

The only way is up

Making Taiwan a better place to have a family

A report by The Economist Intelligence Unit



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Contents

About this report	2
Executive summary	3
Taiwan's fertility challenge	5
A precipitous drop	6
Building families—evidence and action	9
Lessons from other countries	13
Looking ahead	17
References	18
Appendix: exploratory correlation analysis	20

About this report

“The only way is up: Making Taiwan a better place to have a family” is an Economist Intelligence Unit report sponsored by Merck, and supported by the European Chamber Of Commerce Taiwan (ECCT). It examines the main drivers behind the drop in the fertility rate in Taiwan and looks at some of the policy levers that could be used to increase the country’s birth rate back up towards population replacement level. The report also examines the experiences of four other countries—Japan, South Korea, Singapore and France—in their own endeavours to maintain sustainable fertility rates.

The Economist Intelligence Unit interviewed local experts and government officials. Alongside family-friendly policies, the report also looks at whether assisted reproduction technologies, such as fertility medication, in vitro fertilization and surrogacy, could play a role in increasing fertility levels. In addition to the interviews, we also conducted correlation analysis to look at the relationship between fertility rates and selected variables across cities and counties in Taiwan.

We would like to thank the following individuals for sharing their insight and experience.

- **Professor Cheng Yen-hsin Alice.** Institute of Sociology, National Academy of Science, Taipei
- **Dr. Ho Hsin-Yi.** Secretary General of Taiwanese Society for Reproductive Medicine & Taiwan Adventist Hospital, Taipei
- **Dr. Su Li-chiung,** Deputy Minister, Ministry of Health and Welfare
- **Dr. Li Xinyang,** Former President of Fertility Society of the Republic of China & Veterans General Hospital, Taipei

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Executive summary

What is the problem?

Taiwan's fertility rate has declined dramatically over the past seventy years to about 1.05 children per woman today—well below the replacement rate of 2.1. This decline not only impacts population size, but also the structure of the population. As fertility falls the share of the population that are of working age also declines, while that of older people increases. This means that each worker must support, through his or her taxes, more retired people.

The Economist Intelligence Unit's report, "The only way is up: Making Taiwan a better place to have a family" examines fertility in Taiwan. We interviewed experts and government officials and examined the correlation between fertility rates and selected variables across cities and counties in Taiwan. The report also examines the experiences of four other countries—Japan, South Korea, Singapore, and France.

Why the fall in Taiwan's fertility rate?

Family planning: The government's introduction of a national family planning policy in 1964, along with expanded work opportunities, were among the key catalysts for Taiwan's slowing fertility rate in the second half of the twentieth century.

Older and smaller families: During the 1980s, the trend for women to delay childbearing until their late twenties was already apparent. By 2012, the average mother had her first child in her early thirties. People are also delaying marriage: indeed, our analysis of nine cities and counties' data shows a clear correlation between fertility and marriage rates.

The cost of raising children: Working couples raising children face financial hardship. Nursery costs for children younger than three years of age accounts for an estimated 20% of the average disposable income of families. As a result, young people are conscious of the impact of family size on their standard of living.

Ageing parents and the spectre of infertility: An increasing number of Taiwanese couples are choosing to start families at an older age, when there is a higher risk of infertility, premature birth and other adverse effects.

What can be done?

Subsidising preschool and daycare: International research supports the link between the provision of daycare and higher fertility rates. Taiwan has recently improved financial support for day care—although it is too soon to see evidence of impact.

Parental leave and maternity bonuses: Bonuses and parental leave provide short-term support, although long-term impact on fertility is unclear. It is difficult to know how many people take parental leave in Taiwan: it is estimated around 70% of mothers and 8% of fathers. Taking parental leave is a risk, however, as it may lead to long-term professional and financial penalties—particularly for mothers.

Treating infertility: Many people are trying for children later in life, and so infertility issues have become more predominant. Taiwan's national and regional governments have introduced policies to help infertile couples access assisted reproductive technology, although subsidies are considered inflexible and likely to have little impact.

The impact of broader socioeconomic factors: Potential parents seek stable policy and financial environments. For example, Taoyuan and Hsinchu—home to many comparatively well-paid engineers, with good job security, working in Hsinchu Science Park—have relatively high fertility rates

What can be learned from elsewhere? Most countries follow similar strategies—the main difference is how effectively targeted and funded they are, and whether there are cultural or societal norms that prevent people from taking up the support offered by governments.

What are the next steps?

While parental leave, housing and day-care subsidies have all helped arrest declining fertility rates, there is no sustained recovery in Taiwan. We therefore ask three open questions to policymakers in the region. By seeking to answer these questions we believe that Taiwan will be on its way to rebuilding a stable and secure population.

1. Instead of asking “what can be done” to improve fertility rates, ask “how can we encourage people to marry”?
2. When people are fearful of their economic future, they are less likely to risk having children. How can Taiwan improve new married couples’ sense of security?
3. Fertility clinics and IVF subsidies may allow couples to have children when previously they were unable to. Can localised subsidies encourage competition between cities and counties?

Taiwan's fertility challenge

In a region that is already ageing faster than many other parts of the world, Taiwan has one of the lowest total fertility rates in the world.¹ Like many other similar countries in the region, Taiwan has had lower-than-average population growth because of its dramatic reversal in fertility rate over the last seventy years, to sub-replacement levels in the first decade of this century. While this drop-in fertility rate has been particularly severe in East Asia, similar patterns are seen across high-income countries in Europe and North America.

This demographic shift not only impacts population size, but also the age structure of the population.² As fertility falls the share of the population that are of working age also declines, while that of older people increases. This creates what is called a rising dependency ratio: i.e. each worker must support, through his or her taxes, more retired people.

Taiwan shares with its neighbours many of the factors that contribute to falling fertility rates. These include postponement of marriage and childbirth, costly housing and childcare, an increasing focus on career advancement and the lack of a family-friendly work culture. As a result, Taiwan has implemented a number of policies seen elsewhere in the region, ranging from national childcare and housing subsidies to improved parental leave and investment in day-care centres. There are also national subsidies for assisted reproductive technology (ART), which use medical interventions to help address problems with infertility—important when families are putting off trying for children to a later age. Alongside these national subsidies, some cities have also provided extra ART funding for their residents.

This paper looks at the measures policymakers have already taken in Taiwan, as well as their impacts. We compare Taiwan to four peer, high incomes countries—Japan, South Korea, Singapore and France—and ask what needs to be done to reverse the country's declining fertility levels.

Box 1: Some key definitions

Total fertility rate (TFR) is the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year.

Replacement rate is the TFR at which women

give birth to enough babies to sustain population levels. The precise level depends on the child mortality rate.

Crude Marriage Rate (CMR) is the number of marriages per 1000 population.

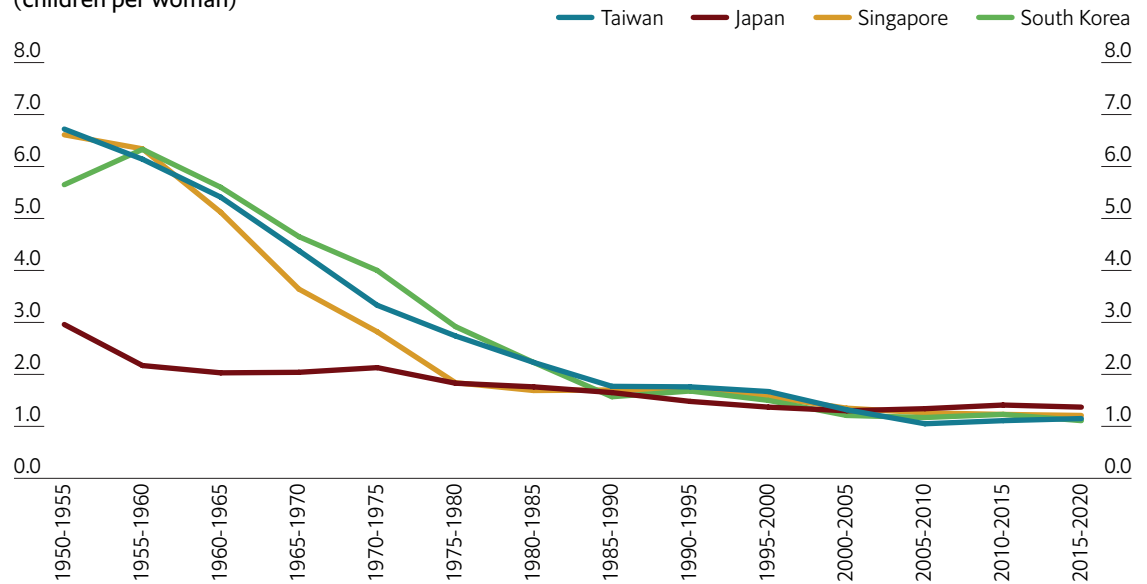
Dependency ratio is defined as the number of children and older persons per 100 persons of working age

A precipitous drop

Family planning

After peaking in 1951 at a rate of just over 7 children per woman, Taiwan’s total fertility rate has declined dramatically over the past seventy years to about 1.05 children per woman today—well below the replacement rate of 2.1. Although the challenges Taiwan faces are similar to those of other developed countries, Taiwan has been amongst the hardest hit (figure 1).

Figure 1: Fertility in Japan, Taiwan, South Korea and Singapore since 1950
(children per woman)



Source: United Nations, Department of Economic and Social Affairs, Population Division (2019).

How did this precipitous fall happen? Part of it was planned. The government’s introduction of a national family planning policy in 1964—focused primarily on increased use of contraception—along with expanded work opportunities, were among the key catalysts for Taiwan’s slowing fertility rate in the second half of the twentieth century.³ Successful public health measures that have led to a decrease in child mortality over the same period initially helped boost population growth rates. Yet, from the 1980s onward, fertility began to fall again, and continue to fall. Taiwan joined the group of low fertility regions—i.e. at sub-replacements level—for the first time in 1984.

Older and smaller families

As is the case with other countries facing low fertility, a radical change in the age of marriage and childbearing has played a key role in Taiwan’s demographic transition. During the 1980s, the trend for women to delay childbearing until their late twenties was already apparent. By 2012, the average mother had her first child in her early thirties.⁴

The lower number of married women and girls was a key cause of lower fertility in the early 1970s and 1980s, according to Professor Cheng Yen-hsin Alice from the Central Research Institute in Taiwan,

THE ONLY WAY IS UP

MAKING TAIWAN A BETTER PLACE TO HAVE A FAMILY

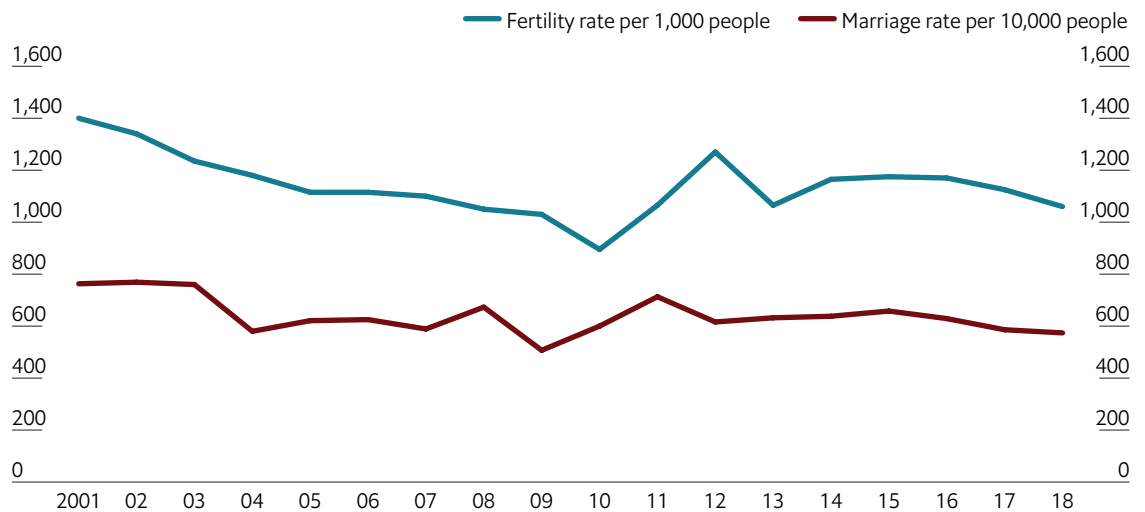
noting that a further decrease in the marriage rate in the late 1990s exacerbated the trend. The average age of first marriage for women has risen to 30.2 years of age in 2016, from 23.6 in 1980, according to Dr. Su Li-chiung, a deputy minister at Taiwan’s Ministry of Health and Welfare. Meanwhile, the divorce rate has risen to 2.31 per 1,000 in 2019, from 0.76 per 1,000 in 1980. Traditional gender roles and understanding of the role of future daughters-in-law in Taiwanese culture also impacts young people’s views of marriage, Professor Cheng points out, adding, “on the one hand, it affects the willingness to marry, on the other hand it affects the stability of marriage.”

Meanwhile, those couples that are getting married are marrying and starting families later, in part due to the increase in the number of Taiwanese getting university degrees and entering the workplace, Professor Cheng adds. This delay not only increases the chance of a smaller final family size, but also increases the risk of adverse outcomes; studies have shown that older mothers find it harder to conceive, and are at greater risks of premature birth and other risks.⁵

The delay in marriage is particularly important as there remains a taboo against out-of-wedlock births—which can help to boost birth rates in other developed countries. As Professor Cheng remarked, “East Asia is generally influenced by Confucian culture and traditional family concepts, and people will think that having children outside marriage is a shame for families”. Indeed, EIU analysis of nine cities and counties’ data shows a clear and strong correlation between fertility and marriage rates (figure 2). Compounding this issue is that women in Taiwan find it increasingly difficult to marry once they reach their mid-thirties. This is because by the time many well-educated women think they are ready to form families, a number of these (still fertile) women are perceived to be potentially infertile; something unbearable for the Confucian culture that stresses the importance of continuing the family lineage. The upshot is that fewer women marry young, but then find it hard to find a partner when they get older. Professor Cheng adds “with shrinking cohort sizes of women from older to younger generations, obstacles to marry later in life make it difficult for the fertility rates lost at younger ages to be recuperated at older ages.”*

Weaker correlations, meanwhile, were found between fertility rates and both household disposable income and female workforce participation rates. Among OECD countries, the relationship between

Figure 2: Time series data shows that fertility rate follows marriage rate closely in Taiwan



Source: The Economist Intelligence Unit.

* For more discussion on the impact of tradition on marriage, see “Ultra-low fertility in East Asia: Confucianism and its discontents”. https://austriaca.at/oxc1aa5576_0x003bd199.pdf

workforce participation and fertility started to shift from a negative to a positive correlation in the 1980s.⁶ The long term stability of the trend across countries suggests that higher female employment improves social and institutional contexts, making them more favourable to starting a family.⁷ While we didn't look at other cultural shifts in the quantitative analysis, Dr. Su noted that "... of course, individualism should also be considered. Young people nowadays pay more attention to personal development with self-centredness."

The cost of raising children

Another factor that contributes to the declining birth rate is the challenges that working couples face raising children, including a shortage of childcare options and perceived insufficient parental leave (actually six months for both parents, although often not taken up because of fears of losing jobs or missing out on pay rises and promotions). A recent survey from the Directorate-General of Budget, Accounting And Statistics, Executive Yuan, found that the average cost of pre-schools and nurseries for children younger than three years old accounts for an estimated 20% of the average disposable income of families. "How to collaborate with families to reduce the burden is also a problem that we, together with other departments, are committed to solving," Dr. Su says. In addition, families also face a high cost of living, especially the cost of housing in major cities.

As a result, young people are conscious of the impact of family size on their standard of living, according to Dr. Ho Hsin-Yi, Secretary General of the Taiwan Society for Reproductive Medicine. "Now, many young people in Taiwan don't want to have many children," he observes. "Under the high pressure of low salary and house purchase, young people don't think it's a good idea to have many children. After all, children are a great financial burden for families."

The country's current economic woes are affecting these calculations, with the result that many are delaying having children until it is often more difficult to conceive, says Dr. Li Xinyang from the Fertility Society of the Republic of China.

Ageing parents and the spectre of infertility

An increasing number of Taiwanese couples are choosing to start families at an older age, with the result that the number of women over 40 giving birth has risen in recent years, according to Professor Cheng. The risks of this shift in attitude and behaviour are clear and well established: as noted earlier, older mothers have a higher risk of premature birth and a range of other adverse effects.⁵ However, notes Professor Cheng, viewing this as a negative development that needs to be reversed may be counterproductive. She notes that the combination of higher education and later marriage are trends that are unlikely to reverse anytime soon: certainly, there is little evidence of such a shift in Europe and North America. "If we advocate the high risk of late marriage and childbearing, it will only lead to a vicious circle," she adds, noting that the physiological condition of older mothers is "not so bad".

The genie, now out, is unlikely to be easily put back in the bottle. The question is how best to mitigate the reality that many mothers are and will be giving birth to their first child older than they used to be. That is, if such older couples can conceive at all. Although statistics are incomplete, around 10% of Taiwanese couples are likely to experience infertility, according to Dr. Ho. The average age of women seeking treatment has risen from 38 to 40 over the past ten years, Dr. Li observes. Dr. Su corroborated that the age group between 35 and 39 made up 31% of those receiving ART subsidies between 2015 and March of this year, with just five cases involving women over the age of 44.

Building families—evidence and action

The Taiwanese government has introduced a number of measures for encouraging childbearing, including marriage incentives, parental leave policies, subsidies for fertility treatment and construction of new housing and day-care centres.* There is little evidence to date that these measures are feeding into a longer-term, integrated government plan.

Some of the government's actions, such as the encouragement of marriage, may be having a limited impact. Others are still being monitored, and might be more effective with minor adjustments, including ensuring that they are implemented in locations where they are most likely to have an effect. We describe briefly here some of the main initiatives.

We also look at how, more broadly, greater economic and political stability is likely to have a knock-on effect on confidence and the willingness of young couples to start families.

Subsidising preschool and day care

A range of research supports the link between increasing the provision of day care and increasing fertility rates. An analysis of six categories of family leave policy on outcomes in 30 member countries of the Organization of Economic Cooperation and Development (OECD) states, including France, Japan and South Korea, found that only spending on early childhood education and care had a “robust” positive correlation with fertility rate; the study found that one extra percentage point of GDP spending was associated with 0.2 extra children per woman.⁸

A separate 2016 review concluded that “provision of childcare services is a strongly positive factor in the decision to have children,” a finding that is confirmed by European country comparisons, which also indicate that policies that support a healthy work/family balance improve fertility.⁹

Between 2008 and 2010, the Taiwanese government introduced a range of initiatives to help young families. Employed parents or single parents have been able to apply for a child day care monthly subsidy for children under 2 years since 2008.¹⁰ In 2009, parents on six-month parental leave became eligible for 60% of their salary payment every month through employment insurance. Meanwhile five-year-old children attending public kindergarten have been exempt from tuition fees since 2010. In addition, in 2009, young couples who were newlyweds or raising children under the age of 20 became eligible for housing subsidies.

“For those who do not receive public or quasi-public education and are eligible for support, parenting allowance is provided as an additional measure to reduce the burden of parenting,” Dr. Su says. “This amount is increasing every year. We are also working hard to improve policy and ensure the rights of parents who take leave to take care of their children.”

The Administrative Department of Taiwan instituted a new day care initiative in 2019. The programme funds day care services, including family care, private day care centres and private kindergartens; the latter's funding would be shared by parents and government. Under the terms of the initiative, families can apply for childcare subsidies—administered by central and local governments—which make contributions according to their financial situation.¹¹

* See the Government's Population Policy Programme (at <https://www.ndc.gov.tw/cp.aspx?n=6868882E351206A5>) for the 2014 revised population policy framework.

THE ONLY WAY IS UP

MAKING TAIWAN A BETTER PLACE TO HAVE A FAMILY

Dr. Su acknowledges that there is scope for increasing the provision of public nurseries for children under two years of age, as well as improving the level of public subsidy, which is due to be gradually raised to NT\$5,000 a month from the current NT\$2,500 a months. It will be particularly important for different departments and levels of government to work together to achieve this aim, Dr. Su says. She adds that the Health and Welfare Ministry is working closely with the Ministry of Education, which is targeting an increase in supply of nursery places for children from two to three years of age, and an overall increase in enrolment of two- to five-year-olds from 67% to 72% within the next four years.

Alongside the funding of places, the government has also invested in developing the workforce. Day care personnel will receive training from community “nanny” institutions that the Taiwanese Interior Ministry and local governments help to organise. In addition, social associations, such as the Taiwan Infant Education Society, can provide professional training by holding children’s day care seminars or by conducting and supporting research on childhood education. The government is also working to improve the supervision and quality of such care, Dr. Su says.

This recent provision of public day care services is likely to be one of the most promising policies for encouraging families to have children, Professor Cheng says, although she acknowledges that existing policies have only been in place for one or two years. It is too soon yet to see evidence of impact.

Parental leave and maternity bonuses

The provision of maternity bonuses and parental leave is believed to provide short-term support to families, although the long-term impact on fertility is less clear. Professor Cheng notes that researchers find it difficult to determine how many people are actually enjoying policy benefits. But she suggests that around 70% of mothers use parental leave, while only 8% of fathers are choosing to use it; the numbers are even lower in Japan and South Korea. This raises the question of why the public is unwilling to use policies that have been promoted. It has been suggested that the leave on offer is not generous or flexible enough. Extending parents’ paid leave up so they could have the ability to take off time during their children’s first six years of life, as some European countries have done, could be of value, Dr. Li says.

However, parental leave can be a double-edged sword, especially when it is taken up primarily by women, as it may lead to long-term professional and financial penalties for mothers. “It shows the implementation of the policy also faces the restrictions of social environment, value and other objective conditions,” Professor Cheng says, adding that a social survey in South Korea and Japan found that fathers chose to give up parental leave because they were wary of being stigmatised for violating the traditional concept that women are responsible for raising children; a cultural stigma also mentioned by Dr Ho. Men from both countries faced additional economic and workplace pressures that deterred them from using the benefit.

Maternity bonuses have been present in Taiwan for some time. Kinmen County was the first local government to introduce such a bonus in 1997, followed by Hsinchu City in 1999.¹⁰ Other local governments adopted similar maternity bonuses over the next two decades. Dr Ho noted that although many counties and cities have their own birth allowance policies, these are not especially successful in implementation, remarking that “compared with long-term housing loans and education investment, subsidies are only a drop in the bucket.” However, despite the availability of housing

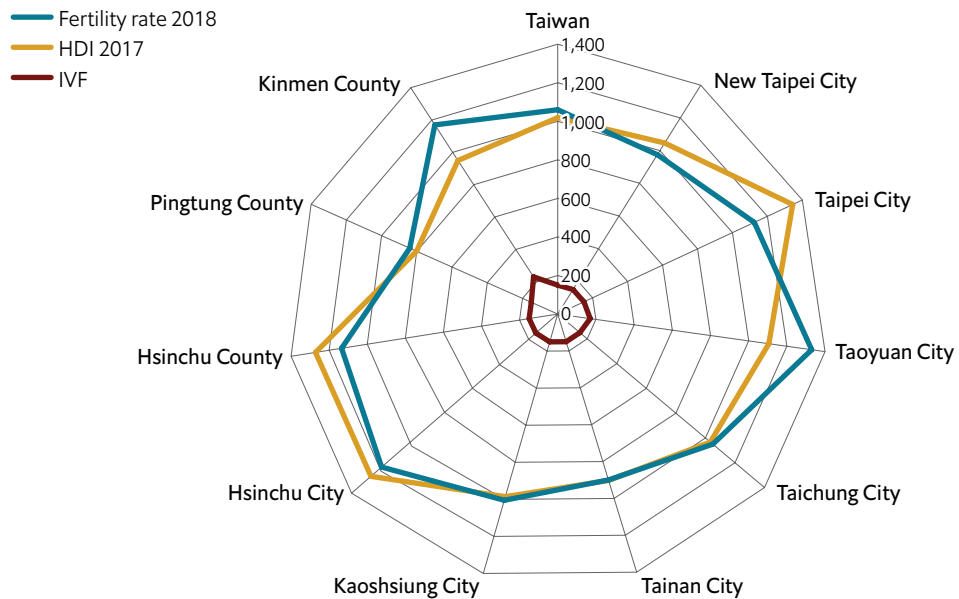
subsidies, he says that many Taiwanese couples do not appear to have direct access to them, and the policy has not been well communicated.

Although one-time maternity bonuses could boost fertility in the short-term, these gains are likely to be hard to sustain. Improving gender equality in the workplace and promoting gender equality education could have a greater impact over the next couple of decades, Professor Cheng says.

Treating infertility

With the shift to marrying and trying for kids later in life, infertility issues have become more predominant. Taiwan’s national and regional governments have introduced policies to help infertile couples. At the regional level, Kinmen County has offered a maximum of NT\$80,000 subsidy for couples who need fertility treatment since 2013,¹² while Taoyuan City has offered NT\$20,000 subsidies since 2015. Figure 3 shows how for most of the regions in Taiwan, fertility rate tracks household disposable income. In Taipei and New Taipei city, fertility rates are a little lower than expected. This may be due to a cluster of some very high salaries in the capital city, combined with a population of highly career ambitious young people with no kids yet. In the two regions where local subsidies are available, Kinmen County and Taoyuan city, fertility rates are a little higher than expected. There is no proof of causation, but the association may be worth further study.

Figure 3: IVF subsidies in Kinmen County and Taoyuan City may be associated with higher than 'expected' total fertility rate



Source: The Economist Intelligence Unit.

Our interviewees suggested that the impact of national subsidies is more doubtful. Both Dr. Ho and Dr. Li believe that national IVF subsidies of NT\$150,000, while helpful, could be better designed. They argue that although the subsidy can meet the cost of a general course of treatment, it is inflexible and fails to account for the fact that ART varies from person to person. “In the process of treatment, there may be many derivative treatment costs, such as laboratory costs, annual egg storage costs, egg

THE ONLY WAY IS UP

MAKING TAIWAN A BETTER PLACE TO HAVE A FAMILY

thawing costs, etc.," says Dr. Ho, adding that once patients use the full subsidy, doctors can no longer charge them other fees and are responsible for their own profits and losses. Consequently, many private clinics and reproductive institutions are reluctant to join the subsidy system, he adds. The subsidy is also limited to married couples in lower and middle-income economic brackets.

Dr. Li notes that the national subsidy also has the potential to cause waste of medical resources, as many patients who don't need ART are more likely to see the doctor with the help of subsidies, which overtaxes the system for those who require treatment to conceive.

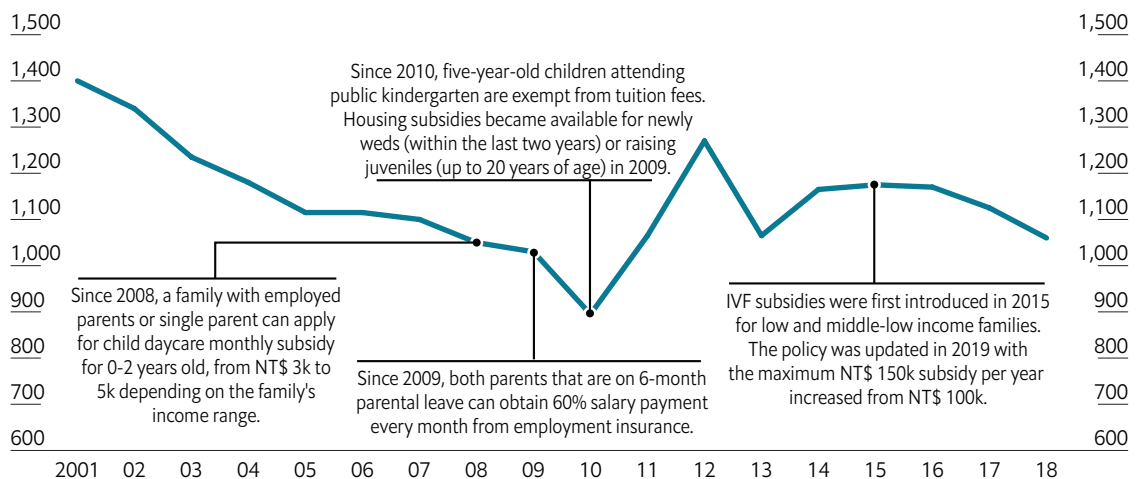
Dr. Ho suggested cancelling the one-time subsidy and instead introduce a partial subsidy or one that works in instalments, making treatment more flexible. Alongside improvements in the subsidy system, Dr Li spoke about the need for improved education about fertility and the most suitable age for assisted reproduction; better understanding of what ART can and cannot achieve could help improve the number of successful pregnancies.

The impact of broader socioeconomic factors

Taiwan's recent initiatives appears to have helped stabilise the country's fertility rate: since about 2005 the fertility rate has stopped falling year on year. However, the impact of individual measures is not always easy to isolate (figure 4). Indeed, the sharp fall, rise and fall in fertility rates between 2009 and 2013 may look like a result of policy changes. However, other factors influence fertility levels. For example, the economic situation was unstable around that time, due to the financial crisis and Typhoon Morakot, in 2009. Similarly, cultural factors play a role. 2010 was the Year of the Tiger—a year in which Chinese people are conventionally unwilling to have children.

In particular, it's how stable the policy and financial environment is that will influence the childbearing decisions of young people, especially if policies are constantly changing, Professor Cheng observes. She notes that Taoyuan and Hsinchu—home to a large number of comparatively well-paid engineers, with good job security, working in Hsinchu Science Park—have relatively high fertility rates.

Figure 4: Since 2007 a range of family friendly interventions have been introduced into Taiwan (fertility rate per 1000 people)



Lessons from other countries

As it looks to shape its approach to improving fertility rates, it is natural to ask what lessons Taiwan may be able to learn from the experiences of other countries both within and outside of East Asia. We look here at how four countries are trying to tackle falling fertility rates: Japan, South Korea, Singapore and France.

Japan

Japan's birth rate has been falling for more than 50 years. By 2015, the total fertility rate was just 1.46.¹³ The overall size of the population is falling, while old age dependency is rising. This demographic reversal is placing a tremendous burden on public services, with fewer workers to finance care and smaller families to provide it.

There are a number of factors contributing to the fall in fertility, including the postponement of marriage and pregnancy, financial uncertainty, and the pursuit of higher education or career advancement. To try and maintain a sustainable population level and workforce, the Japanese government has used a range of policy levers to support marriage and raising a family. Family-friendly policies, such as investing in childcare or offering parental leave, have been used to improve parents' work/life balance and subsidise child-related costs. Alongside these policies, an emerging area for policy intervention is assisted reproductive technology.

Japan's parental leave system includes 14 weeks of paid maternity leave and 44 weeks of paid parental and home care leave to mothers, with average payment rates of 67% and 56%, respectively.* As for fathers, there is no paid paternity leave and 52 weeks of paid parental/home care leave, at 58% average payment rate; although uptake is low, and only 2-3% of men take their allotted leave.¹⁴

There are subsidized childcare centres for infants through pre-schoolers, although urban waiting lists are long. However, Japan exceeds the OECD average for 3-5 year-old education enrolment rates, at 91% versus 83.8%.¹⁵ The child allowance is income-based, covers first and second children, and extends through junior high school. It is just \$100-150 per month, relatively low by OECD standards.^{13, 16, 17} In total, the government spends 1.49% of GDP on all family benefits; it has been suggested that while policy interventions are sound, they are not sufficiently funded.¹⁵

In terms of ART, its utilization has increased over the years partly due to improved local government reimbursements, although only 40-45% of cycles are currently reimbursed.^{18, 19} The only public ART support is a means-tested subsidy instituted in 2004: the subsidy is available to married couples with an annual income less than ¥7,300,000.²⁰ As of April 2016, the subsidy covered only those under 40 years of age, for up to 6 treatments (3 times for those age 40-42), but it was increased to ¥300,000 for one cycle and ¥150,000 for each additional cycle.²⁰

South Korea

Fertility in South Korea has been below replacement level for the past three decades. Many of the factors associated with decreased fertility in South Korea are similar to those in Taiwan, including a trend of postponed or lack of marriage—with surveys suggesting that half of all single men are not

* The "average payment rate" refers to the proportion of previous earnings replaced by the benefit over the length of the paid leave entitlement for a person earning 100% of average national (2015) earnings.

THE ONLY WAY IS UP

MAKING TAIWAN A BETTER PLACE TO HAVE A FAMILY

married for financial reasons, and that women face traditional gender roles at home, unresponsive workplaces and a lack of childcare. Parents in South Korea have been even more likely than those in Japan to respond to increased academic competition by directing all resources into one child in order to pay expensive education fees.²¹

South Korea's parental leave system includes 90 days of paid maternity leave at 100% of full salary, plus one year of childcare leave at 40% of full salary.²¹ Under recently amended legislation, fathers are entitled to 10 days of fully-paid paternity leave, which can be divided and taken on two separate occasions.²² However, employers have lagged behind in implementing leave policies and employees have been reluctant to use it—similar to Taiwan. Efforts to expand on-site day care and flexible hours have had limited success.²¹ However, longer and higher parental leave for mothers has increased take-up of maternity leave in the private sector fivefold between 2002 and 2015.²³

South Korea subsidizes childcare, including care centres or allowances for home-based care and free after-school education.^{13, 17, 21} Policies expanding access to care have resulted in universal assistance for centre-based care, with increasing enrolment rates. The country has recently set a goal of having one-third of children in national, public or company day care centres, along with improved quality of care.²⁴ Families with young children are eligible for tax relief and means-tested loans for housing. South Korea spends 1.32% of GDP on all family benefits—less than Japan.¹⁵

South Korea has provided allowances for ART to infertile people since 2006, with a means-tested subsidy for certain treatments (with caps on amounts and cycles) introduced in 2010. From 2006 to 2015, more than 100,000 babies were born to parents receiving state infertility treatment support, and the number of Korean couples seeking such support rose to 215,000 from 178,000.²⁵ In 2016, the government expanded benefits for infertility treatment by eliminating the income-threshold for subsidies and increasing subsidy amounts. In October 2017, insurance coverage for infertility treatment costs and related expenses was introduced.²⁴

Singapore

Singapore, like Taiwan, was the subject of strict family planning programs in the 1970s and 1980s, with the emphasis on keeping family size at no more than two children; this included incentives for small families and disincentives for larger ones. From 1987-2000, by contrast, the government instituted a “Have three or more if you can afford it” policy in an effort to promote more births. By 2003, the city state's fertility rate had fallen to below 1.3.²⁶

Since 2001, the government has introduced a marriage and parenthood package focusing on promoting work-life harmony and family-friendly work practices, with financial incentives such as the Baby Bonus Scheme, which provides cash gifts to new parents that increase with third and subsequent children.²⁷ Parents can also claim a Parenthood Tax Rebate of S\$5,000 for their first child, S\$10,000 for their second child and S\$20,000 for each subsequent child.

Evidence from Singapore's Institute of Policy Studies suggests that 94.5% of women surveyed are aware of the maternity leave benefits in the marriage and parenthood package, and that these benefits have the greatest influence over women of all ages when thinking about having a child. Along with Myanmar, Singapore offers the longest paid paternity leave of two weeks in the Southeast Asian region. The option for shared parental leave and paternity leave has the highest influence on the decision making of men considering becoming a father, the Institute of Policy Studies found.

THE ONLY WAY IS UP

MAKING TAIWAN A BETTER PLACE TO HAVE A FAMILY

Since 2008, Singapore has also provided subsidies for ART as part of the marriage and parenthood package; ART births have increased from 1.3% of the total number of births in 2006 to 3% in 2009.

France

France had Europe's highest fertility rate at 1.88 in 2018,²⁸ and the rate has been relatively stable since the mid-1970s.^{9, 29} There has been a significant percentage of large families (three or more children) and non-marital births (57% of total births in 2012)⁹ as well as a low percentage of women with no children.

Total public spending on families is a comparatively high 3.7% of GDP, which funds policy initiatives that subsidise families to cover costs and facilitate employment to sustain income.^{14, 29, 30} A 2015 UN Expert Group meeting on policy responses to low fertility in France found evidence that policies providing financial support to families or paid leave at the time of childbirth have a "positive, but rather limited, impact on fertility."

France's parental leave system grants 16 weeks of paid maternity leave and 26 weeks of paid parental and home care leave to mothers, with average payment rates of 94.2% and 14.5%, respectively. Fathers are entitled to two weeks paid paternity leave and 26 of paid parental/home care leave at 92.8% and 14.5% average payment rates. In contrast with Taiwan, between 40% and 50% of French fathers take their paternity leave.³¹

France has subsidised childcare centres and preschool education, a long school day and after-school care. The government also provides a stay-at-home allowance on a relatively low fixed amount, but with a higher supplement for a third child.^{9, 15, 17} There is also a lump sum "baby bonus" income tax break, child tax credit and childcare tax relief, including improved benefits for families with three or more children, and the same tax benefits for civil partnerships as married couples, as well as housing subsidies.⁹

France's Statutory Health Insurance system provides full reimbursement for ART treatment, although eligibility is restricted to married or unmarried heterosexual couples who are infertile and under the age of 43. The subsidy covers four IVF attempts.^{32, 33}

Finally, some have suggested that the reason why some European countries have relatively high fertility rates is because of immigration. It is true that immigrant mothers in European countries are often more likely to have more children than the indigenous population. However, the effect on national fertility rates is relatively small. In France, for example, immigrants contribute more to the birth rate because they are more often of childbearing age and their fertility is slightly higher than the rest of the population. Fertility in France was 1.92 children per woman in 2005, and without immigrants it would have been 1.82.*

* See, Institute for Demographic Studies (INED), What would be the level of fertility in France if there were no immigrants?, https://www.ined.fr/en/everything_about_population/demographic-facts-sheets/faq/france-fertility-level-no-immigrants/

What can be learned from the case studies?

Most countries are following similar strategies—the main difference seems to be how well funded they are, and whether there are cultural or societal norms that prevent people from taking up the support offered by government. France, for example, spends a relatively high proportion of its GDP on families, and its fertility rate is relatively high as a result. France not only spends money but has also become relatively more liberal, and so whereas having children out of marriage or the father taking time off to help at home may once have been unusual, such arrangements now are becoming—if not the norm—at least an option.

THE ONLY WAY IS UP

MAKING TAIWAN A BETTER PLACE TO HAVE A FAMILY

Professor Cheng remarked that although South Korea and Japan have increasingly invested in early childhood education and parental leave over the past twenty years, their impact on fertility rates have been limited so far. As Taiwan faces up to a serious labour shortage and pension fiscal gap, this makes it difficult to know what lessons to draw. She wonders if there could be a rise in the fertility rate outside marriage in East Asia over the next 30 years, similar to what southern Europe has experienced in recent years.

With regards to government policy on ART, Dr. Su of the Ministry of Health and Welfare says that South Korea's experience offers mixed lessons. "After observing the implementation of reproductive technology in Korea, the fertility rate in 2006/7 has not changed much, so assisted reproductive technology does not seem to allow the fertility rate to grow rapidly," she says. "However, we believe that the promotion of assisted reproductive technology guarantees the right to reproduction, so we still provide corresponding subsidies for families."

One of the features that all interviewees spoke of—and this is the same throughout much of East Asia—is the impact of culture. Interviewees told us that fathers are expected to work, often long hours, and mothers are expected to sacrifice their career for the children. If mothers do work, then they are often expected to still supply most, if not all, of the childcare and housework. Transforming traditional notions about marriage, filial piety and women's roles could have one of the most significant effects on fertility, if it removes some of the negative connotations currently attached to marriage, Professor Cheng said.

Cultural norms, and their strengths and weaknesses, are beyond the scope of this paper, but from a purely fertility point of view, they do have an impact. The government of Taiwan—as do all governments in the region—need to consider not only about funding, but also about how new parents, or potential parents to be, can feel free to access the support without embarrassment or shame.

Looking ahead

Taiwan's demographic crisis is already having an impact. In the medium to longer term, the size of the population will fall: a recent report predicted that the Taiwanese population could decrease by 26% to under 17 million by 2065 unless the low fertility rate is reversed.⁵ In the short to medium term, tax revenues will fall and dependency ratios will rise—the impact on the economy will only worsen in the years to come.

The government is clearly aware of the risks, and has introduced a range of measures, covering parental leave, early childhood education, housing and ART, to encourage couples to start families. These measures have had mixed success. Parental leave and maternity subsidies can help couples with a new baby, but have overwhelmingly been used by women, possibly to the detriment of their careers. Subsidised day care and kindergartens can alleviate the pressures on parents, but it remains to be seen if they help improve fertility rates on their own: an expansion of childcare places could be more effective.

Likewise, there is some regional evidence that subsidies for ART are associated with higher birth rates. In order to improve on these trends, experts believe that subsidies need to be more flexible in order to benefit the couples who most need support. While the government remains unconvinced that ART will substantially increase fertility rates, they acknowledge the moral case for supporting couples wishing to start a family. Finally, better education about gender equality issues, and a greater liberalisation of traditional attitudes to marriage, could encourage young Taiwanese couples to start families.

While parental leave, housing and day-care subsidies have all helped arrest declining fertility rates, there is no sustained recovery. We therefore ask three open questions to policymakers in the region. By seeking to answer these questions—not only in theory but also in practice—we believe that Taiwan will be on its way to rebuilding a stable and secure population.

- 1.** In considering “what can be done” to improve fertility rates. Consider instead asking “how can we encourage people to marry?”
- 2.** Fertility rates over time track GDP data, suggesting that when people are fearful of their economic future, they are less likely to risk having children. How can Taiwan improve new married couples' sense of security?
- 3.** Accessible fertility clinics and IVF subsidies may allow couples to have children when previously they were unable to. Can localised subsidies across regions encourage competition between cities and counties?

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THE ONLY WAY IS UP

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Appendix: exploratory correlation analysis

EIU Healthcare looked at the association between fertility rate and the following variables—both at a national and (where the data allowed us) provincial and city level:

1. Marriage rate
2. Density of kindergartens and daycare centres
3. Female work participate rate
4. Household disposable income
5. Housing price index
6. Housing subsidies policy
7. Hospital visits (both inpatient and outpatient) rate for male and female infertility
8. IVF subsidies policy

Data came from a combination of governmental sources, including:

- National Statistics of Taiwan
- Database, Gender Equality Committee of the Executive Yuan
- Department of Statistics, Ministry of Education
- Depart of Statistics, Ministry of Interior
- The Directorate General of Budget, Accounting and Statistics (DGBAS) of Executive Yuan, ROC
- Bureau of Labor Insurance, Ministry of Labor
- Health Promotion Administration, Ministry of Health and Welfare

This was an exploratory analysis to identify potential relationships for further investigation. We did not perform regression analyses; neither did we attempt to investigate whether any of the variables are causative in nature, or in which direction causality may flow.

Selected association findings are described in the main report. In general, fertility rates were positively associated with marriage rate, female work participation rate, household disposable income, house price index and hospital visit rate for infertility. We also found that there may be an association between IVF subsidies and fertility rates at a regional level. There were notable outliers for some analyses, such as Kinmen county and Tainan city.

There was no correlation between fertility rate and density of kindergartens and daycare centres—although we note the data on the number of daycare *places* (rather than *institutions*) was not available. We also note that other factors may have played a role in variations in the fertility rate, including the year of the Tiger, the financial crisis and Typhoon Morakot in 2009.

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