' own elaboration.

5.2 Decomposition of the well-being gap between 1990 and 2010

Table 1 reports the coefficients from three ordinary least squares (OLS) regressions of life satisfaction. The coefficients are used in the decomposition as reported in Equation (1). The first two columns provide the results for the years 1990 and 2010 separately, whereas the third column provides the results from a regression on pooled data. The coefficients in the third column coincide with the reference β s of the Blinder–Oaxaca decomposition (see β^* in Equation (1)). Results are consistent with expectations from standard happiness regressions (Dolan *et al.*, 2008). Specifically, age exhibits a U-shape relation with life satisfaction; men and unemployed people are less satisfied than their counterparts; being married and high income positively correlate with life satisfaction and financial dissatisfaction negatively. Greater trust and participation in a Putnamian group are each positively associated with life satisfaction, while membership in an Olsonian group is not significantly related. Last, as is expected, healthier people are more satisfied with their lives.

As illustrated in Fig. 1, life satisfaction increased between 1990 and 2010. In particular, life satisfaction increased by 0.4 points, from 6.6 to 7.0 on a 10-point scale (see Column 1,

Table 2 in Online Appendix B). This change is meaningful: as shown in Fig. 1, the average life satisfaction for a group of 10 countries changed by less, approximately 1%, over the same period. 0.4 is similar to the magnitudes for being financially dissatisfied (0.4), healthy (0.5), divorced/separated (-0.5), widowed (-0.5) or unemployed (-0.6) (as presented in the pooled column of Table 1). Becoming widowed or unemployed, for example, are relatively well-recognized as severe causes of distress.

The results of the decomposition show that the unexplained portion, which can be thought of as a change in preferences or circumstances, accounts for the bulk of this change, 0.35 points (see the row 'total' in Table 2, Online Appendix B). The explained portion, which includes changes in characteristics such as the ageing population, only accounts for 0.05 points. However, the aggregate figures mask considerable heterogeneity.

Figures 5 and 6—based on Table 2—illustrate the detailed results of the decomposition, that is how much change in life satisfaction is explained by each of its correlates. Although accounting for the smaller portion, it is perhaps more intuitive to start with Fig. 5, which presents the explained part of the decomposition of life satisfaction, that is the part that is associated with the changes over time in the levels of the explanatory variables. The ageing of the population is associated with a statistically significant increase in life satisfaction. Improving health and greater membership in Putnamian groups also correlate with an increase in life satisfaction. On the other hand, household income, marriage rates and social trust declined, which are associated with reduced life satisfaction. Financial dissatisfaction also increased, which is associated with reduced life satisfaction. The life satisfaction changes associated with each variable are detailed in Table 3 in Online Appendix B. The column X_{2010} provides the average score of each variable in 2010, while the column X_{1990} provides the same information for 1990. For example, the sample proportion of people aged 60 years or more increased from 13.8% to 35.6%.

Figure 6 presents the changes in life satisfaction associated with changes in the coefficients between life satisfaction and each of the correlates included in Equation (1). The coefficient of age grew during this period, which is associated with greater life satisfaction. The increased relationship is consistent with the expected results of greater government support for elderly people (discussed further below). Similarly, greater government support for women and families is consistent with the increase in women's life satisfaction relative to men's. The number of kids is also more positively associated with life satisfaction. Changing relationships related to health, household income, marital status and social comparisons are also associated with greater life satisfaction. The coefficients of health and income increased, whereas the coefficients of marital status (single relative to married) and social comparisons decreased. Changing relationships related to civicness, participation in Putnamian groups and social trust correlate less with life satisfaction over time, that is their coefficients became smaller between 1990 and 2010. Details of the changing relationships are presented in Table 3 in Online Appendix B; column β_{2010} lists the coefficients from a happiness regression estimated on the subsample of year 2010, while β_{1990} provides the same information relative to year 1990. Using age again as an example, in 1990 being 60 years or older was negatively associated with life satisfaction (-0.568 life satisfaction points relative to being less than 35), but in 2010 this relationship turned positive, although not significant, meaning that people 60 years or older in 2010 are no longer less satisfied with their lives than younger people.

The improvement in women's life satisfaction relative to men's is consistent with the expected outcomes of the policy reforms. Since women were disproportionately burdened

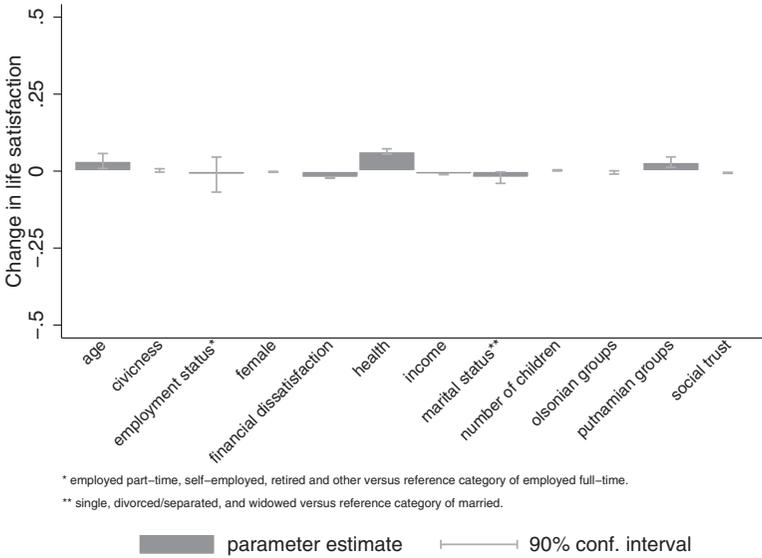


Fig. 5. Explained part of the life satisfaction gap between 1990 and 2010.
 Source: WVS data. Authors' own elaboration.

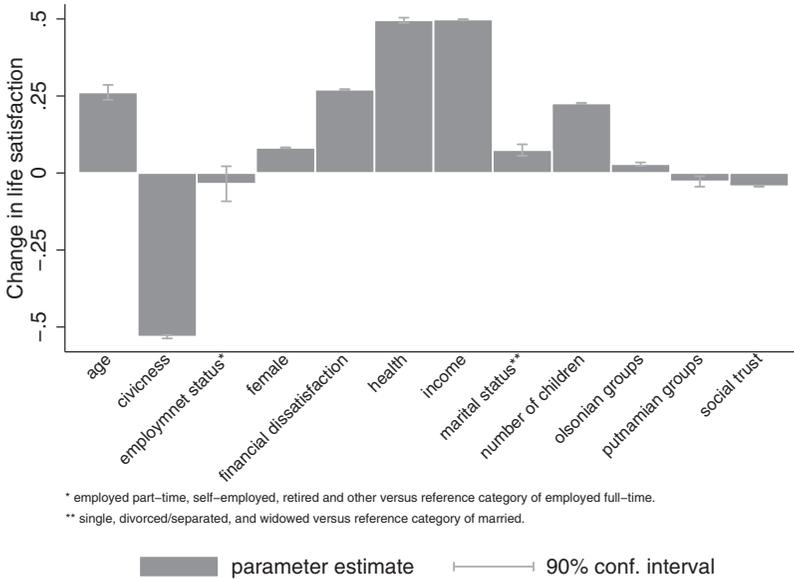


Fig. 6. Unexplained part of the life satisfaction gap between 1990 and 2010.
 Source: WVS data. Authors' own elaboration.

with household and family matters, it is plausible that state-sponsored family policies improved the well-being of women relative to men. To the extent that men were more likely to benefit from lifetime employment (Ono, 2010), the simultaneous deterioration of both corporate and familialist support may have negatively affected men's well-being more than it did women's. At the same time, gender roles transitioned to being less traditional and more egalitarian. For many decades, men's role as the main breadwinner was clearly defined. However, men are now expected to participate more fully at home with the family, while their employment is becoming more unstable. The family has therefore become a source of both happiness and conflict for the Japanese male (Taga, 2017, p. 179).

The size of life satisfaction changes presented in Fig. 4 is meaningful. Greater importance placed on health and income nearly offset the association with being unemployed (-0.6 , as presented in the pooled column of Table 1), while the improved relation for age nearly offsets half. The improved relation for women (relative to men) is smaller (0.08, Table 2 in Online Appendix B), but still amounts to about half of the relation on log income (0.17, as presented in the pooled column of Table 1).

Both the explained and unexplained changes in life satisfaction are presented by variable in Table 2 in Online Appendix B. Ageing, health, gender and social trust had consistent relations with life satisfaction. The ageing population (explained portion) which also became relatively more satisfied with being older (unexplained) were each positively correlated with life satisfaction. People became healthier and health mattered more in 2010 than it did in 1990. There were more women (as a proportion)¹⁵ and they became relatively more satisfied. Social trust worked in the opposite direction; trust declined and it also had a smaller positive relationship with life satisfaction in 2010. If trust had not changed since 1990, the results suggest that life satisfaction in 2010 would have been 0.12 points higher than observed, that is 0.52 rather than 0.40. The other variables had contradictory changes (e.g. household income and social comparisons).

The improvement in health likely reflects the global trend in improving health care (though perhaps not access), and its growing importance makes sense considering the ageing population. Social trust and its importance likely declined as a result of Japan modernizing. The improving relationships of life satisfaction with age and women are consistent with the policy changes discussed in Section 2.1. For this reason, we further focus on people aged 60 years and over, and women.

5.3 Decomposition of the well-being gap between 1990 and 2010 for elderly people

Column 1 in Table 4 in Online Appendix C reports the results of the decomposition of the life satisfaction gap for people aged 60 years or more. Between 1990 and 2010, the average life satisfaction of elderly people in Japan increased from 6.7 in 1990 to 7.2 in 2010. The decomposition indicates that nearly three quarters of this difference is attributable to changes in people's preferences over time.

Figure 7—based on Table 4 in Online Appendix C—shows the main correlates of the unexplained part of the life satisfaction gap. Between 1990 and 2010, elderly people in Japan attached more importance to health and income, and less importance to financial dissatisfaction. These changes correlate with an increase of life satisfaction that is partially

15 It makes sense that there would be more women because the population aged and women live longer on average.

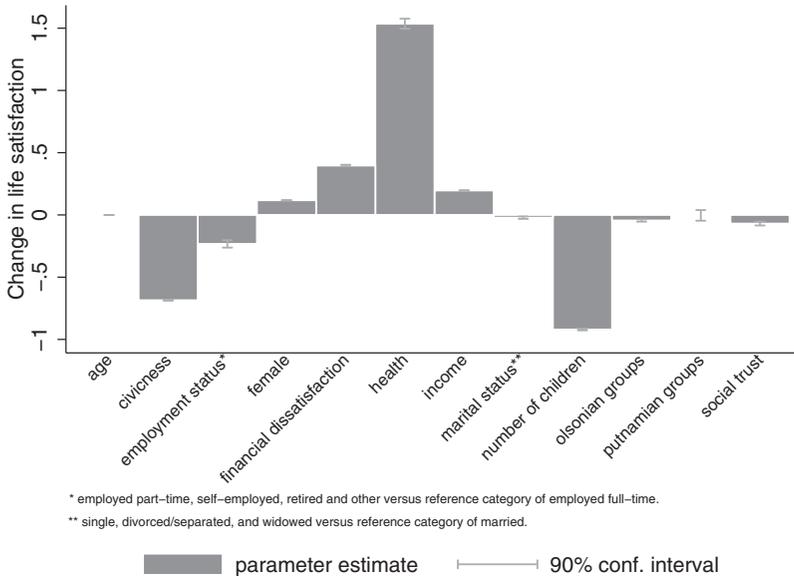


Fig. 7. Unexplained part of the life satisfaction gap for elderly people between 1990 and 2010.
 Source: WVS data. Authors' own elaboration.

offset by the lower importance placed on aspects such as having children and social capital. Among the social capital variables, only participation in Putnamian groups became more positively associated with life satisfaction, but this change is not sufficient to counterbalance the effect of the other proxies. The coefficient of trust in others halves, but remains positive, and the ones for civiness and participation in Olsonian groups turn negative. Other negative correlations with life satisfaction include being a man and employment status which became less important. In 1990, retired people or those working part-time were more satisfied with their lives than those in full-time employment, but in 2010, working part-time, being self-employed or retired correlated negatively with life satisfaction (relative to full-time employment).

The elderly also experienced a significant increase in life satisfaction that was not captured by the comprehensive set of covariates (see the constant in Table 4 in Online Appendix C). Health, family and other social networks are obvious candidates to explain this increase, but as they are controlled, the change must operate through different channels. Another candidate could be a general change in self-perception or reception in society that was improved through the policy reforms—each could operate in tandem or independently from the policy change.

The remaining 23% of the life satisfaction difference is attributable to changes in the levels of the explanatory variables over time. The average health of elderly people and their social involvement increased: participation in Putnamian groups increased (from 22.5% to 49.7%) as well as trust in others (from 27.5% to 39.3%). These changes statistically explain the shift upwards in life satisfaction that is partially offset by the increase in financial dissatisfaction. The remaining variables statistically contribute to a negligible share of the explained gap of life satisfaction (for more details, see the column 'explained' in Table 4 in Online Appendix C).

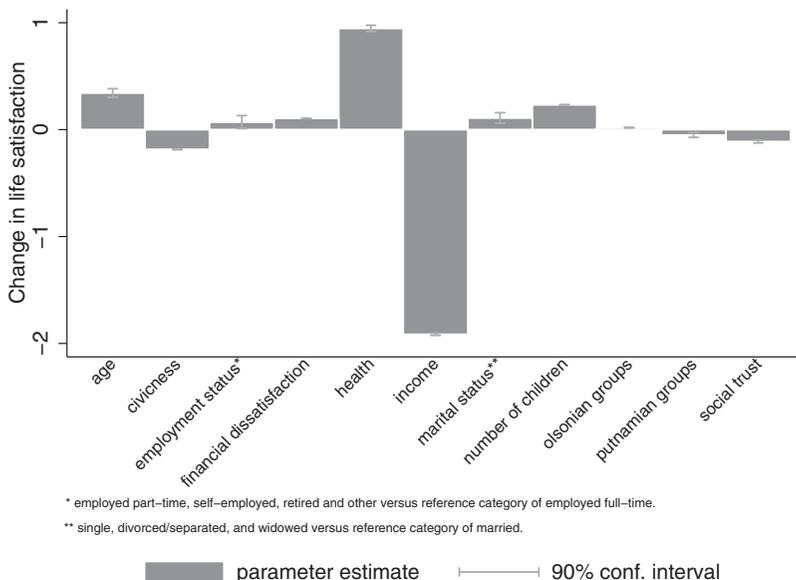


Fig. 8. Unexplained part of the life satisfaction gap for women between 1990 and 2010. *Source:* WVS data. Authors' own elaboration.

5.4 Decomposition of the well-being gap between 1990 and 2010 for women

The life satisfaction of women in Japan increased from 6.7 in 1990 to 7.1 in 2010 (see Column 1 of Table 6 in Online Appendix D). Similar to the elderly, nearly 83% of the increase is statistically accounted for by changes in womens' preferences.

Figure 8—based on Table 6 in Online Appendix D—shows the main variables affecting the unexplained part of the life satisfaction gap. Reduced importance attached to income, civicness and social trust correlate with reductions in life satisfaction. The importance of income became nearly five times smaller in 2010 than in 1990. Also, the coefficients of the index of civicness and social trust nearly halved since 1990. However, the decrease in life satisfaction associated with these changes is counterbalanced by changes in the correlations with health, age, marital status, number of kids and, to a minor extent, financial dissatisfaction. Health correlated positively with life satisfaction in 1990 and the coefficient nearly doubled from 0.29 to 0.56 in 2010. Ageing became less negatively correlated with life satisfaction over time. In 1990, ageing attracted a large negative coefficient, while in 2010, it was nearly zero for women in the age group 35–60 (compared with people less than 35). The coefficient for elderly women (60 years old or more) was positive (although very small in magnitude).

Changes in the importance of marital status also led to an increase in life satisfaction. In general, being married is associated with greater life satisfaction than being single (consistent with 'the benefits of marriage', Waite, 1995), but this marriage premium is lower in 2010 compared with 1990—meaning, single women's life satisfaction improved over the period. In contrast, the life satisfaction of divorced, separated or widowed women declined relative to married women. Divorce and separation are positively though insignificantly associated in 1990, but negatively in 2010. Widowed is slightly more negatively associated

in 2010. However, the declines for divorced, separated and widowed women are more than offset by the positive ones for single women.

The literature has shown that having children is often negatively associated with life satisfaction (e.g. [Ono and Lee, 2013](#)). Moreover, the effect of having children is negatively correlated to marital happiness in Japan, and more so for women than for men ([Lee and Ono, 2008](#)). Having children is negatively associated with life satisfaction in the present analysis as well, but the negative association improved over the period 1990–2010. In particular, having two or more children has nearly a nil association with life satisfaction in 2010, whereas in 1990 the coefficient is -0.44 , that is nearly half the size of the coefficient of being unemployed.

The changes in women's correlates of life satisfaction are compatible with the expected results of the policy reforms adopted in Japan, especially in relation to: ageing and raising children. Women also experienced a significant increase in life satisfaction that was not captured by the comprehensive set of covariates (see the constant in Table 6 in Online [Appendix D](#)). As with the elderly, this change could represent a general change in self-perception or reception in society that could have been affected by numerous items including the policy reforms.

The remaining 17% of women's increase in life satisfaction, that is 0.07 points, is due to changes in the average levels of the explanatory variables (see Table 6 in Online [Appendix D](#)). This relatively small amount can be explained by improved health and a greater involvement in Putnamian associations. In 1990, nearly one out of five women participated in Putnamian associations, but 20 years later nearly 36.6% of women reported participating in at least one Putnamian association. On the other hand, decreased life satisfaction is associated with increased financial dissatisfaction and decreased trust in others. In particular, the share of women who declared trusting others went from 47.7% in 1990 to 40.8% in 2010. The changes of the other variables had negligible effects on the life satisfaction gap.

6. Conclusions

In post-World War II, Japan experienced robust economic growth rates that extended into the 1980s. However, de-familialization, weakening social support and the impending demographic crisis put pressure on the traditional welfare state model, and gradually pushed Japan to invest heavily in state-sponsored programmes. These programmes were designed to support the ageing population and declining fertility, and specifically targeted the elderly and families with small children. These reforms began in the 1990s and coincided with a shift of the country from a period of rampant economic growth and stagnant well-being (1981–1990), to one of modest growth and increasing well-being (1990–2010).

Using Blinder–Oaxaca decomposition techniques and data from the WVS, we show that the increase in life satisfaction from 1990 to 2010 mirrors the improved living conditions of an ageing population. According to the life course literature on life satisfaction ([Blanchflower and Oswald, 2008](#); [Morgan and O'Connor, 2017](#)), one might anticipate that ageing *per se* drove the increase in life satisfaction, but in fact the change in the coefficient on age was a more important correlate. Also, health and its importance increased, and women became more satisfied with their lives relative to men. The improvements for elderly people and women are consistent with the expected effects of the policy reforms of the

1990s. However, not all changes were positive. For instance, social trust declined. Nevertheless, the positive changes affecting life satisfaction outweighed the negative ones.

Social policies that were implemented in response to the ageing and shrinking population were associated to an increase in the life satisfaction of the overall population and especially of the elderly, families with small children and women. This evidence is consistent with the view that whether economic growth improves the human lot depends on certain conditions. In particular, the findings support [Easterlin \(2013\)](#)'s assertion that a strong state-sponsored social safety net provides one of the conditions for durably improving people's well-being. The case of Japan supports the hypothesis that it is possible to adopt policies to make economic growth and well-being compatible over time.

Supplementary material

[Supplementary material](#) is available online at the OUP website. These are the data and replication files, and the [Online Appendix](#). The online material includes the intermediate data necessary to replicate our results. The original dataset used for the analysis is available from: <https://www.worldvaluessurvey.org/WVSContents.jsp>

Additional data used in [Figures 1](#) and [2](#) include:

- World Development Indicators, available from: <https://databank.worldbank.org/reports.aspx?source=world-development-indicators>.
- Scruggs' Comparative Welfare Entitlements, available from: <http://cwed2.org/download.php>.

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