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Abstract

Taiwan's economic transformation has been a cause for concern in recent years with the latest data indicating a slower expansion of fixed capital formation, a crucial factor for both domestic demand and economic growth. A crucial contributor is the shift in government spending in favor of welfare spending and away from public investment to comply with voters' preference for low taxes and high government spending during elections. Since public investments in infrastructure are debt-financed, the accumulation of government debt could lead to slower economic growth and an increasingly heavy tax burden for future generations.

Keywords: Taiwan; economic growth, government spending, public investment.

Introduction

Taiwanese economic development in the 1970s with an authoritarian regime has been acclaimed as quite a successful growth model. Questions have now been raised as to whether democratisation since 1987 can foster economic rights and further stimulate economic growth. Taiwan has successfully transformed its economy from import-substitution to export-oriented since the mid-1960s. Up till the 1980s, Taiwan had been globally recognised as one of a small group of rapidly growing economies with a relatively equal distribution of income. Taiwan's economic success was marked by average economic growth rates of 9.46% in the 1950s, 8.36% in the 1960s and 9.89% in the 1970s (Lau 2012).

The empirical results of Acemoglu et al. (2019) point out that democracy has a positive effect on GDP per capita. Nevertheless, following democratization, Taiwan saw a rapid increase in the size of government, greatly undermining government administrative efficiency and giving rise to economic woes. However, average economic growth rates declined in the 1980s, 1990s and 2000s to 6.67%, 6.84% and 3.81%, respectively, compared to 9.89% in the 1970s. Taiwan has experienced sluggish economic growth since the 2008 global financial crisis and economic growth rates were 0.81% for 2015 and 1.41% for 2016. There has been growing unease about Taiwan's economic transformation in recent years as the latest data indicated a slower expansion of fixed capital formation in the face of a global economic slowdown. Indeed, fixed capital formation is a crucial factor for both domestic demand and economic growth.

Taiwan is a small and open economy. International trade is an important growth engine for it and foreign demand has contributed the majority of its GDP (gross domestic product). The slow global recovery and steep competition from regional economies such as China and South Korea have adversely impacted exports and its economic growth in recent years. The contribution of exports to GDP turned out to be a negative 0.24% in 2015. As the latest GDP data show, the growth of capital formation fell to -2.61% in 2012 before reaching a peak of 5.3% in 2013 and down to 2.27% in 2016. The contribution of capital formation to GDP stood at 0.36% for 2015 and 0.47% for 2016.

The government's fixed capital formation experienced six consecutive years of negative growth rates of -2.92% in 2010, -5.78% in 2011, -10.95% in 2012, -2.97% in 2013, -7.52% in 2014 and -2.74% in 2015. Despite the decline in capital formation by the government, capital formation by the private sector increased by 3.02% and 2.77% in 2015 and 2016, respectively. Taiwan needs to improve its weak domestic demand to bolster the entire economy as increasing exports is no longer the best solution in the current economy. Therefore, this study uses the case study of Taiwan to explore how public investment has effect on economic growth. The remainder of this paper is organized as follows. The next section presents Taiwan's declining domestic investment. The third section described the adverse effect of democracy on public investment. The penultimate section explains decline in household saving, and the final section presents the conclusions drawn from this case study.

Declining Domestic Investment

Saving has been considered as an important element of economic growth. Taiwan's adequate saving in the past led to a sustained accumulation of capital, triggering higher investment and sustained economic growth in the 1960s and 1970s. As a result of the democratic transition, both national saving and domestic investment rates exhibited different long-term trends, with domestic investment deteriorating after each presidency (Lin 2011). The average investment ratio (the percentage of gross domestic investment to gross national income (GNI)) stood at 23.17% under Chen Shui-bian's presidency. The figure fell to 21.90% for the period 2008–2016 under Ma Ying-jeou's presidency.

Sluggish growth of domestic investment can not only seriously affect economic growth potential, but also become an adverse element for innovation, undermining the country's competitive advantage. Regardless of whether the KMT (Kuomintang) or DPP (Democratic Progressive Party) has been in power, there is an urgent need to provide comprehensive economic policies to strengthen economic growth.

A lack of new public projects, a stringent government budget and the privatisation of state-owned enterprises have led to weaker growth of public investment. Taiwan's public investment had fallen five years in a row from 8% in 2011 to 10% in 2012, 1.1% in 2013, 3.6% in 2014 and 5.2% in 2015. With insufficient domestic investment, Taiwan's excess savings are expected to reach NT$2.4 trillion in 2017.

In May 2016, the National Development Council (NDC) unveiled a short-term policy to stimulate private investment by establishing an equity fund of NT$100 billion under the National Development Fund and a trading company. The trading company is part of the government's new southward policy and is to be capitalised at NT$10 billion.

The government has also planned to set aside NT$340 billion for government investment in state-owned businesses and projects. It will invest NT$100 billion in infrastructure projects to improve highways and rail transportation in eastern Taiwan. The Suao-Hualien Highway is scheduled for completion end 2019.

Adverse Effect of Democracy on Public Investment

Elections can change voters' behaviour in Taiwan's democratic society. To please voters during elections, candidates normally promise to spend more on welfare, diverting funds away from public investment (Gupta et al. 2015; Hung and Hsieh 2016). Public investment is a long-term strategy to boost the productive capacity of economies and goes beyond the short-term electoral cycle. Since 1994, however, spending on social welfare has exhibited an upward trend in accordance to voters' preferences. The recently released 2017 Taiwan government budget plan predicts government expenditures at all levels to reach NT$2.84 trillion, up NT$94.03 billion from that for 2016. Spending on education, culture and science is projected to be NT$704.3 billion, or 24.8% of the total, followed by social welfare spending projects at 20.5% and economic development programmes at 14.2%.

Drastic demographic changes have taken place in Taiwan since the 1990s. In 1993, Taiwan became an ageing society with those over the age of 65 exceeding 7% of overall population.

Taiwan will become an aged society when 14% or more of its population is 65 years old or older in 2018. In 2026, when 20% of its population turns 65 or older, Taiwan will become a super-aged society. Population ageing has tremendous effect on social welfare in Taiwan. In fact, many social welfare programmes were accelerated by the competition between the KMT and DPP to enhance the prospects of reelection.

Since the 1980s, politicians in both the KMT and DPP camps have promised tax cuts in their election campaigns, causing government debt to mount. With the constant erosion of the tax base and the ballooning of government spending, the government has no other choice but to borrow to cover the shortfall. Government debt has mounted after each presidency.

As shown in Table 1, the figure hit a record high of NT$6.214 trillion at the end of the Ma Ying-jeou presidency in 2016 (2008–2016). In the absence of significant fiscal reform, the amount of outstanding government debt is expected to grow even more rapidly. Since the relationship between government debt and economic growth is a negative one, high levels of public debt are likely to be deleterious to economic growth (Adam and Bevan 2005; Reinhart and Rogoff 2010; Feldstein 2010).

As the goal of fiscal policy is to maintain sound public finance and narrow the budget deficit, the slight increase in government spending on economic development, for example, 13.3% in 2015 and 14.2% in 2017, has limited the scope of the fiscal stimulus for boosting aggregate demand.

Table 1 Outstanding Debt of All Levels of Government in Taiwan

Unit: NT$ million; %

End of FY	Grand Total	% of Average GDP of the Last Three FYs	% of GDP
1998	2,218,571	28.4	24.4
1999	2,322,698	27.4	24.1
2000	2,708,899	28.9	26.2
2001	3,048,535	30.6	30
2002	3,165,760	30.9	29.6
2003	3,512,071	33.2	32
2004	3,878,450	35.7	33.3
2005	4,100,632	35.9	33.9
2006	4,186,291	35.2	33.1
2007	4,297,374	34.5	32.1
2008	4,374,302	33.6	33.3
2009	4,742,831	35.4	36.6
2010	5,186,842	38.3	36.7
2011	5,468,788	39.6	38.2
2012	5,754,692	40.5	39.2
2013	5,939,798	40.1	39
2014	6,095,172	41.3	37.8
2015	6,130,188	40	36.6
2016	6,214,461	38.8	36.3
2017	6,422,975	38.5	37

Source: Ministry of Finance, Taiwan.

Decline in Household Savings

Due predominantly to rapid growth in corporate savings and wage stagnation, the national account data showed that private corporations and households in 2016 contributed around 60.59% and 30.52% of net national saving, respectively. Since the 2008 global financial crisis, Taiwan's national account data show that gross national saving as a percentage of GNI had increased from 29.29% in 2009 to 33.14% in 2010 and 34.31% in 2016 (see Table 2).

As shown in Table 3, Taiwan's average household savings reached a record high of NT$233,770 in 1999, or a savings rate of 26.29%. The figures steadily declined to less than

NT$193,497 and 21.63% in 2005 and further to NT$178,978 and 19.71% in 2011.The declining household savings trend implies lower sustainability and less capital accumulation for economic growth.

Based on a survey conducted by the Directorate-General Budget, Accounting and Statistics (DGBAS), average savings of the top 20% households were NT$706,361 in 2016, lesser than the NT$707,347 in 2003. Nevertheless, since 2007, average savings of the lowest 20% of households exhibited a negative saving trend such as NT$1,164 in 2007, NT$30,697 in 2009 and NT$18,384 in 2016. Due to the 2008 global financial crisis, income inequality in Taiwan has deteriorated. The widening income inequality in Taiwan society has become the main driving force behind recent social movements.

As noted before, household saving rate peaked at 30.74% in 1993 before dipping to 25.98% in 1998. The figure further fell to 19.71% in 2011. In 2016, the average amount of savings per household was NT$216,304, with savings only making up 21.78% of disposable household income.

The dramatic decline of household savings rate since 1993 could be a byproduct of rising housing prices, changing a household's saving and consumption decisions as well (Hsueh 2000). The fall in household savings is indicative of less capital formation, slowing down long-run economic growth.

Table 2 Gross National Savings and Gross Domestic Investment 1990–2016

Unit: %

Year	Gross National Savings (Percent of GNI, Savings Ratio)	Gross Domestic Investment (Percent of GNI, Investment Ratio)	Excess Savings (Percent of Gross National Savings)
1990	31.30	24.84	20.65
1991	31.58	25.27	19.98
1992	30.57	27.61	9.69
1993	30.94	28.15	9.01
1994	30.13	27.54	8.59
1995	29.55	27.60	6.58
1996	28.61	25.09	12.30
1997	28.67	26.31	8.23
1998	28.30	27.21	3.86
1999	28.82	26.23	9.01
2000	29.60	26.83	9.35
2001	27.10	21.02	22.42
2002	28.44	20.52	27.83
2003	30.24	21.05	30.38
2004	30.52	24.57	19.47
2005	29.62	23.89	19.35
2006	31.05	24.02	22.65
2007	31.46	23.45	25.47
2008	29.62	23.89	19.33
2009	29.29	19.29	34.15
2010	33.14	24.23	26.90
2011	31.46	23.01	26.86
2012	30.45	21.82	28.34
2013	32.00	21.46	32.91
2014	33.58	21.23	36.77
2015	34.87	20.31	41.77
2016	34.31	20.19	41.16

Source: DGBAS, Taiwan.

Table 3 Household Savings in Taiwan, 1990–2016

Unit: NT$; %

Year	Savings (NT$)	Savings Rate (%)
1990	149,824	28.80
1991	175,482	29.88
1992	194,476	30.40
1993	223,747	30.74
1994	223,768	29.07
1995	220,303	27.15
1996	211,943	25.65
1997	228,951	26.52
1998	226,831	25.98
1999	233,770	26.29
2000	228,723	25.66
2001	210,779	24.27
2002	203,300	23.21
2003	215,290	24.42
2004	198,600	22.28
2005	193,497	21.63
2006	200,068	21.91
2007	207,780	22.49
2008	208,274	22.79
2009	181,925	20.50
2010	187,061	21.03
2011	178,978	19.71
2012	195,891	21.21
2013	194,286	20.62
2014	201,680	21.08
2015	205,248	21.27
2016	216,304	21.78

Source: DGBAS, Taiwan.

According to life-cycle theory, younger and older persons tend to have less savings, while middle-aged persons tend to have higher savings (Deaton and Paxson 1993). The trend towards an ageing society since 1993 could have an adverse effect on household savings. Moreover, precautionary demand is an important determinant of household saving behaviour. The enforcement of National Health Insurance (NHI) plan in 1995 has reduced the uncertainty faced by households (Chou et al. 2003; Kuan and Chen 2013)). The reduction in the precautionary demand for savings has led to a decline in household saving. The housing savings rate is expected to decline in the future.

Conclusions

In response to sluggish economic growth, Taiwan's central bank has lowered interest rates to stimulate economic growth. However, given that an easy monetary policy has tended to have very limited effects on boosting consumption and investment, enhancing domestic demand may probably be a more feasible way to resolve the issue of economic stagnation.

To boost the fragile economy, on 30 June 2016, Taiwan's Central Bank cut policy interest rates by 0.125% for the second time in three months to 1.375%, while the rate on accommodation with collateral dropped to 1.75% and the rate on accommodation without collateral declined to 3.625%. The monetary easing policy, however, is not a panacea and its effects are very limited in terms of spurring aggregate demand.

Public investment in infrastructure such as energy, transportation, communication, irrigation, and water resources is an input in aggregate production (Lucas 1988; Barro 1990), which will raise economic growth through reducing the cost of production and transportation and increasing productivity of input factors (Aschauer 1989; Krugman 1991).

Public investment in infrastructure is crucial to promoting economic growth (Warner 2014), The Taiwanese government launched a series of programmes to drive a new wave of economic transformation, such as the 10 Major Construction Projects in 1973, the 12 Development Projects in 1978, the 14 Major Infrastructure Projects in 1984, the Six-Year National Development Plan in 1991, the Statute for the Encouragement of Private Participation in Transportation Infrastructure Projects in 1994, the New 10 Projects in 2004 and the 12 i-Taiwan Projects in 2009.

To boost public investment, balance regional disparities and stimulate economic growth, in March 2017 the Executive Yuan proposed a Forward-looking Infrastructure Development

Programme worth NT$882.49 billion on infrastructure projects; around 85% of which will be spent on new projects and 15% on previously approved projects over the coming eight years (2017–2024). Due to government budget constraint, the Programme will be financed by issuing debt through a special budget.

Specifically, NT$424.133 billion will be allocated to railway transportation, NT$250.773 billion to water resources infrastructure, NT$24.315 billion to renewable energy, NT$46.069 billion to digital infrastructure and NT$137.2 billion to reduce developmental gaps between urban and rural regions.

Public investment is expected to play a leading role through a significant increase in investment of NT$1,777.73 billion by public and private companies. Real GDP is expected to increase by NT$975.9 billion and creating 40,000-50,000 jobs over the eight-year project period.

As the special budget of the Programme relies on issuing debt, government debt as a percentage of average GDP over the three previous years should not exceed the 40.6% statutory limit according to the Public Debt Act. Government debt also cannot exceed 15% of Taiwan's annual government expenditure.

On 5 July 2017, a special bill for the Forward-looking Infrastructure Development Programme was passed by the Legislative Yuan. The special bill divided the programme into two stages (2017–2020 and 2021–2014), with a NT$420 billion special budget for Stage one. After the implementation of the Programme in Stage one, the Executive Yuan needs to seek the approval of the Legislative Yuan for a special budget for Stage two.

A crucial determinant of the success of public investment is effective implementation. The effectiveness of the Forward-looking Programme remains to be seen as it is contingent on election promises made by candidates to woo voters. Most public investments in the Forward-looking Programme are long-term projects that take time to complete and are often expensive to maintain.

As the future holds many uncertainties, a long-term infrastructure project tends to have higher social costs than benefits. The debt-financed public investments in infrastructure could lead to slower economic growth, instability in financial markets and an increasingly heavy tax burden for future generations.

References

ACEMOGLU, D., S. NAIDU, P. RESTREPO, and J. A. ROBINSON. 2019. "Democracy Does Cause Growth." *Journal of Political Economy* 1270(1): 47–100.

ADAM, C., and D. BEVAN. 2005. "Fiscal Deficits and Growth in Developing Countries." *Journal of Public Economics* 89(4): 571–597.

ASCHAUER, D. A. 1989. "Is Public Expenditure Productive?" *Journal of Monetary Economics* 23(2): 177–200.

BARRO, R. J. 1990. "Government Spending in a Simple Model of Endogenous Growth." *Journal of Political Economy* 98(S5): 103–125.

CHOU, S. Y., J. T. LIU, and J. K. HAMMITT. 2003. "National Health Insurance and Precautionary Saving: Evidence from Taiwan." *Journal of Public Economics* 87(9-10): 1873–1894.

DEATON, A., and C. H. PAXSON. 1993. "Saving, Growth, and Aging in Taiwan." *NBER Working Paper* No. 4330, NBER.

FELDSTEIN, M. 2010. "Dealing with Long-Term Deficits." *American Economic Review* 106(5): 35–38.

GUPTA, S., E. LIU, and C. MULAS-GRANADOS. 2015. "Now or Later? The Political Economy of Public Investment in Democracies." *Working Paper*, WP/15/175, IMF.

HSUEH, L. M. 2000. "The Relationship between Housing Price, Tenure Choice, and Saving Behavior in Taiwan." *International Real Estate Review* 3(1): 11–33.

HUNG, L. C., and Y. T. HSIEH. 2016. "Political Business Cycle in Taiwan – Evidence from Central Government Expenditures." *International Journal of Public Administration* 39(4): 249–257.

KRUGMAN, P. 1991. "Increasing Returns and Economic Geography." *Journal of Political Economy* 99(3): 483–499.

KUAN, C. M., and C. L. CHEN. 2013. "Effects of National Health Insurance on Precautionary Saving: New Evidence from Taiwan." *Empirical Economics* 44(2): 921–943.

LAU, L. J. 2012. "The Long-Term Economic Growth of Taiwan." *Working Paper No. 13*, Institute of Global Economics and Finance, the Chinese University of Hong Kong.

LIN, K. S. 2011. "How Democratic Transitions Affect the Saving-Investment Correlation:

Evidence from Taiwan." *Thailand Econometrics Society* 3(3): 103–124.

LUCAS, R. E. 1988. "On the Mechanics of Economic Development." *Journal of Monetary Economics* 22: 3–24.

REINHART, C. M., and K. S. ROGOFF. 2010. "Growth in a Time of Debt." *American Economic Review* 100(2): 573–578.

WARNER, A. W. 2014. "Public Investment as an Engine of Growth." *IMF Working Paper*, WP/14/148, IMF.