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Democratisation and the Emergence of Class Conflicts Income Inequality in Thailand, 2001-2016

Thanasak Jenmana

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World Inequality Lab

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Abstract

This paper re-examines the dynamics of income inequality in Thailand between 2001 and 2016. The main motivation lies in the lack of information on the richest citizens in household surveys, which can lead to a significant underestimation of the inequality level and to an inaccurate representation of the historical trend. We combined household surveys, fiscal data, and national accounts to create a more consistent inequality series. Our results indicate that income inequality is much higher than what past surveys have suggested, specifically when looking at the reduction in inequality, which turns to be much more conservative. The top 10% income share went from 56% of national income in 2001 to 53% in 2016, and the bottom 50% share increased from 9% to 13%. The Gini coefficient decreased by 0.06, reaching 0.62 in 2016. The income of each generalised percentiles are also decomposed into labour and capital income, in which we observe the higher importance of capital income in the top 1% only. These observed dynamics can be put into perspective using recent political conflicts in Thailand, where a strong anti-democratic sentiment has risen within the middle and upper social classes. In line with recent works, we argue that the shifting economic power towards the bottom 50% led to the strong reaction from the middle class, who had benefited more economically during the second half of the 20th century. Using CSES data, it is briefly shown that there has been a rise of class cleavages in Thai politics from 2001 and on, reflecting these patterns.

JEL codes: D31, D63, O53

Keywords: Thailand, personal income tax, income inequality, growth, political economy, democratic transitions.

Contents

1 Introduction

This working paper presents the distribution of income in Thailand between 2001 and 2016. Using a more complete set of data, we are able to overcome the underrepresentation of the richest Thais which is typical of household surveys. Contrary to the literature, we find that Thai income inequality has not yet been decreasing, but has stabilised at a high level, comparable to the levels that are being observed in the most unequal societies in the likes of Russia, the United States, Brazil, and India. In 2016, the top 1 and 10 percent shares of national income are 20% and 53%, consecutively. Concomitantly, the bottom 50 percent holds around 13% of the 2016 national income.

At the same time, the country is undergoing a long episode of political instability. Since the 1932 Siamese revolution, which transitioned the country from absolute monarchy to democratic rule under 'constitutional monarchy', 12 military coups d'état were successful: six of them after 1970.[2] Yet Thailand was one of the fastest growing economies in Asia from the 1970s up until the Asian Financial Crisis despite having constant political conflicts and decades of non-democratic governments. As a result, the journey that the country took since the mid-20th century begs for investigations into the complex relations between economic development and its political features. How the dynamics of the political economy have heavily governed the conditions of inequality is unmistakeable, as seen through the stark dissimilarity not only simply between 'classes', but also in many dimensions of urban-rural differences today. To understand the evolution of Thai inequality, we must not divorce its links to the past and on-going political conflicts. In this work, we attempt to help clarify the debates around this topic by first providing a clearer picture on income distribution since the beginning of the 21^{st} century.

More specifically, the studies of Thai inequality and its historical trend is important for serveral main reasons.

1. Thailand has always been referred to as one of the most unequal countries in the Southeast Asia region, if not the world. Credit Suisse (2017) ranks Thailand as one of the most unequal countries in the world along with Russia and India in terms of wealth inequality, with the top 1% holding 56% of total wealth (Russia also at 56% and India at 45%).[3] Given the high correlation between income inequality and wealth inequality, it is expectable that income inequality in Thailand is potentially severe. The question of whether this is true, however, must rely on a transparent and harmonised methodology that allows proper cross-country comparisons. This work

[2] 7 others were attempted and failed. This put Thailand as the third country with the highest number of coup d'état after Chile and Haiti.

[3] Note that Credit Suisse estimations for most countries in the surveys involve interpolation of wealth inequality from income distribution, which may lead to some degree of inaccuracy. Using a more exhaustive set of data, the World Wealth and Income Database (WID) estimate the top 1% share in Russia to be lower at around 42.6% in 2015 (World Wealth & Income Database, 2017).

will employ the methodology that exploits a more complete set of data allowing us to begin to overcome source-specific issues such as the underrepresentation of the rich in survey data.

2. the level and trend of inequality has been unclear since the nineties. One might be surprised when told that inequality has been reducing, given the political climate in the past twelve years, and such is the conclusion of almost every recent work on Thai inequality. The problem is that, since the 1997 Asian Financial Crisis, the structure of the Thai political economy has changed significantly. Without rigorous methodology, the inequality estimates thereafter will remain open to scrutiny. It may be true that Thailand has been becoming more and more equal, or it may be the case that the country is still becoming more unequal but at a slower rate than that of the pre-crisis era.

   Most importantly, almost all but one exploratory study have exclusively utilised Household Socio-Economic Surveys (SES) in the estimation of the overall distribution of income. The trend derived solely on SES suggests that income inequality has been improving steadily since the early nineties, after having increased rapidly since the take-off stage in the seventies. This may reflect the short period consisting of pushes for democratisation and policies put forth by democratic governments around and after the 1997 Asian Financial Crisis. However, a recent study by Vanitcharearnthum (2017), making use of tax data in an attempt to overcome the issue of underrepresentation of top households, found that the downward trend may have stabilised and reverted after 2007. Which observation, then, is closer to reality? Today, the question remains unanswered, and the true nature of the recent dynamics of Thai inequality unexplored.

3. what is most striking, and is the main source of motivation of this work, is the recent political turmoil since around 2006 that still persists at the time of writing: transitions from civilian to military governments, bloody and bloodless street demonstrations, repeatedly-rewritten constitutions, the repression of underground democratic movement through various means, and the transition of the crown. The questions raised here are therefore of utter significance locally: not only as research contributions in the study of inequality, but also perhaps as a mean to clarify current political debates and catalyse constructive discourse on desirable public policies and political trajectories in Thailand. Very far from being the first of its kind, the most important questions raised in this work are: what are the main forces that are determining the level and the structure of income inequality that we observe in the recent years; and how has it evolved in a historical perspective?

Whichever direction the trend of inequality may be since the dawn of the 21st century, this work aims to shed new and clarifying light on the political climate and institutions at play in

the Thai economy today. This work will attempt to link the 2000-2016 income inequality series to the pre- and post-AFC changes in the Thai political economic structure.

2 The Context

This section aims to provide a rudimentary presentation of Thailand's economy and political institutions of major periods and their corresponding economic and political players. The purpose is not to analyse comprehensively the Thai political economy, as it would be a monumental task in itself. It is to provide a general backdrop, enough to understand the trend in Thai inequality and its relation to economic development.[4] Although still elementary, section 5 will further provide a small discussion on the Thai political economy and recent political conflicts in light of the distribution of income and growth produced herein.

What we know is that the Thai economy grew at an incredible rate between 1960s and 1990s, allowing it to enter the ranks of other fast-growing middle-income countries of the time — and that this ultimately came at the cost of higher economic inequality.[5] Figure 1 shows the national income, in total and per adult, and its growth rate from 1950 to 2016. From the 1950s up until before the 1997 Asian Financial Crisis (AFC), Thailand experienced a long period of high growth, at around 7.10% per year.[6] Prior to the AFC, the Thai economy also experienced a short period of setbacks between mid-1970s and the 1980s marked by the oil price shocks, the global recession of the 1980s — or the violent political events such as the infamous 'Thammasat University Massacre' on 6 October 1976, and the return of the military dominance in Thai politics. Nonetheless, the economy recovered quite well. Between 1986 up until 1996, the Thai economy continued to prosper with a growth rate of around 9.20%.

2.1 The Thai State from 1950 up to the 1997 Asian Financial Crisis

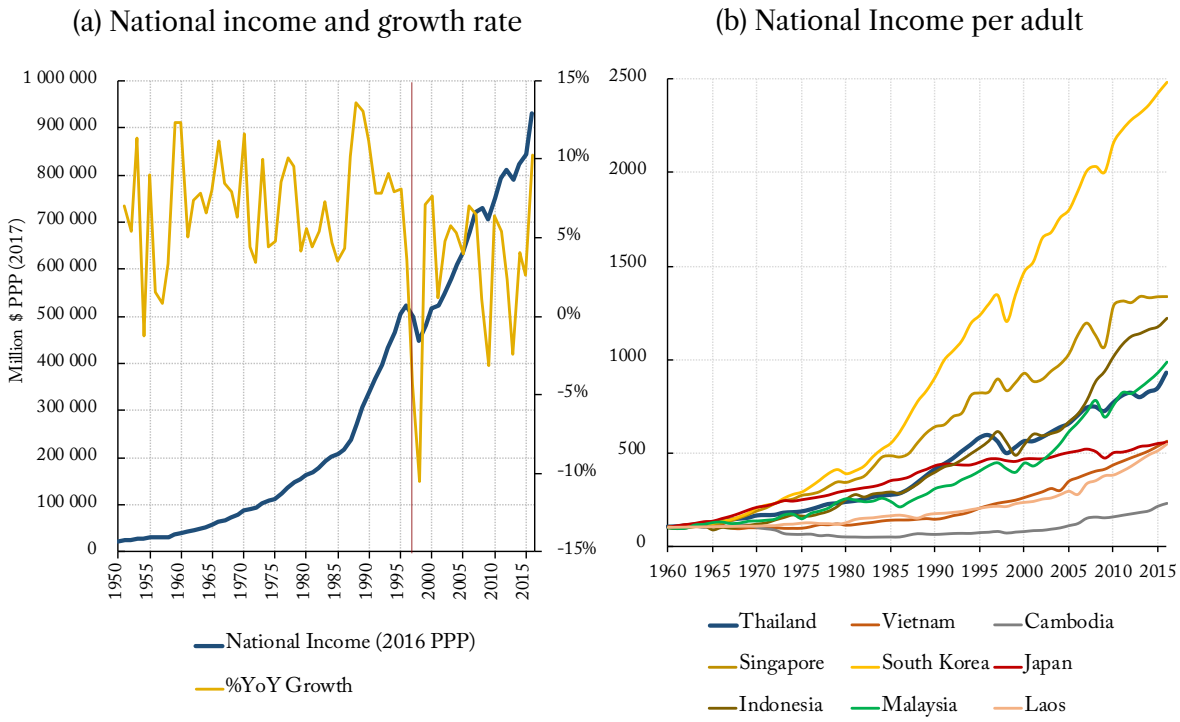
Siam had been under the system of absolute monarchy up until 1932, when French-educated civil servants and militarymen plotted and executed the Siamese Revolution that installed a new system of government under constitutional monarchy, ridding the monarch entirely of political power. Instead, it would be the military elites and top bureaucrats who held the positions of power, transitioning now and then by mostly bloodless coups d'état for the next five decades or so after the revolution.

[4] Please see Baker and Phongpaichit. (2014) for an excellent presentation of Thailand's contemporary history for a more advance and thorough analysis.

[5] At the time of writing, Thailand has the second largest economy in Southeast Asia, after Indonesia and it ranks fourth for GDP per capita, after Singapore, Brunei, and Malaysia. In terms of population, we rank fourth with around seventy million inhabitants (see figure 5): around 10.5% of total population in Southeast Asia.

[6] And the average growth was as high as 8% between 1960-1970 and 1981-1990.

Figure 1: Thailand's National Income, 1950-2016



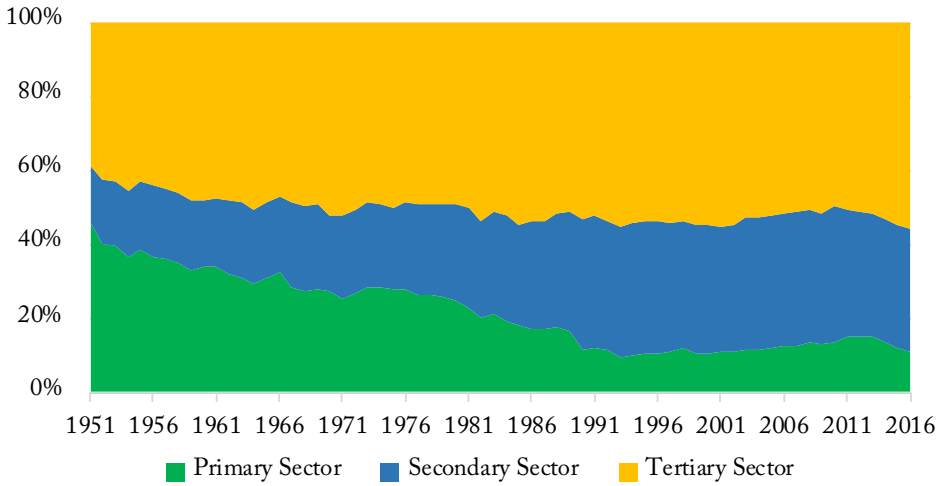
Source: WID.world (see the website for methodology)
Note: For the right-hand side graph, the level of national income per adult is set to 100 for all countries for 1960. The purpose of this is the direct visual comparison of the rate of growth across countries.

Nonetheless, the authoritarian governments between the 1960s up until the 1980s were successful in implementing macroeconomic policies to continuously fuel the economic growth. With the help of globalisation, US financial aid, a growing manufacturing industry, and post-war foreign direct investment, the rate of growth between the sixties up to the nineties was indeed remarkable. However, looking from historical perspective, a lot remains to be desired. Much of the prosperity was shared by a small share of the population: mostly the economic elites who engaged directly with the export industries and commercial banking. During the take-off period, the majority of the Thai working population remained in the agricultural fields (figure 3).

As such, one of the main goals for the Thai government should have been to consider the well-being and living standards of the majority that was still working in the fields. But it was not the case, and most of the attention was paid around Bangkok and the industries that fed it. The GDP share of the manufacturing sector surpasses the agricultural sector by the beginning of 80s, but the labour movement out of the agricultural sector is 'painfully' slow. Nidhiprabha (2004) noted that since capital inflows through foreign direct investment and financial aid from the US are spent almost entirely in the manufacturing sector, the capital-labour ratio and the marginal product of labour of the sector increased substantially — while the agricultural productivity remained stagnant and manufacturing wage suppressed.

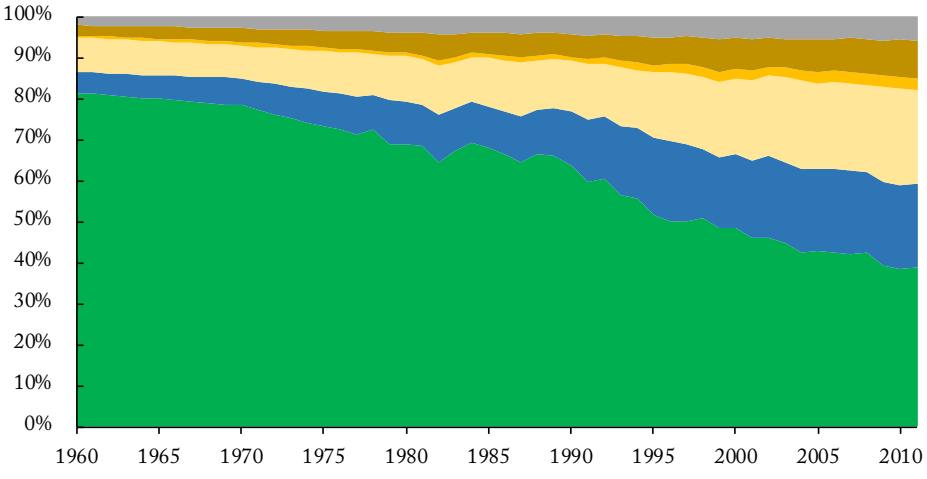
The economic growth was therefore mostly enjoyed by a small group of capital-owners

Figure 2: GDP by sector, 1951-2016



Source: author's own computation based on national account (NESDB).

Figure 3: Share of Employment by sector, 1960 - 2016



Source: GGDC 10-Sector Database. See Timmer, de Vries, and de Vries (2015).

engaged in the manufacturing and the banking sectors in Bangkok who saw a rapid increase in the return to their private capital. The skill-biased technological change also became a cause to the worsening inequality. It was only around the mid-nineties that the employment share in agriculture declined to 50% of the total workforce, from 80% in the sixties. Combined with the fact that the government heavily taxed the production and exportation of primary products, the benefits were basically accrued outside of those belonging in the primary sector. This fundamentally reflects the extremely low bargaining power of the Thai agricultural workers and labourers. Adding insult to injury, agricultural workers suffered from the decline in the world agricultural price from 1975 onwards (Phongpaichit, 2016; Ikemoto & Uehara, 2000).

As a result, Thailand's economic growth has never been known to reduce inequality, although some part of it fell far enough down the social ladder to reduce the poverty rate since the sixties (figure F2). Due to these factors, there is a general consensus that inequality rose dramatically between the 70s and early 90s. The Gini coefficient —a simple statistical measure of distribution (in this case, income) —ranges from 0 (perfect equality) to 1 (perfect inequality). Figure 4 shows the Gini coefficient for income inequality of various sources between 1960-1994. The Thai Gini coefficient started to rise rapidly since 1975 from around 0.41 to as high as 0.54 in 1994.[7]

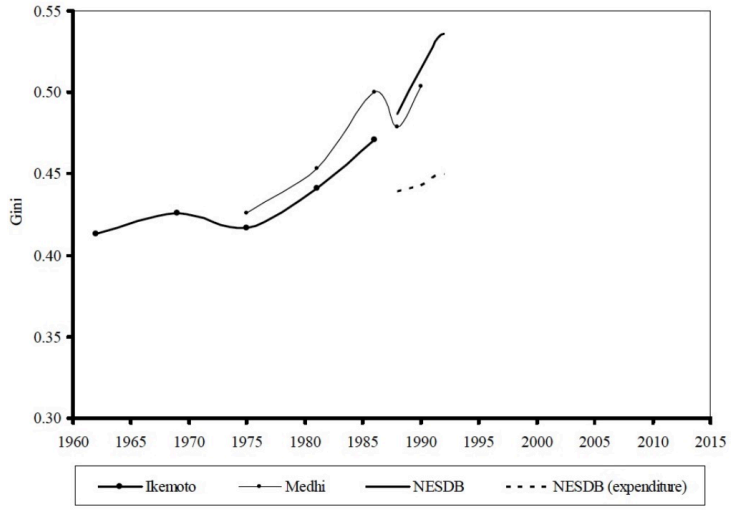
This reflects the variety of capitalism that Thailand had adopted and built its economic development model upon from the early 1950s. With long decades of military government who not only had strong personal ties with the economic elites, but also had partly owned commercial banks and key businesses themselves, the Thai state adopted policies that favoured capital owners while neglecting the rest of the population (Satitniramai, 2013).[8] Motonishi (2006) further provides the probable causes of such a deterioration of income inequality between 1975-1998, and it can indeed be mainly explained by the disparity between the agricultural and nonagricultural income.

Politically, the worrying voices of the poor were silenced; and forms of political participation and demonstration were prevented and suppressed by the government. Any movement by the communist party —possibly the only party having redistributive concerns at the time – was limited and would eventually be outcasted into hiding after the infamous Thammasat Massacre on 6 October 1976. In that context, the presence of the United States in the Thai development model cannot be understated. With the US's cold-war stance regarding international relations with developing countries, a large amount of economic aid and expertise were provided to many Asian emerging economies since the fifties – especially in Southeast Asia where there was widespread fear for communist

[7] Note that these estimates are calculated based on SES (Household Socio-Economic Surveys) which is notorious for the underrepresentation of the richest households. As a result, these estimates tend to underestimate the actual level of inequality. Sadly, due to data limitation, the author cannot attempt own's methodology to the periods before 2001 for the moment.

[8] Note that, at the time, more than 70 percent of the Thai working population were engaged in the primary sector (mostly agriculture).

Figure 4: Gini coefficient estimates of Thai income inequality, 1960-1994



Reprinted from Phongpaichit (2016). For 1981-1986, see Ikemoto and Uehara (2000): 1988-1994, NESDB (The National Economic and Social Development Board).

movements. This helped the government to further suppress dissenting voices. The issue space of the Thai political economy was entirely dominated by commercial bankers, power-grabbing military men, and technocrats.

Before becoming the determining force against democracy in recent decades, a significant part of the urban middle class that appeared in the 1950s actually had participated in the key political events against the military power of the 1970s and onwards. Nonetheless, this group of people enjoyed the highest rate of economic expansion as the country grew on average 12% yearly between 1976-1990 —period during which many military regimes ruled the country. It was this emerging middle class who responded to the tremendous demand for skilled workers created by the continuous expansionary fiscal and monetary policy adopted by both the government and the Bank of Thailand from 1978 until the crisis.

The rapid rise of inequality that we observe from the late seventies directly reflects the shifting politics. As Satitniramai (2002) argues, the 1978 constitution encouraged political parties to be small in size. This meant not only unstable coalitions to form the government, but also low accountability, short lifespan, and low efficiency and power in pushing and implementing policies. Furthermore, the central bank experienced sharp decline in its degree of monetary policy autonomy – especially on setting interest rates. Not only did the ministry of finance have to approve the policies of the Bank, governors and future governors of the Bank of Thailand were also drawn into the party politics in order to ensure their seats.

To conclude, domestic politics prior to the AFC revolved around the capitalists, military regimes, and technocrats, which explains why the redistribution issue was never a concern for the Thai state. The personal relationships between these three groups ensured that

the high economic growth was enjoyed disproportionately, but the crisis that was coming was about to change this fundamental political economic structure of Thailand.

2.2 Post-Crisis Era

A bloody protest against the non-democratic appointment of General Suchinda Krapray-oon marked the dawn of the nineties. The event symbolises the omnipresent sentiment that reforms were needed; the military-led model no longer had a legitimate place in Thai politics. The 1997 constitution, which has always been deemed as the most democratic, was the explicit representation of this sentiment.

Moreover, the 1997 Asian Financial Crisis marked a new era for Thailand. The poverty rate rose by almost 10%. The annual growth rate during the AFC was as low as -10.5% between 1996 and 1997, and the five-year average growth between 1996 and 2000 was -0.30%. At the epicentre of the crisis was Bangkok and its foul politics. The central bank and the technocrats that had served as the workhorse for macroeconomic planning fell prey to party politics as autonomy from the government decreased. Although it was the poorer majority who suffered most, the middle class suffered enough to be convinced that it was time to try something new in 1997. The public dissatisfaction that arose due to the AFC further fuelled the demand for political and economic reforms.

What followed was the famous era of Thaksin Shinawatra, the leader of the then Thai-Rak-Thai (TRT) party. Many have characterised his political narrative as 'populist', and in fact, it was the first time that the term appeared in the Thai public sphere. This assertion is not entire out of place. In the sense that populism means the mobilisation of the 'majority' against the 'corrupted ruling elites', much of his political stances can be categorised as such. However, as Phongpaichit and Baker (2008) have argued, Thaksin's narratives did not begin out this way. He presented himself and the party as the ones that would restore economic growth and the strength of Thai industries and businesses. It was only when he faced political scandals and charges that this 'populist' stance was used as the mean to seek political legitimacy; and he was successful. But not long after his reelection in 2005 , he was deposed by a coup, popularly supported by the middle class and the elites.

Amongst many of the 'populist' policies are the universal healthcare plan (dubbed the 30-baht plan), farmers' debt rescheduling, affordable social housings, and massive village microcredit schemes. The 30-baht universal healthcare plan, by itself, has been said to have significantly reduced poverty rates since its introduction in 2001. It benefitted poor households more heavily than richer households, and lifted many households from under the poverty line by reducing healthcare costs and allowing for better household consumption smoothing in events of financial hardship. With almost half of the Thai working population still working in the agricultural sector, the higher prices of major agricultural goods were maintained through the interventionist policies of Thaksin's government. And they are imitated from thereafter until today. As a result —whether by a

lucky chain of political circumstances or not —many of Thaksin's policies seemed to have actually slowed down the upward trend of inequality.

As a result, the existence of the Thai Rak Thai Party and its mobilisation of the poorer voters introduced a new level of political competition that the older and more established parties like the Democrat Party had never faced before. And despite the party being outlawed after the 2006 coup d'état that exiled Thaksin, it is impossible to reverse this new class mobilisation in Thai politics. In other words, the rise of Thaksin arrived by the political force of the poor that had been waiting for the moment to manifest in a formal political arena. Two phenomena happened after the Thaksin government came into power. Firstly, it is utterly difficult to undo the policies that Thaksin has introduced in his first and second terms. Secondly, every party is forced to have greater consideration for redistributive policies. With the fact that the 1997 constitution encouraged collusions for two-party system, winning over this massive constituency means winning the election.

However, this political dynamic seems to have led to the political crisis that the country is facing today. Grossly, the middle class and the elites that had enjoyed significant economic and political power between 1970-1990 realised that they had lost their voice entirely in Thai politics as Thaksin sought support from the poor. They turned to the military and the monarchy, who also happen to share disdain for Thai Rak Thai party. It is probably incontestable to say that this dynamic led to the installation of the current military government in 2014.[9] Therefore, although quite limited and circumstantial, democratisation processes since the nineties seem to have slowed down the rising income inequality. But it is not yet enough to reverse the trend and Thai income inequality remains one of the highest in the world.

2.2.1 Post-crisis trends of income inequality

How has inequality evolved during this period? All past research but two has used the Thai Socio-Economic Survey as the sole source of data to estimate income distribution in Thailand. Pootrakul (2013) suggests that the overall income inequality has indeed been improving since the nineties. However, when looked deeper into within-group gini coefficient, he found that income inequality has been worsening amongst households living in Bangkok and other urban areas, especially those whose household heads hold a bachelor degree or higher, meaning that there are more inequality amongst the white collars. More importantly, income inequality have been worsening amongst households whose activities are mainly in the primary sector (agriculture, mining, and fishery). It was suggested that this is due to the gaps between the income of agricultural wage earners and agricultural land-owners. He also showed that, since 1997, the average income levels between the 5th and the 60th percentile have significantly increased faster than the average, perhaps explaining why the overall income inequality had stabilised and began

[9] For a more detailed discussion on this, see Pitidol and Techasunthornwat (2017).

to decrease since then.

The main ground for doubt on the overall conclusion that income inequality have been decreasing lies upon the reliability of the household socioeconomic surveys. In comparison to what is available in other developing countries, the National Statistical Office (NSO)'s work in the planning and the collection of the household surveys have been fantastical. But, for estimating economy-wide inequality, household surveys are notoriously known for underrepresenting the rich.

Being the first of its kind, Phongpaichit et al. (2017) utilised a micro-level sample of the personal income tax data to look at the richest top 1% of the tax data sample, tax exemption and deduction schemes, household's behavioural responses, and the coverage of the PIT system in Thailand. With the average net fiscal income of around 2.5 million baht, almost 90% of the *net* fiscal income reported by the top 1% of the tax sample (consisted of 600 households) is from labour earnings, while the rest can be mostly attributed to capital income (7.5% from interests and dividends, 1.4% from rents). However, it is mentioned that this could be far from actually capturing the actual top 1% of the overall income distribution. This is likely that the importance of labour income is much less amongst the richest Thais, as we will discuss further in section 4.1.3.

As the authors have stated clearly, the limitation of this work lies in the unfortunate fact that the research team were only given a 0.3% sample of the 2013 micro-level tax data. The degree of the representativeness could be questioned if there are some withholding of information on the richest taxpayers. Additionally, Phongpaichit et al. (2017) have not attempted to estimate the economy-wide income inequality, extending beyond inequality amongst taxpayers. The goal of this work is, thus, to fill this gap by using fiscal data and national income in addition to the household surveys to estimate the overall income inequality amongst Thai adult population.

Vanitcharearnthum (2017) was the only other work that attempted to improve the estimates of income inequality by using fiscal data in the form of tax tabulations. However, the author relied only on tax tabulations to estimate the overall inequality. With the number of taxpayers making up of less than 25% of total working population, household surveys would be immensely informative of the lower end of the income distribution and further improve inequality estimates. Furthermore, the author discretely estimated the Pareto coefficient based on the fourteen brackets that are available in the tabulations. This could be significantly improved with the *generalised Pareto interpolation* methodology as developed in Blanchet, Fournier, and Piketty (2017), which will be further discussed in the next section. The estimates obtained by Vanitcharearnthum (2017) is questionable: even when using the working population as the unit of taxation, the top 1% owns 57% of total income in 2006, and 47% in 2009. It seems unlikely that the top 1% share in Thailand should be comparable to the income share of top 10% in the most unequal societies such as South Africa, India, Russia, and China. Thus, the use of tax tabulations in the studies of Thai inequality can definitely be upgraded. Lastly, the study found that income inequality

had worsened between 2008 and 2009, at a level a little higher than in 2004 —adding on to the suspicion against the estimates derived solely through household surveys.

3 Methodology

3.1 Data sources

3.1.1 Tabulated tax data

The Revenue Department of the Thai Ministry of Finance has published annual tax tabulations from 2001.[10] The tabulation discloses the number of taxpayers and assessable income and taxable income for each twenty brackets. Taxable income are computed from assessable income after taking into account exemptions, tax deductibles, and allowances. Tax units considered are either individuals or as married couples.

The Thai state is said to have first introduced the personal income taxation in 1932, the year of the Siamese revolution. However, the modern personal income taxation with progressive scheme was introduced in 1982. Table 9 presents the evolution of the PIT system over the past 37 years. The personal taxation scheme has been reducing in the degree of progressivity as higher tax rates are subjected to less and less people, while tax deductions are argued to benefit mostly the middle class and the upper class in the Thai economy.[11] This could be due to tax competition amongst South-east and East Asian nations to attract skill labourers, or due to the influence that the economic elites have on the government's macroeconomic policy decisions.

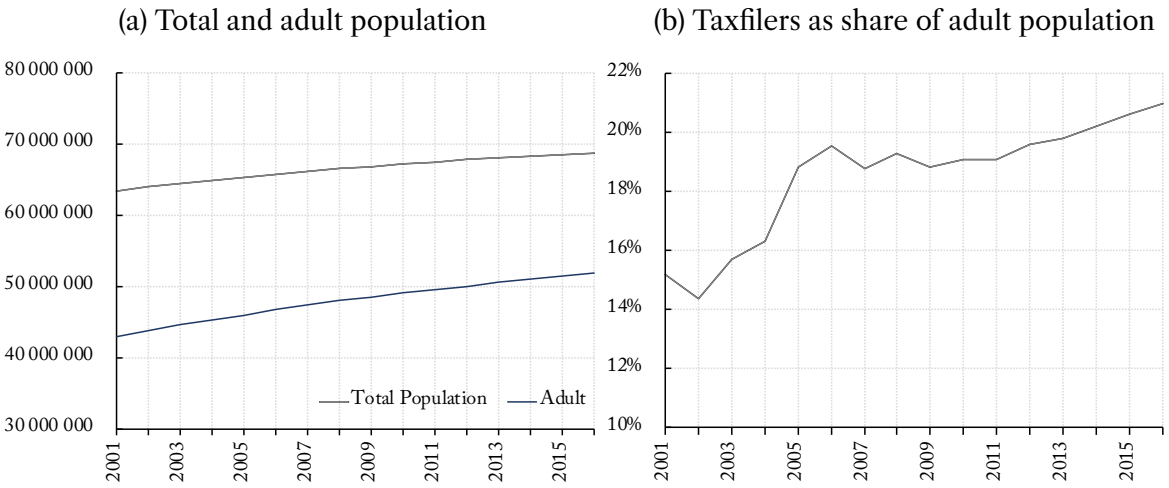
The coverage for the PIT files has been increasing steadily over the period of interest (figure 5). It has risen from 15% of total adult population in 2014 to close to 21% in 2015. Nonetheless, the PIT revenue accounts for just about 11% (12.7%) of gross (net) government revenue in 2017. Table 1 shows the share of taxfilers and reported income by bracket for 2014-2016.

The obtained tax tabulations are from 2001 up to 2016, and were provided in two versions in accordance with the filing forms. If one has only labour income, they are required to fill out only a simple form (PIT91), while those that have both labour and capital income are required to fill out the detailed PIT90 form. As such, the versions provided are; 1) tabulations of total income (both PIT90 and PIT91 combined), and 2) tabulations of those filing PIT91. The latter also provides the composition of labour income and different types of capital income by brackets. As a result, tax data will allow us not to only estimate the distribution of total income, but also by different sources, in future work.

[10] The tax tabulations are now accessible via an offline computer at the main library of the Revenue Department building.

[11] For a more detailed analysis of recent years, see Phongpaichit et al. (2017).

Figure 5: Thai population and share of taxfilers



Source: Author's calculation based on UN Population Statistics (World Population Prospects 2017) and tax tabulations.

Table 1: Simple tabulation of taxfilers and income by brackets, 2014-2016

Bracket	2014		2015		2016	
	% taxpayers	% reported income	% taxpayers	% reported income	% taxpayers	% reported income
1-150,000	27.64%	6.0%	26.2%	5.5%	25.3%	5.1%
150,001-300,000	32.90%	17.2%	32.6%	16.7%	31.7%	15.9%
300,001-500,000	18.50%	16.9%	19.4%	17.4%	20.3%	17.9%
500,001-1,000,000	14.25%	23.4%	14.8%	23.8%	15.5%	24.3%
1,000,001-2,000,000	4.88%	15.7%	5.0%	15.8%	5.2%	16.1%
2,000,001-4,000,000	1.24%	8.0%	1.3%	8.1%	1.3%	8.2%
4,000,000-8,000,000	0.43%	5.5%	0.4%	5.7%	0.5%	5.7%
8,000,000-20,000,000	0.14%	3.7%	0.1%	3.7%	0.1%	3.7%
>20,000,000	0.03%	3.6%	0.0%	3.3%	0.0%	3.2%

Source: Author's calculation based on tax tabulations. Brackets are in Thai bahts.

3.1.2 Household Socio-Economic Surveys

The Thai National Statistics Office (NSO) conduct the Socio-Economic Surveys (SES) almost annually within our years of interest. It was done biennially up until the year 2000, at which point the government has decided to conduct the SES annually due to the volatile nature of the Thai economy after the Asian Financial Crisis, apart from 2003 and 2005 when the NSO did not conduct the survey. The survey always includes household consumption modules, but income modules are conducted only every two years.[12] Within the time of interest, both income and consumption modules are available in the 2000, 2001, 2002, 2004, 2006, 2007, 2009, 2011, 2013, and 2015 SES.

For the years in which the SES does not include the income modules or is missing (2003 and 2005), section 3.4.1 will describe the methodology used to estimate the household

[12] As a result, the Thai SES are available in 1986, 1988, 1990, 1992, 1994, 1996, 1998, 2000, 2001, 2002, 2004, 2006 - 2016.

income in the surveys using the information available from the years that have both income and consumption modules.

Additionally, it is assumed in the estimation presented hereafter that the SES covers a representative portion of the households or individuals that are in the informal sector. The survey does not explicitly ask whether one is in a formal occupation or not, but ask if they are the owners or being employed in a household business. Therefore we then end up with the normal assumption that the survey does represent quite well the lower part of the income distribution. Nonetheless, if the SES has the issue of under-representing those in the informal sector, then the estimates produced in this section will likely be the 'optimistic' benchmark of the Thai case, since those that are employed in the informal sector are most likely to be at the bottom end of the distribution, but they are not accounted for.

3.1.3 National Account data and Other Macro Series

As for the last crucial source, the National Account data is drawn from those published by the office of the National Economic and Social Development Board (NESDB). The NESDB follows the United Nations's SNA (System of National Account) 1993 in terms of definition of sectors and variables, including the six standard accounts.[13] With the information on household income in the national account published from 1990 to 2016, the distribution of income estimated based on tax and survey data can be rescaled to match the national income and allow for the first construction of the Thai Distributional National Account (DINA). The methodology is discussed in section 3.6.

Figure 6b shows the gap between the national income to the total income calculated based on survey data or fiscal data (tax tabulations). Both dataset seems to be improving over time. When decomposed into fiscal income and non-fiscal income (see table 8), this seems to be mostly due to improved data collection on social security benefits in cash that were received by the household.

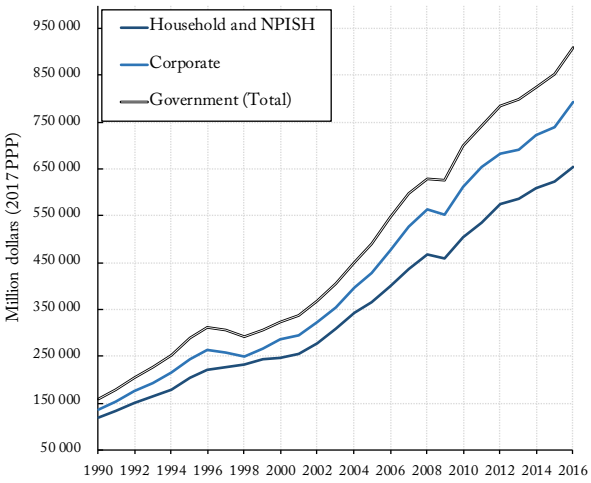
3.2 Income Concepts

The pre-tax fiscal income is the income that should be reported for the tax collection purposes. Although some types of capital income, such as income from capital gains in the stock market, are tax exempted in Thailand, all sources of income are reported and the Thai tax tabulations disclose precisely the total pre-tax fiscal income of each bracket along with its composition. As a result, it is not necessary to make any adjustment on the tax tabulations, the same fiscal income is calculated using the survey data for section 3.4.1.

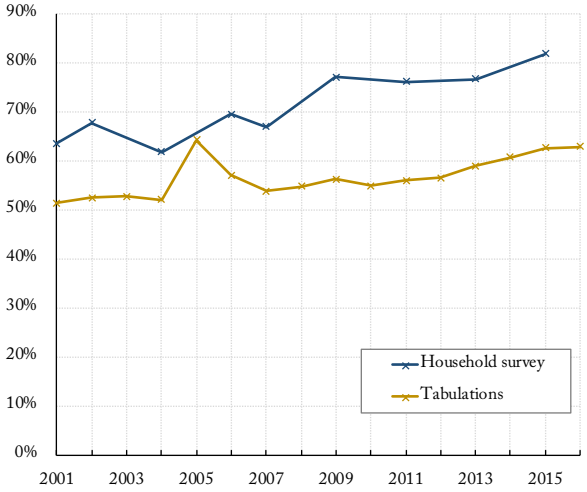
[13] Namely, i) domestic product; ii) national income; iii) domestic capital formation; iv) households and private non-profit institutions; v) general government; and vi) external transaction.

Figure 6: National income and coverage of survey and tax data

(a) Structure of National Income, 1990 - 2016



(b) Coverage of survey and tax data (as % of national income)



Source: Author's calculation based on surveys, tax data, and national accounts.

Pre-tax national income is different from the pre-tax fiscal income in the sense that it includes (and excludes) other types of income that are in fact attributed to the households but do not appear in the fiscal income. For example, in the SNA, imputed rents (the rental value of household's own residence) are considered in the total household income. More specifically;

Pre-tax national income
= Pre-tax fiscal income
− Households' actual social contribution (D61, S14)
+ Imputed rent of owner-occupiers
+ Investment income attributable to insurance policy holders (D441, S14)
+ Invesment income payable on pension entitlements (D442, S14)
+ Household's component of pre-tax undistributed corporate profits (B5n, S11+S12)
+ Government factor capital income

Section 3.6 will discuss the methodology used to upgrade pre-tax fiscal income distribution to the distribution of pre-tax national income.

3.3 Estimating income distribution from tax data

Before any interpolation was taken, adjustments were made to the tax tabulations. As aforementioned, the number of taxpayers is much less than the adult population or the

working population (see figure 5). As a result, for each year it is assumed that the working population, estimated using the corresponding SES, is the hypothetical total number of people with fiscal income. On the missing income side, the fiscal income of the household from the national account is used as the income control to estimate the total fiscal income of the non-filers. More specifically, we subtract total income reported in the tax from the income control, and calculate the average over the non-filers. These individuals are added to the bottom brackets corresponding to the estimated average income of the non-filers — which are, in reality, tax-exempted.

Generalised interpolation technique, developed by Blanchet et al. (2017), is the main tool used in this work to estimate the distribution of equal-split adult income from the personal income tax tabulations (and also the survey data). This generalised interpolation method is not restricted by parametric approximations, allowing for the recovery of income distributions with more flexibility. 127 generalised percentiles are estimated; from $p0p1$-$p99p100$, in which the top percentile is divided further into ten deciles ($p99.0p99.1$-$p99.9p100$) which is then divided even further again until the very top 0.0001%.

3.4 Estimating income distribution from survey data

3.4.1 Imputing pre-tax income from household expenditure

The National Statistics Office (NSO) does not publish household income information for the year 2008, 2010, 2012, and 2014, and 2016, and the survey is simply not available in 2003 and 2005. As a result, for the years that only household consumption information is available, we can construct the distribution of consumption, and impute income based on the income-consumption ratios from the years that both the information on income and consumption are present. This is done in a very similar fashion to Chancel and Piketty (2017), since the methodology employed there allows us to check for the robustness of each scenario's robustness.

Firstly, for the years that income information is available, we calculate the average income, y_p, and consumption, c_p, of each generalised percentile — and the ratio taken is $\alpha_p = y_p/c_p$ (see figure A1 and figure A2). Secondly, for each year that we need to impute income from consumption, income-consumption ratios of the year after and the year before is averaged — that is, we now have

$$\tilde{\alpha}_{1p,t} = \frac{\alpha_{p,t-1} + \alpha_{p,t+1}}{2}$$

Three scenarios are defined:

$$\tilde{\alpha}_p = \begin{cases} \tilde{\alpha}_{1p} & (A1) \\ \tilde{\alpha}_{2p} = \max\{1; \tilde{\alpha}_p\} & (A2) \\ \tilde{\alpha}_{3p} = (\tilde{\alpha}_{1p} + \tilde{\alpha}_{2p})/2 & (A0) \end{cases}$$

In other words, the first scenario ($A1$) is using directly the averaged income-consumption ratios. The second scenario ($A2$) assumes that household have non-negative savings; income is always at least as high as consumption. The third scenario ($A0$) assumes that negative savings is possible, but it is not as extreme as the $A1$ case. Figure A3 shows these three scenarios for the year 2008 and 2016 estimations. Appendix A provides further the income-consumption ratios and some estimated income distributions based on each scenarios.

There will not be much differences between the estimated income based on the three strategy. Figure A2, as does figure A3, shows that the income-consumption ratios are almost always above one apart from very few percentile at the bottom (see table **??** for actual ratios for strategy A0-A2). Nonetheless, strategy A0 is chosen since the assumption of non-negative saving is unrealistic, and to account for some abnormal negative values in the first percentile.

For 2003 and 2005 where the SES is not available, the average income is extrapolated assuming a constant growth rate between the year before and the year after. Since these missing years are just one-year gaps, the average income of each generalised percentile are estimated by simply averaging the average income by each generalised percentiles of the years before and after.

Table 2: Income share by groups: interpolation from survey data

	Bottom 50%	Middle 40%	Top 10%	Top 1%	Top 0.1%	Top 0.01%	Top 0.001%
2001	11.43%	43.26%	45.30%	12.33%	2.49%	0.53%	0.13%
2002	14.37%	43.17%	42.47%	12.04%	3.67%	1.39%	0.59%
2004	15.73%	42.93%	41.34%	11.06%	2.46%	0.40%	0.06%
2006	15.06%	42.62%	42.32%	13.21%	4.25%	1.56%	0.62%
2007	16.07%	43.03%	40.90%	11.87%	3.84%	1.19%	0.36%
2009	16.64%	42.58%	40.78%	11.99%	3.97%	1.49%	0.58%
2011	17.55%	41.38%	41.07%	13.25%	4.92%	1.99%	0.82%
2013	18.27%	42.73%	38.99%	12.00%	4.20%	1.36%	0.42%
2015	19.86%	43.58%	36.56%	10.39%	3.45%	1.26%	0.49%

Source: Author's own calculation based on household surveys.

Table 2 shows the income share of different group based on the interpolation of only the survey data.

3.5 Combining tax and survey distribution of fiscal income

Figure B2 shows the 2001 and 2015 comparison between the income distributions estimated from tax and survey data. Based on the assumption that the tax data captures more accurately than the survey data the income of the top of the income distribution, we can notice that although the survey data seems to be capturing better the income of the richest individuals in 2015 compared to 2001, there are still significant differences between the estimated average income of those higher than the 90th percentile. For all years of concern, this gap between the estimated average income of each percentile using tax and survey data is ignorable until the top 10% (see figure B1 for the ratios for all years); for the very top of the distribution, the average income estimate using tax data can be as high as 10-25 times that of the survey data.

To merge the interpolated distributions from these two sources, the standard assumption is applied; i) the survey data is reliable from the bottom of the distribution up to a certain threshold, p_1; ii) and the tax data is reliable from the top of the distribution down to a certain threshold, p_2. In a similar fashion to the methodology used in Chancel and Piketty (2017), three variations of p_1 is used to check for the robustness of the estimates in the end:

$$p_1 = \begin{cases} p90 & (B1) \\ p85 & (B2) \\ p80 & (B3) \end{cases}$$

These choices are based on the fact that the income ratio estimated using tax and survey data starts to rise over one around the 90th percentile or a little lower. As for the choice of p_2, it is the share of population estimated from the tax data that falls under the first taxable bracket or under; table 3 shows the chosen values for each year. As such, for 2014 to 2016, the choice of p_2 is exactly the p_1 threshold under scenario B1, meaning that the combination of tax and survey data in these cases are simply the rescaling of the average income of each percentile from the survey distribution to the tax distribution beyond p90. Otherwise, when there is a gap between p_1 and p_2, another three scenarios are implemented to join the two distributions; a linear rise (C1), a convex rise (C2), or a concave rise (C3).

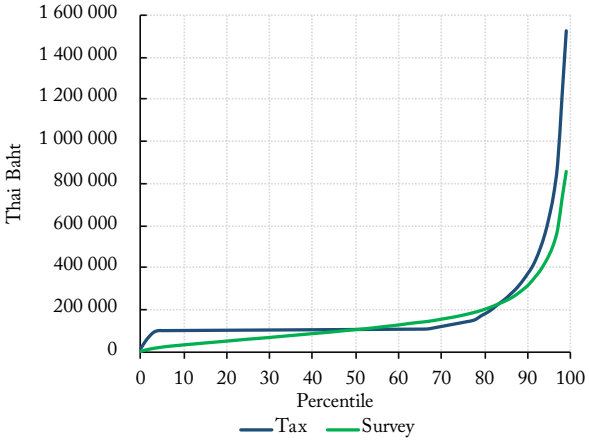
Table 3: Choice of p_2

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
p_2	97	97	96	96	95	94	94	93	93	93	92	91	91	90	90	90

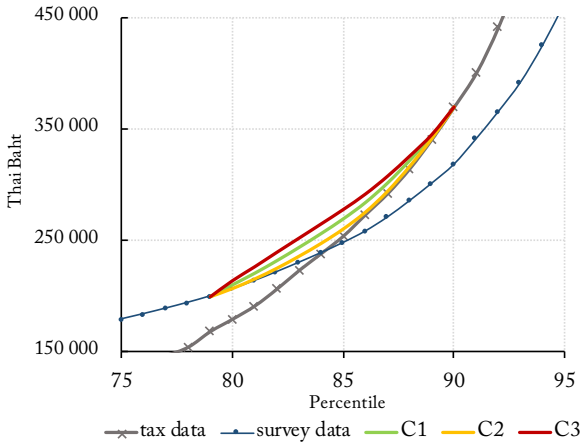
Figure 7 illustrates these three scenarios for 2016 based on strategy A0 and B3 ($p_1 = 80$). Due to the shape of the curves that are generally convex, strategy C2 (convex rise) is

Figure 7: Scenarios for joining the 2015 survey and tax data ($p_1 = 80$; $p_2 = 90$)

(a) Income distribution from tax and survey data



(b) Merging scenarios



Source: Author's own calculation based on household surveys, tax tabulations, and national account.

chosen as the benchmark for the final series.[14] As income of the top households are reweighed upward, inequality series estimated using the combination of these two sources will definitely be higher than what is observed using survey data alone. This is also the case of most developing countries such as India or China.[15]

3.6 Reconciling with the national account: the national income series

Although we have significantly corrected the survey distribution using tax data for the underrepresentation issue, other tax-exempted capital income must be accounted for in order to reach the full picture of how national income is distributed. The tax tabulation only covers certain types of capital income, while the report of others — such as income from interests an dividends of some sources, inheritance and gift money, or income from sales of inherited land — are optional (due to tax-exemption). Additionally, imputed rents, household components of the undistributed corporate profits, and so on, are crucial information on the behaviour of individuals or households in choosing between accumulating wealth as retained earnings in the corporate sector or as other type of capital. This is highly relevant in the case of Thailand, as it has been shown that richer households have strong reaction to the shifts in tax incentives. Phongpaichit et al. (2017) went so far as concluding that *'these reductions [deductible expenditures, allowance, and exemptions] make the system inequitable'* (p. IX). The extent to which taxpayers of different income levels have responded to these incentives have been quite difficult to assessed, and the upgrade to total pre-tax national income will help us have a clearer picture of how it has evolved in the past 16 years.

[14] The robustness of the estimates based on the 27 scenarios is illustrated in figure C1 of the appendix.
[15] See Chancel and Piketty (2017) and Piketty, Yang, and Zucman (2017).

As a result, the national income series is generally preferred over the fiscal income series, as they better capture the 'true' underlying dynamics of income inequality. It is therefore necessary that we move on from the distribution of total pre-tax fiscal income to total pre-tax post-transfer national income, and factor back in certain types of income that were not included. As shown in section 3.2, we must now introduce imputed rent, household's component of pre-tax undistributed corporate profits, entitlements to social pension and insurance benefits, and government factor income.[16]

To distribute these non-fiscal capital income, it would be ideal to have wealth surveys and micro-level tax data at hand. However, as in the case of other studies on other development countries such as Piketty et al. (2017), these information are unavailable in Thailand. Firstly, the average levels of imputed rent by survey income percentile are imputed based on the information available in the household surveys. Thus, I assume in this work that the distribution of imputed rent is directly exportable to the corrected fiscal series, as similarly done in Morgan (2017). The averaged level of imputed rent is then added to the corrected fiscal income distribution by percentile.

As for the distribution of the remaining non-fiscal capital income, $y_{nf}(p)$, I assume that it follows the distribution of wealth based on the information available in the household surveys.[17] At the moment, the household surveys at hand has wealth modules in 2006, 2007, 2009, 2011, 2013, and 2015.[18] And in order to arrive at the full distribution of personal income, $y(p)$, I must assume some correlation between the distribution of the adjusted fiscal income, y_{fadj}, and the non-fiscal capital income y_{nf}. As in the case of the studies without access to the micro-level tax data, a Gumbel copula function is assumed with the benchmark Gumbel parameter (θ) of 3. Figure D1 shows the income shares corresponding to Gumbel Copula parameters of between 1-5.

The remaining step is to scale the full distribution of personal income to the national income by taking into account government factor capital income. This final upgrade has no impact on the inequality estimates as we assume that the income of the government is neither progressive or regressive. The purpose of this last step is to normalise the distribution series to the national income so that it allows for the production of economy-wide growth incidence curves and for standardised international comparison.

[16] See more detailed discussions on this in Alvaredo et al. (2016).

[17] The same generalised Pareto interpolation methodology is applied to wealth variable, which is the sum of the values of land not owned for dwelling and financial assets. However, this work will not provide the Thai wealth inequality series since it could still be improved significantly with the national account, rich lists and landownership data.

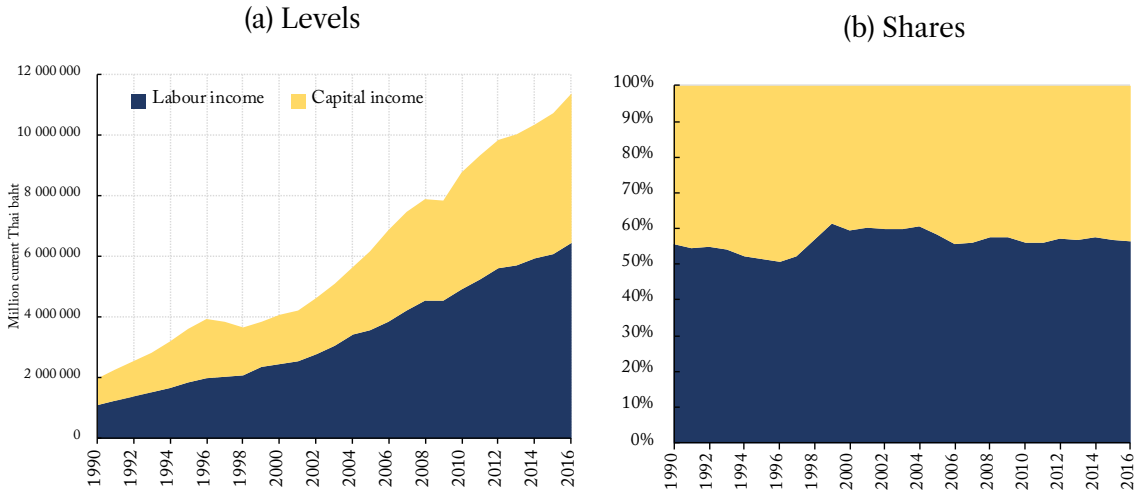
[18] For the distribution of y_{nf}, it is assumed that it follows the wealth distribution of the closest and latest year. (for instance, the distribution of non-fiscal capital income in 2008 follows the wealth distribution in 2009.

3.7 Getting the distribution of pre-tax national labour and capital income

For the decomposition of pre-tax national income into labour and capital income, we only considers the years in which we have both survey and tax data.[19] While we decompose the pre-tax national income, we must be aware of the re-ranking issue that would arise if we estimate the distribution of labour and capital income with no regards to the distribution of the ready-estimated fiscal and pre-tax national income. Fortunately for the case of Thailand, we could decompose the gross income reported in the tax tabulations into fiscal labour and capital income.

Based on the corrected shares of population in each of the tax brackets, we could roughly estimate the labour and capital income distribution of — at most — the top 10 percent of the Thai working population (based on the coverage of PIT tax files as discussed previously in section 3.3). As a result, we could estimate the distribution of wage income, self-employment income, and replacement income as these income categories are covered by both survey and tax data. The distribution of both labour and capital income in the surveys are interpolated based on the fiscal income rankings which were utilised in the estimation of the fiscal and pre-tax national income series. The purpose of this is to allow a decomposition of labour and capital income that is as accurate as possible — that is, with the least re-ranking of individuals in each generalised percentiles.

Figure 8: Pre-tax national income: labour and capital income



Note: overall, pre-tax labour income accounts for around 50-60 percent of pre-tax national income through out the 1990-2016 period, with a small decrease for a few years before the Asian Financial Crisis, when it then increased up 61% the following year.
Source: National Account (NESDB 2017).

For both survey and tax data, it is simply assumed that the labour income share accounts for 70% of the household mixed income accounts across the board (see figure 8 for the decomposition of pre-tax national income into national labour and capital income). Indeed, this is rather unrealistic since the dividend to each input can vary, not only across

[19] That is, we only decompose income of 2001, 2002, 2004, 2006, 2007, 2009, 2011, 2013, and 2015.

time, but also across the income distribution. Then, we proportionally scale the aggregates of the fiscal labour income distribution up to match the level reported in the national account — that is, employee compensation and labour share of self-employment income (which we also assume to be 70% of the mixed income for the purpose of consistency). The same method is applied to replacement income.

As for the distribution of national capital income, we again starts from what is available in the fiscal income definition. By interpolating the fiscal capital income from the tax tabulations, and merging them with that of the survey, we obtain the adjusted fiscal capital income series — which we then upgrade the rest of the non-fiscal capital income components. At the end, we arrive at the pre-tax labour and capital income, ranked by the national income rankings of each corresponding years.

4 Thai Inequality in the 21st Century

4.1 Severity and trend of income inequality

To describe the results, I will discuss both the distribution of pre-tax post-transfer fiscal income and the upgraded distribution of national income. The reason for this is that most studies on inequality in developing countries are still limited to fiscal income series due to data limitation. Hence, this allows for both international comparison of the same definition of income, and also allow us to compare rather easily the impact of introducing non-fiscal capital income into the picture.

4.1.1 Fiscal income series

For the distribution of pre-tax post-transfer fiscal income, the benchmark scenario chosen follows A0 (averaged income-consumption ratio), B3 ($p_1 = p80$), C2 (convex rise). Figure E1-E2 visualise the evolution of fiscal income inequality between 2001 and 2016 shown in table 4. We can see that the share going to the top 10% remains rather stable with only a small reduction. The share going to the top 10% was 56% in 2001, and 51% in 2016. Meanwhile, the share going to the bottom 50% have been increasing steadily since 2001; from only 9% in 2001 to around 16% in 2015, then a decline in 2016 to 15%. This is a good sign: it means that in 2001, the top 10% earned on average around 30.5 times more than the bottom 50%, while in 2016, the top 10% earned around 16.8 times more than the bottom 50%. However, the level of inequality is still definitely worrisome. As for the middle 40%, their income share has been quite stable —going from 35% in 2001 to 33% in 2003, and remained so until 2016 (34%).

The first thing to note here is that this is significantly higher than what we observe in the survey distribution (see table 2), as the survey share going to the top 10% is *only* 45% and 37% in 2001 and 2015 respectively. The second observation to be noted directly is that the

survey data shows a strong decline of the share going to the richest Thais. The larger gap between the corrected and non-corrected estimates suggests that the underrepresentation issue in the survey may have been getting worse in the past years. The corrections using fiscal data significantly change the trend that we observe for the richest 10%, and the share that is attributed to the top 1%, 0.1%, and 0.01% are significantly higher.

Table 4: Thai income inequality: combining fiscal and survey data

	Bottom 50%	Middle 40%	Top 10%	Top 1%	Top 0.1%	Top 0.01%	Top 0.001%
2001	9.16%	35.14%	55.70%	23.51%	9.43%	3.28%	1.09%
2002	11.33%	34.77%	53.91%	22.06%	8.70%	3.05%	0.97%
2003*	10.55%	33.36%	56.09%	23.91%	9.55%	3.37%	1.12%
2004	12.17%	33.78%	54.05%	23.05%	9.28%	3.34%	1.13%
2005*	12.12%	34.29%	53.59%	22.70%	9.08%	3.39%	1.27%
2006	12.07%	34.70%	53.22%	22.41%	8.91%	3.43%	1.39%
2007	12.80%	34.91%	52.29%	21.14%	8.21%	3.13%	1.20%
2008*	14.01%	33.08%	52.91%	21.65%	8.59%	3.37%	1.37%
2009	13.88%	35.84%	50.28%	19.99%	7.81%	3.05%	1.22%
2010*	14.43%	33.14%	52.43%	21.06%	8.50%	3.53%	1.59%
2011	14.63%	34.96%	50.41%	20.03%	8.07%	3.39%	1.57%
2012*	14.65%	33.60%	51.75%	19.86%	7.73%	2.99%	1.20%
2013	15.12%	36.02%	48.86%	18.40%	6.91%	2.60%	0.99%
2014*	15.59%	34.28%	50.13%	18.73%	6.88%	2.49%	0.89%
2015	16.27%	36.46%	47.27%	17.44%	6.26%	2.21%	0.78%
2016*	15.25%	33.63%	51.12%	18.69%	6.64%	2.34%	0.85%

Source: Author's own calculation based on household surveys, PIT tabulations, and national accounts.
Note: * means that the income module was not available in the survey for the corresponding year. The benchmark case, shown here, utilised scenario A0 (averaged ratios), B3 ($p_1 = p80$), and C2 (convex rise).

Table 5: Thresholds, averages, and fiscal income shares in 2015 Thailand

Income groups	Threshold		Average income		Income share
	Thai Baht	Dollars (2017 PPP)	Thai Baht	Dollars (2017 PPP)	
Full population	0.00	0.00	192,848.10	15,399.51	100%
Bottom 50%	0.00	0.00	62,735.00	5,009.58	16.27%
Middle 40%	109,106.70	8,712.50	175,789.00	14,037.29	36.46%
Top 10%	355,426.50	28,381.90	911,648.00	72,797.89	47.27%
incl. Top 1%	1,485,704.00	118,638.03	3,363,540.00	268,589.00	17.44%
Top 0.1%	5,621,015.00	448,855.31	12,071,326.00	963,932.44	6.26%
Top 0.01%	19,200,000.00	1,533,178.95	42,624,273.00	3,403,679.07	2.21%
Top 0.001%	68,200,000.00	5,445,979.40	150,777,915.00	12,040,079.45	0.78%

Source: Author's own calculation based on household surveys, PIT tabulations, and national accounts.
Note: * means that the income module was not available in the survey for the corresponding year. The benchmark case, shown here, utilised scenario A0 (averaged ratios), B3 ($p_1 = p80$), and C2 (convex rise).

Table 5 shows the thresholds and average fiscal income for different income groups after corrections using fiscal data for the year 2016. In order to join the ranks of the richest 10%, one must make at least around 355,000 baht annually or around 28,300 dollars (2017 PPP), almost twice higher than the average fiscal income per adult. The average income of the top 10% is 941,000 Baht (around 75,100 dollars). As for the top 1% and

top 0.1%, the threshold and the average income are at 1.5 million baht (120,000 dollars), and 5.6 million baht (450,000 dollars), respectively.

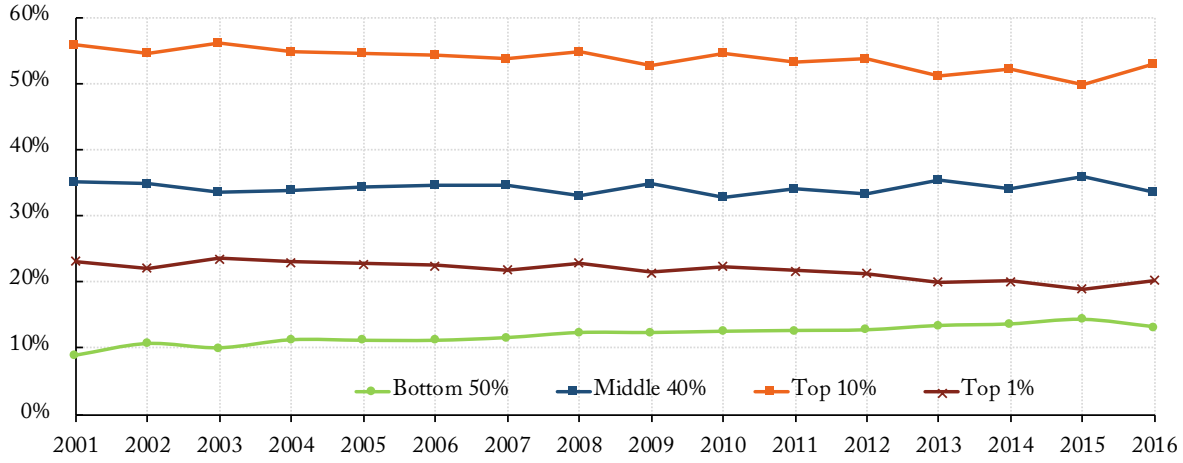
4.1.2 Pre-tax National income series

Moving on to the pre-tax national income series, figure 9 shows the national income share of each income group between 2001 and 2016. By combining household surveys, fiscal data, and national accounts, there are some slight upward adjustments to the income shares going to the richest groups. The share of national income going to the top 10% was 56% in 2001 and 53% in 2016, and the share going to the bottom 50% was 9% in 2001 and 13% in 2016. As we can see from figure 9, it is arguable that inequality has not changed dramatically since 2001, albeit there seems to be a slow increase in the income share of the bottom 50%. This means that the average income of the bottom 50% is 20 times lower than that of the top 10% in 2016, while in 2001, it was 31.4 times lower. At the same time, the share going to the middle 40% is quite stable with a slight reduction: 35% in 2001 and 34% in 2016.

If we compare our final estimates to the share observed in the survey data (see table 2) and the fiscal income series, two main observations from the fiscal income series still hold true — the final estimates suggest a level of inequality that is much worse than what is observed using solely household surveys. The final estimates of inequality also is worse that the fiscal income series. Secondly, the top 10% and top 1% share seems to be more stable than what the fiscal series showed. Figure E3 plots the share of top 10%, middle 40%, and bottom 50% from the fiscal and national income series for an easier comparison. Figure E4 explicitly shows the differences in percentage points between the two series. Interestingly, the upward adjustment of the top 10% and top 1% income share is larger in later years — suggesting that perhaps the richest households in Thailand are accruing higher and higher share of non-fiscal income. Nonetheless, the correction from the survey to the fiscal series is the most significant adjustment to the inequality series.

Table 6 shows the income thresholds, averages, and the income share of each income group in Thai Baht and dollar (2017 PPP). Firstly, in comparison to the same presentation for total fiscal income in table 5, the total average income, threshold levels, and average income of each group is significantly higher since we introduce non-fiscal capital income into consideration. Now, to belong in the top 10%, one would need at least 37,000 dollars — which is twice the average income of the entire adult population.

Figure 9: Income inequality in Thailand, 2001-2016: national income series

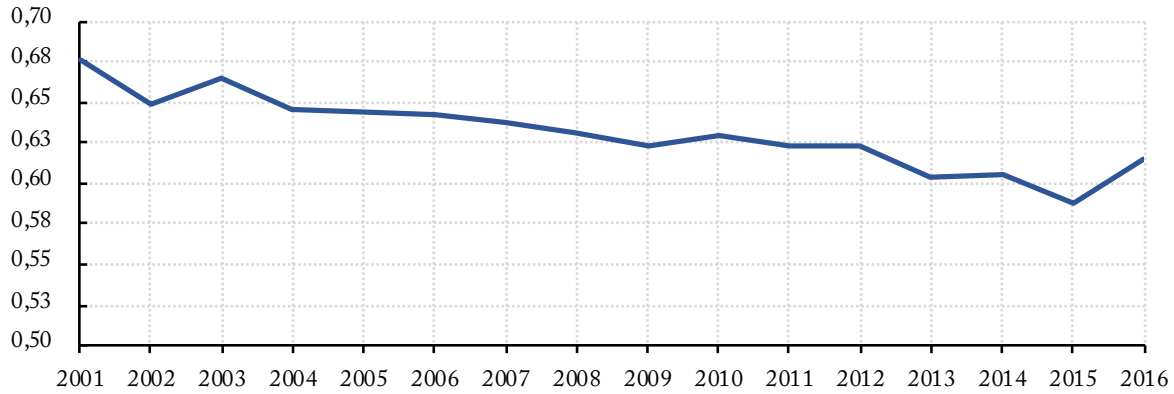


Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult.

Table 6: Thresholds, averages, and national income shares in Thailand, 2016

Income groups	Number of adults	Threshold		Average income		Income share
		2017 Thai Baht	2017 Dollar PPP	2017 Thai Baht	2017 Dollar PPP	
Full population	51,954,056	0.00	0.00	223,927.40	18,253.48	100%
Bottom 50%	25,977,028	0.00	0.00	59,291.00	4,833.12	13.24%
Middle 40%	20,781,622	103,356.67	8,425.14	188,486.00	15,364.47	33.67%
Top 10%	5,195,406	453,395.19	36,958.58	1,188,868.00	96,910.76	53.09%
incl. Top 1%	519,541	1,937,870.63	157,965.83	4,529,117.00	369,191.68	20.23%
Top 0.1%	51,954	7,316,593.50	596,413.26	17,117,683.00	1,395,350.60	7.64%
Top 0.01%	5,195	25,811,956.00	2,104,065.63	68,018,929.00	5,544,573.63	3.04%
Top 0.001%	520	104,152,360.00	8,489,995.90	291,948,609.00	23,798,236.48	1.30%

Figure 10: Gini coefficients for the distribution of national income, 2001-2016



Source: Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult.

The Gini coefficients, a simpler statistics for inequality, shows a slight decline from 0.68 to 0.63 between 2001 to 2016. There seems to be a decreasing trend between 2010 and 2015, then a sudden increase in the last year of observation. However, it is still too little to speculate on how inequality would evolve in Thailand after 2016. Of course, this is consistently higher than what is observed in the survey data throughout the entire period. For instance, the survey data suggests that the Gini coefficient in 2013 is 0.50 in 2013, but our national income series shows that it is around 0.62.

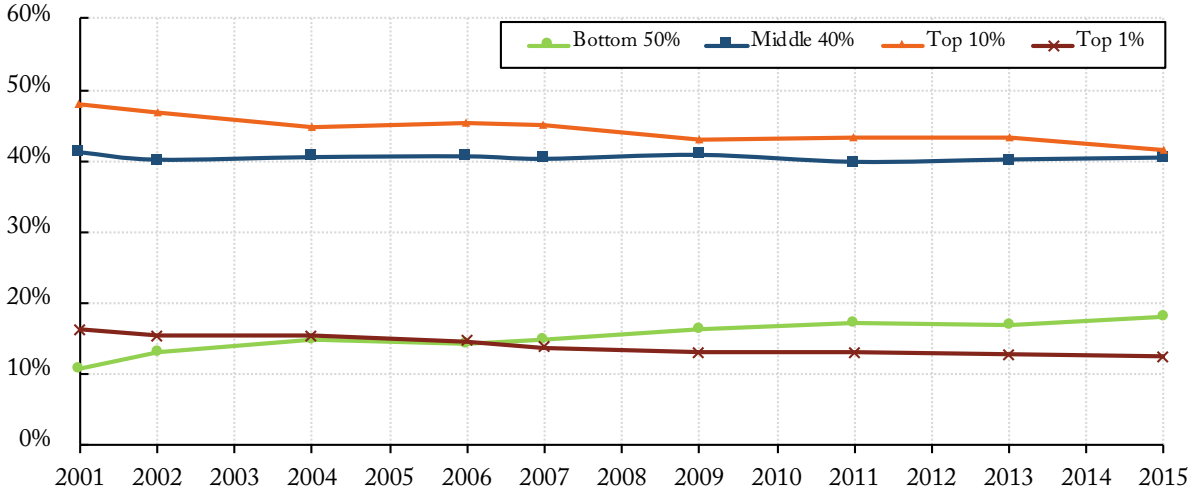
4.1.3 Labour and capital income inequaility, 2001-2016

Figure 11 and 12 shows the pre-tax labour income and pre-tax capital income, each ranked by national income ranking, between 2001 and 2015. Over the period, pre-tax labour income became more equally distributed — with the bottom 50% seeing its share of labour income increased from 11% in 2001 to 18% in 2015. This mostly came at the expense of the top 10%, who experienced a decrease of 6.34 percentage points in its labour income share, reaching 42% in 2015. The implies that the average income of the bottom 50% was 22.23 times lower than the top 10%'s average in 2001, and this is reduced by almost half in 2015, when it is 11.57 times lower.

On the flip side of the coin, the pre-tax capital income series shows that inequality in this regard has not change in the similar degree as that of the pre-tax labour income series. The bottom 50% owned around 5% of capital income in 2001, and this had slightly increased to 7% in 2015 — again, at the expense of the top 10% share. This dynamics reflects a very high degree of wealth inequality amongst the Thai income-earners.

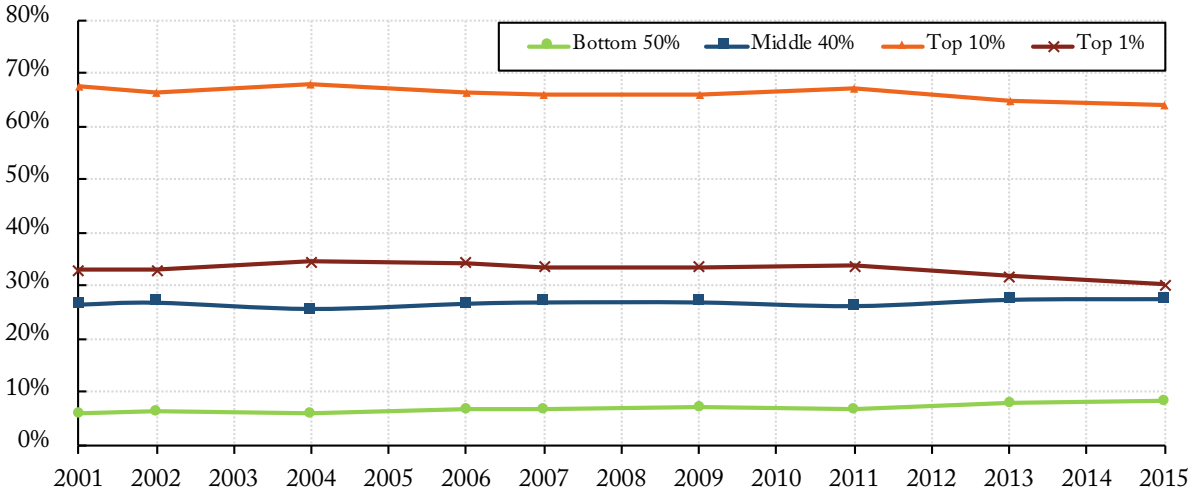
Figure 13 shows the proportion of labour income to the pre-tax income of each income group. As discuss earlier, pre-tax labour income represents around 57% of pre-tax national income in 2015 (see figure 8). Naturally, the importance of labour income

Figure 11: Income inequality in Thailand, 2001-2016: pre-tax labour income series



Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult.

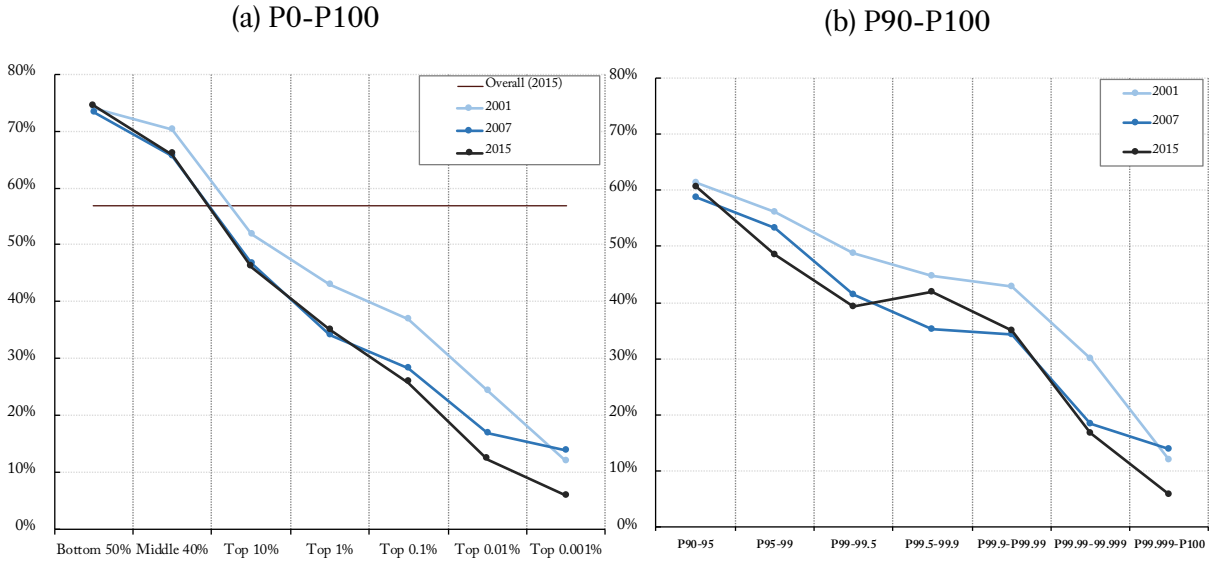
Figure 12: Income inequality in Thailand, 2001-2016: pre-tax capital income series



Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult.

decreases drastically as one moves up along the income distribution. Capital income becomes more important as one belongs in the top 1% in Thailand. And this patterns has become stronger since the beginning of the 21st century. Capital income exceeds labour income of the top 5% for the first time in 2015, as the share of labour income to total income decreased continuously for the top 10%. Meanwhile, the importance of labour income amongst the bottom 50% did not change — it accounted for 76% of income in 2001 and 2015.[20]

Figure 13: Labour income composition by groups in Thailand; 2001, 2007, 2015



Author's own calculation based on household surveys, tax tabulations, and national account. The pre-tax labour income shown here is ranked by *national income ranking*. The aggregate ratio shown corresponds to 2015 data. We also assumed a 70-30 labour-capital split of household mixed income throughout the distribution.

As a result, this shows a very interesting phenomenon within the Thai economic and political elites of the past 20 years. The income composition of the richest Thais has been increasingly dominated by income from capital. This perhaps represent a crucial structural or behavioural changes within the Thai economic elites, and to answer properly how this changes come to be and due to what forces we must look further into the distribution of wealth and capital by categories in the future.

4.2 Equitability of Income Growth in Thailand

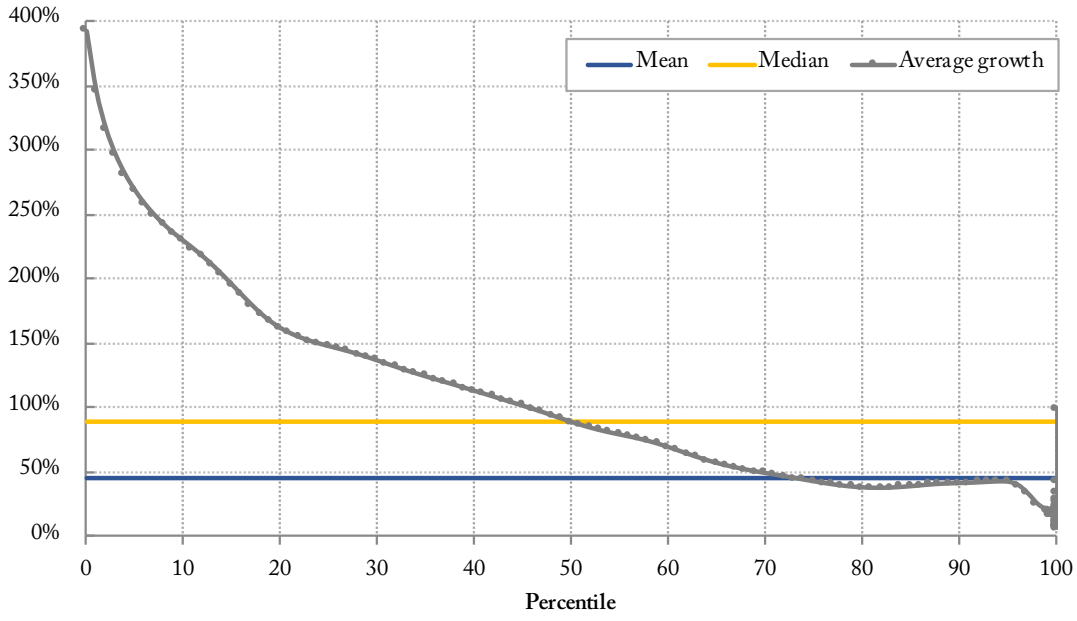
One of the most straightforward method to visualise the distribution of economic growth is through the growth incidence curve (GIC) of the national income. Between 2001 and 2015, the real growth of national income per Thai adults is around 122%, as it grew from 10,590 dollars to 23,480 dollars (2017 PPP). Figure 14 shows the 2001-2015 growth incidence curve for each income percentile, scaled by population. The bottom 70% have enjoyed an income growth that is faster than the average rate. The group that also enjoyed

[20] Labour income accounts for higher than 80% of total income for the bottom 20% throughout the period.

a very high rate of growth is at the absolute top —the top 0.0001% enjoyed around 100% for this period.

It is also useful to consider the *share of growth captured* by each income group, since although the bottom half may have enjoyed large real growth, this could be a smaller portion of the overall real growth since the average income of the group is much smaller than, for example, the top 10%, whose average income is 18.5 times higher than that of the bottom 50% as mentioned earlier. As a result, figure 15 presents the same GIC, but the horizontal axis is now scaled by the share of growth captured by each income group. More precisely, the distance between each income group shown is proportional to how much the corresponding income group have captured. For 2001 - 2016, of all the growth in the national income, the top 10% captured as much as 51%, while the bottom 50% captured only 16%. The counterfactual that would be deemed equitable is the top 10% capturing 10% of the growth, while the bottom half capture half of the total growth. As a result, although the real growth rate of the bottom 50% may have been impressive when compared to their own average level of income, much of the fruits of economic growth is still enjoyed extremely disproportionately by the richest 10%.

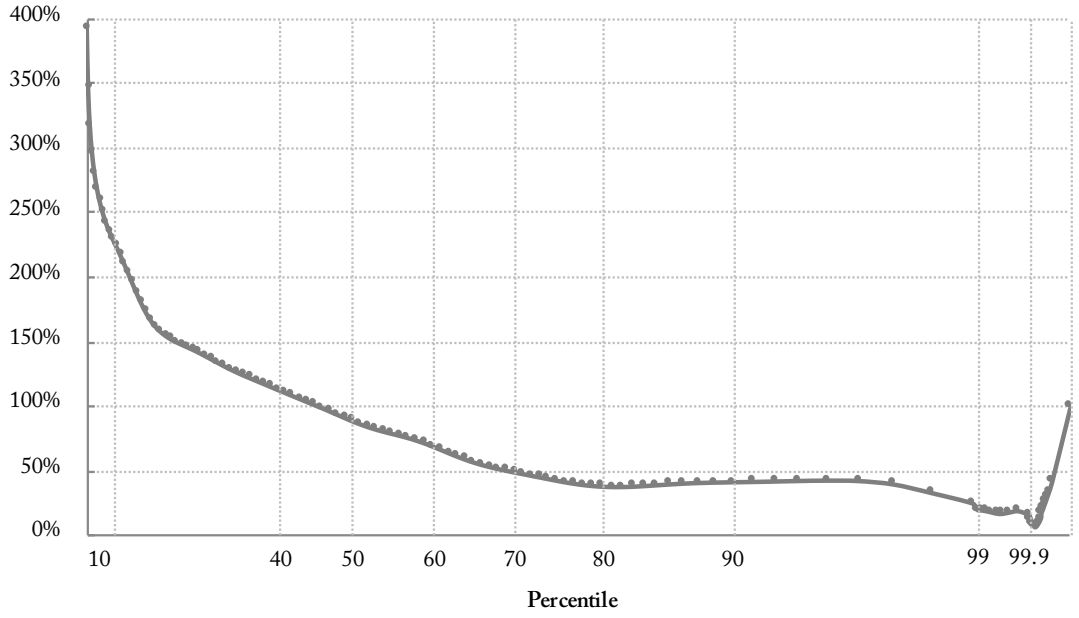
Figure 14: Total cumulated real growth by percentile, 2001-2015 — scaled by population



Source: Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult. Values are net of inflation.

Now, although 16 years is barely long enough to make any valuable sub-period analysis, table 7 shows the average income growth of income groups in 4 key sub-periods. This choice is based on the fact that in 2006 and 2011, there was a military coup d'état. The governments that were deposed by them were led by the parties that is known for their pro-poor policies. The majority of people that support this authoritarian force is known

Figure 15: Total cumulated real growth by percentile, 2001-2015 — scaled by share of growth captured



Source: Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult. Between 2001 and 2016, share of growth captured by the bottom 50% is 15.85%. The top 10%, the top 1%, and the top 0.1% captured 50.82%, 18.77%, and 7.76%, respectively. Values are net of inflation.

and accepted to be composed largely by the upper-middle class and the upper class. Due to this relation and the policies of the military government that are much less pro-redistribution in contrast to the civilian governments before them, it might be possible to observe some differences in terms of distributional patterns in the Thai economy based on each type of political system. Given the fact that the civilian governments employed many policies that are designed to intervene and raise agricultural prices, we might observe some differences across these four periods.

Table 7: Cumulated income growth by income groups and periods in Thailand

Income group	Total cumulated growth (2001-2015)	Share of growth captured (2001-2015)	Share of growth captured 2001-2006	2007-2011	2011-2014	2015-2016
Full population	45.98%	100.00%	100.00%	100.00%	100.00%	100.00%
Bottom 50%	135.06%	26.19%	19.85%	35.70%	44.17%	-11.18%
Middle 40%	49.37%	37.70%	32.81%	22.93%	35.62%	-15.49%
Top 10%	29.66%	36.11%	47.34%	41.38%	20.21%	126.67%
incl. Top 1%	19.81%	9.96%	19.92%	18.05%	-27.14%	47.64%
Top 0.1%	22.77%	4.22%	6.99%	4.22%	7.15%	17.97%
Top 0.01%	50.88%	3.02%	3.36%	2.96%	15.08%	7.77%
Top 0.001%	99.70%	1.86%	1.92%	5.21%	5.58%	4.10%

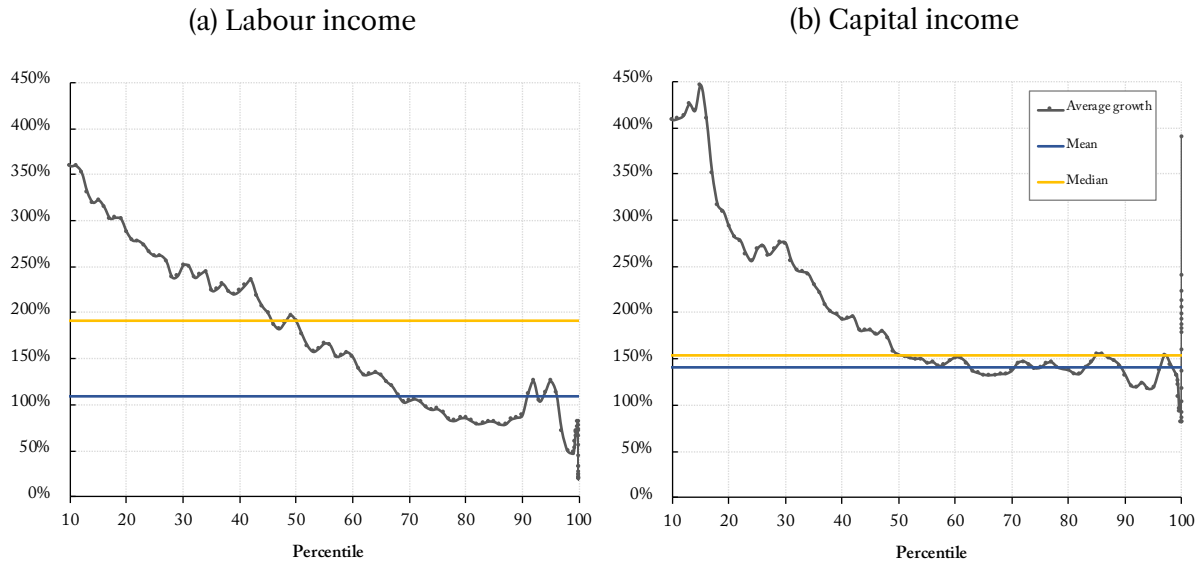
Source: Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult. Values are net of inflation.

Another thing to note is that, between 2015-2016, the bottom 90% captured a negative

share of total real growth —meaning that their average level of income reduced in real terms. Indeed, this might be an anomaly since it is based on only two years of observation whose national account figures are still being reviewed and the survey data is limited to consumption and not income. Although speculative, this corresponds directly to the local sentiment not long after the current military government took to power. There have been many discussions, both online and offline, that many people found Thailand's growth rate of around 4% or more to be surprising since they certainly do not 'feel' the growth. More scientifically, the National Statistics Office also published that, *based on household surveys*, the bottom 40% had seen their income reduced between 2015 and 2016 in real terms, and the NESDB have found a significant increase in the poverty rate, with an increase of around one million people under the poverty line.

The growth incidence curve (GIC) in figure 14 can be decomposed into the GIC of labour and capital income. Figure 16 shows that, for both types of income, the bottom 50% have been growing at a rate faster than the average growth rate between 2001 and 2015. What is striking, however, is the fact that the high cumulated real growth of the richest Thais have been mostly due to the growth in pre-tax capital income.

Figure 16: Total cumulated real growth of labour and capital income, 2001-2015



Source: Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is ranked based on the distribution of pre-tax national income. The unit of observation here is equal-split adult. Values are net of inflation.

5 Inequality and the recent political conflicts in Thailand

How can we explain the dynamics of income inequality observed? How does it relates to the political crises of the past decades? This small section aims to provide a discussion on the relationship between the political economic structure and the distribution of economic resources in Thailand.

Economic institutions and political institutions are intricately linked: therefore so are economic inequality and political inequality. With the overlapping of these political elites as economic elites, the authoritarian state was rarely concerned with redistributing income and wealth. And the adopted policies would be designed for the benefits of the ruling elites. This is the exact manifestation of the Thai political economy from the 1970s to the 1990s. The Asian Financial Crisis and the 1997 constitution have changed this relationship since. In order to understand the trend of inequality thereon, we must consider the new party politics, class mobilisation, and conflicts that were introduced.

It is difficult to define, in relations to the income distribution, which income groups exactly correspond to the middle class in Thai political discourse. In this preliminary work, I will follow the definition used in Pitidol and Techasunthornwat (2017) and Satitniramai, Mukdawijitra, and Pawakapan (2013). In this literature, the middle class is divided into two main groups —upper- and lower-middle class —based on the nature of their inter-generational trajectory and role in the past political conflicts. The upper-middle class, also dubbed as the 'established' middle, are the ones who had been enjoying the rapid growth between the 1970s and the 1990s. Meanwhile, the lower-middle class are the 'new' middle, having grown out of poverty only recently. Pitidol and Techasunthornwat (2017) and Satitniramai et al. (2013) agreed that the established middle are the *yellow shirts* —the group of people that came out and supported the 2006 and 2014 military coups. While the new middle are generally *red shirts* —the supporter of the 2001-2006 government led by Thaksin Shinnawatra, and 2011-2014 government led by Yingluck Shinnawatra.

Pitidol and Techasunthornwat (2017) provides the consumption thresholds and averages for these groups (see table 1 in Pitidol & Techasunthornwat, 2017). For the year 2014, comparing to our estimation, the new middle are the ones belonging between the 5th and the 55th percentile. For the established middle, the group corresponds to the 55th to the 88th percentile. This definitely makes our analysis easier, since we can argue that the majority of the middle 40% is indeed the established middle class who have been a major supporter of the military government. Meanwhile, we can also say that the bottom 50% are the pro-democracy majority. Thus, from this point forward, I will refer to Pitidol and Techasunthornwat (2017)'s new middle class as the bottom 50%, and the upper-middle class will be referred to as the actual middle 40% of the income distribution.

Since the corrected series have not been extended to periods prior to 2001 (due to data limitation), the growth of the middle 40% must be implied based on past work on these periods. Most directly, Pitidol and Techasunthornwat (2017) have shown that the size of the upper-middle class[21] have grown significantly between 1980-1988 under the government of General Prem Tinsulanonda at an annual rate of 11%, and 10% between 1992 up to the 1997 AFC. The average income of the upper-middle class and the rich grew at a much faster rate than the rest of the population since the 1980s until the late 1990s.

[21] Within the brackets that the authors had defined.

This is reflected by the rapidly rising Gini coefficient during the same period (Ikemoto & Uehara, 2000; Ikemoto & Limskul, 1987). As a result, the Thai middle class today enjoyed two decades of upward mobility.

5.1 The middle squeeze and the reaction against democracy

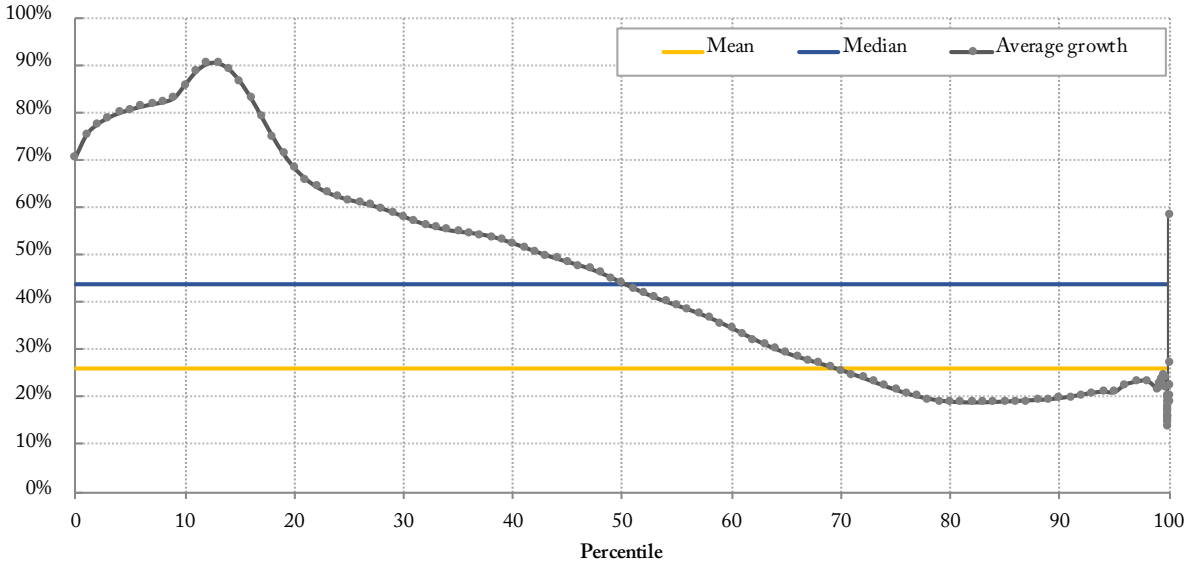
This pre-1997 backdrop is necessary to understand the political conflicts that arrived at the beginning of the 21st century. Using the national income series that we have produced in the previous section, figure 17 and 18 shows the growth incidence curve scaled by population and share of real growth captured between 2001 and 2006. Although the middle 40% could capture 37.70% of real growth between 2001 and 2006, this was the first time that the middle 40% grew slower than the bottom 50%. In real terms, the average person within bottom 50% and the top 10% grew by 58.15% and 58.32% respectively between 2001 and 2006. At the same time, the middle 40% —the established middle —grew around 24.4% in real terms. Nonetheless, the middle class still captures a twice larger share of the economic growth (see table 7 for details). This contrasts the findings in Pitidol and Techasunthornwat (2017) that, between 2001-2016, the middle class enjoyed higher growth than the bottom half.[22] Therefore, the estimates in this work suggests that the anti-democratic sentiment of the middle class may have formed rapidly, and partly due to the loss of their relative economic power —within the first two terms of Thaksin's government and before the 2006 coup d'état.

Between 2001-2006, the government was headed by the Thai Rak Thai party, with Thaksin Shinnawatra as the premier. As mentioned briefly in the introduction, Thaksin's 2001 campaign can hardly be defined as pro-poor or pro-redistribution, especially in comparison to his later platforms. The impacts of the AFC could still be seen, and his campaign promise was to restore the economic growth to the level before the crisis, and bring back investor's confidence in Thai industries (Mizuno & Phongpaichit, 2009). But due to his corruption accusations, he sought the support of the poor by introducing pro-poor narratives in order to legitimise his political power. 'Grass-root' policies such as one-million baht village funds, price insurance scheme on agricultural produces, and universal healthcare plan were adopted very early on in the first term. Government budget were significantly decentralised, also with the help of the 1997 constitution. This is the first time that a political party in power implement economy-wide redistributive policies in modern Thai history. Thus, rose the first substantial class-based political system.

As a result, the bottom 50% enjoyed a significant increase in their income, especially with higher prices of agricultural products (through the government's price interventions) and the healthcare scheme that allowed poor households to better smooth their consumption. With the middle class feeling left out, the first appearance of the term 'populism' in the

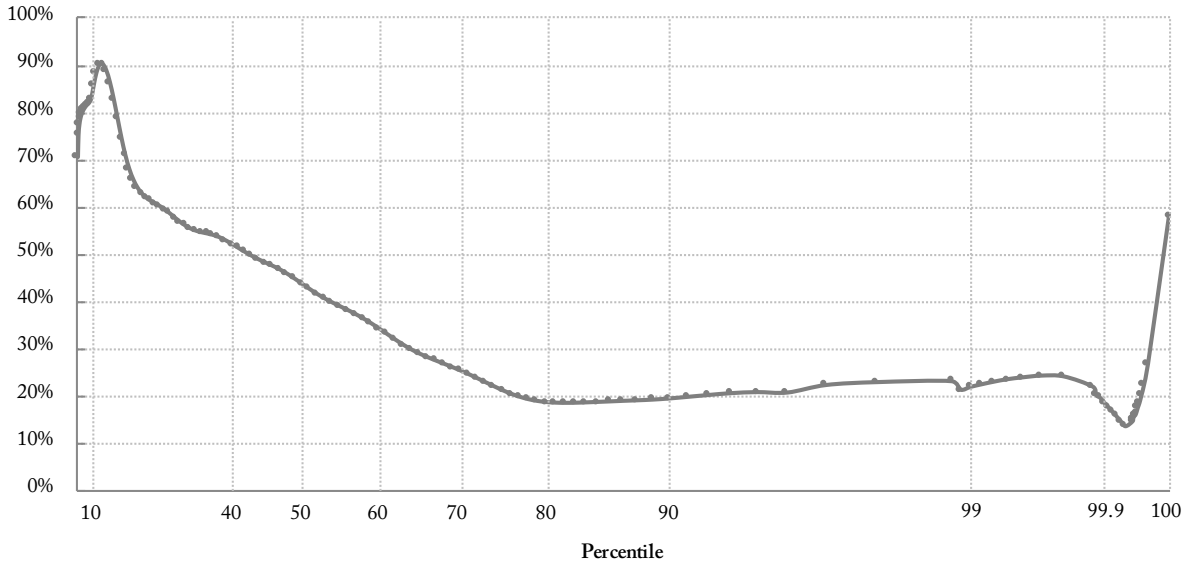
[22] Note that this is perhaps due to the fact that Pitidol and Techasunthornwat (2017) considers consumption instead of income.

Figure 17: Total cumulated real growth by percentile, 2001-2006 — scaled by population



Source: author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult. Values are net of inflation.

Figure 18: Total cumulated real growth by percentile, 2001-2006 — scaled by share of growth captured



Source: author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult. Between 2001 and 2006, share of growth captured by the bottom 50% is 15.55%. The top 10%, the top 1%, and the top 0.1% captured 49.45%, 21.22%, and 6.46%, respectively.

Thai political context appeared during this period. Carrying a negative connotation, it was used by the middle and upper class to criticise the policies that the government adopted during this time.

The 2006 coup d'état was successful due to a few key manifestations. *Firstly*, the rapid economic growth of the 1980s and 1990s allowed the middle class to hold on to a liberalistic belief that social mobility could be possible without government intervention, and that *effort* is the absolute determinant of success. As a result, the policies Thaksin's government implemented in order to redistribute income to the bottom 50% were deemed as unnecessary and in disagreement with the what the role of the state should be. When Thaksin faced corruption scandals, the motives behind these redistributive policies became entangled with the accusations of corruption —conditioning the meaning of 'populism' and its use in the public sphere. One amongst many arguments that the middle class still uses to criticise the Thaksin government is, for instance, that the poor's votes are misled by Thaksin's capitalist promises.

Secondly, the middle class expresses a strong pro-monarchy stance.[23] The popularity of Thaksin shifted Thai politics away from the traditional Thai political economy with the monarchy at the centre. This was the deciding factor that led the middle class to the *yellow shirts* street protests to depose of Thaksin from the government in 2006. When the Pheu Thai party, a reincarnation of Thai Rak Thai party, won the election in 2011 in a landslide with Yingluck Shinnawatra as the prime minister, the 2014 coup d'état that follows were built upon the same forces.

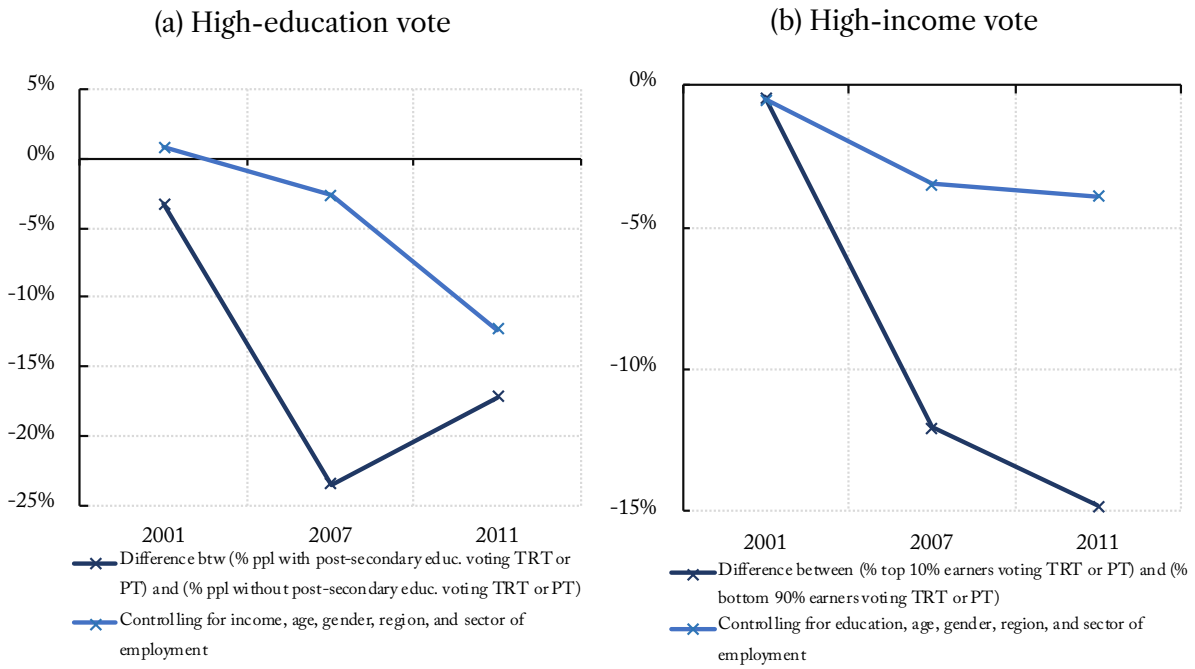
5.2 Political Polarisation and the Possibility of Class-based Politics

The three maps shown in figure F1 visualise the lower-house seats won during the 2001, 2005, and 2011 election. In 2001, it was the first time that the Thai Rak Thai, led by Thaksin Shinnawatra, enter a election campaign since founded in 1998. With the help of local NGOs and activists, the TRT successfully captured the rural vote in the Northern and the Northeastern region of the Thailand, where the average levels of income are the lowest. The Democrats, the long-standing royalist political party, becoming unpopular due to their involvement with the IMF after the crisis, the TRT almost won an absolute majority (Baker & Phongpaichit., 2014, p. 263).

As aforementioned, his pro-poor policies —designed with the aim to legitimise his political power, and shown as an attempt to create a cohesive market economy for post-crisis growth —were proven to be extremely popular. In 2005, the TRT won again —but this time they controlled 67% of the 500 lower-house seats. By this time, Thaksin had finally consolidated his political popularity throughout the country apart from the south which is

[23] Due to the exploratory scope of this section, the origins of such sentiments will not be discussed. For deeper discussions, see Pitidol and Techasunthornwat (2017); Satitniramai (2013); Phongpaichit and Baker (2015) and Mérieau (2018)

Figure 19: Social cleavages in Thailand



Source: author's own calculation based on the Comparative Study of Electoral Systems (CSES) data on Thailand.

the main constituency of the Democrat party.

If it was not clear in 2001, class-based political cleavages became clear in the Thai political sphere by the 2011 election. Figure 19 provide a simple visualisation of the changes in the voting behaviours by education and income. Note that there was also the first election since the 2006 coup d'état on December 2007. During this period, the TRT party is outlawed and its politicians were banned for five years. The vote share that is shown in the year 2007 were for the People's Power Party (PPP), which was a reorganisation of the TRT party under the political ban. As a result, we consider the TRT in 2001, PPP in 2007, and the Pheu Thai party in 2011 to be of the same party.

As for the estimates with controls, those with university education were as likely to vote for the TRT as those with secondary education or lower in 2001. But by 2011, they are 12.33 percentage point (pp) less likely to vote for the Pheu Thai party. The income cleavages also appeared but less dramatically so: the top 10% were as likely to vote for the TRT as the bottom 90% after controlling for age, gender, region, and sector of employment. But they were 3.5 pp and 3.9 pp less likely to vote for PPP and Pheu Thai party in 2007 and 2011 respectively. As a result, the fact that these three parties (with almost identical party members) won every election mentioned here suggests that there was an emergence of class-based politics after 2001 —at least in the dimension of income and education. This conclusion is not surprising, as it directly reflects the foundation of the political conflicts for the past 12 years.

6 Conclusions

Personal income tax data, which captures income levels of the richest earners in Thailand, is used to correct the distribution built solely from household surveys, which are known to be biased because of their lack of information on the rich. This correction yields the fiscal income series —meaning the income categories that are subjected to be assessed upon filing tax returns. Then, the national income series is constructed by adding non-fiscal income, so that the national income level can be represented.

By combining all the three sources, it is clear that inequality series relying solely on survey data are unreliable, as the underrepresentation or underreporting issues seem to have worsened for the past years. This supports the suspicions as to the reliability of such inequality estimates, and it is therefore advisable to rely on the estimates produced herein. Looking at both the fiscal income and national income series, we can observe a very modest improvement of inequality between 2001 and 2016. The share of national income owned by the bottom 50% was around 9% in 2001 and 13% in 2016, while the top 10% share was 56% and 53%.

Between 2001-2016, the growth incidence curve shows that the bottom 50% and the richest 0.001% are the only groups that grew faster than the median, while the middle class grew slower. However, when we look at the share of growth captured by each income groups, the top 10% captured 40%, while the bottom 50% took away around 26% of the real growth. If we assume that the middle 40% corresponds to the middle class in the Thai political discourse, then these findings support recent studies on Thai political economy, such as Pitidol and Techasunthornwat (2017); Sattayanurak (2014): the two most recent coups d'état and the anti-democratic narratives of the middle class have stemmed from the fact that the middle class is losing the economic power it used to enjoyed.

Inequality has been stabilised at least since 2001, with some improvement in the bottom 50% share. However, this stabilisation and its link to redistributive policies appears to be one of the main reasons for the political conflict that was substantialised by the 2006 coup d'état. The post-crisis democratic government paid a large part of its attention to the implementation of pro-poor policies. As the poor were mobilised, this led to the loss of economic and political power that the middle class once enjoyed in the two decades prior. As a result, the middle class was the main force that brought back the military at the centre of Thai politics: but since 2016, the relations structure amongst the political and economic elites could have changed once more.

It is yet unclear whether income inequality in Thailand will continue to stabilise, improve, or worsen in the future. It is worth noting that, with new round of data for 2018, we will be able to see the distribution of income under the current military regime in a much clearer picture. Nonetheless, it is worth mentioning that the future does not look bright with

regards to inequality. As mentioned in the last section, there has been a lot of discussions locally how the recent overall GDP growth rate seems to be impossible, since most people, including the middle class, felt that their economic wellbeing have been deteriorating. The NSO confirms so in recent statistics that based on the 2015-2016 household surveys, at least the bottom 40% saw a reduction in their income in real value.

6.1 Implications for Future Research

Regarding limitations, this work tried to make the most of the information available from the tax tabulations that were kindly provided by the Revenue Department, Ministry of Finance of Thailand. However, there are limitations which could be improved upon if the micro-level tax data is available. Firstly, to obtain the equal-split series, I assumed that the numbers of tax-filers that were reported can represent households directly, although taxpayers can both file tax returns independently or as a couple. If there is significant gender income inequality, and there is a significant share of taxpayers filing jointly as couples, the estimates provided here will underestimate the actual level of inequality. Secondly, due to the limitation in the tabulations, gross income have to be used since the tabulations of net income takes into account the deductions that should be excluded from the estimation of pre-tax post-transfer income distribution. As a result, this work assume by nature that individuals remain in the same brackets even when net capital income is considered, and that the income distribution of taxpayers remain roughly the same. We tried to get around this problem by making sure that the income variables constructed from the survey is as close as possible to that of the tabulations. These issues are easily addressed with the availability of micro-level tax data.

Furthermore, due to the limitation on the data available on wealth, the distribution of total non-fiscal income prior to 2006 relied on the wealth distribution that is observed in 2006. If there are significant variations in the actual distribution of wealth —and, therefore, of the non-fiscal income —then what is captured here prior to 2006 can be improved with more data availability.

Another possible extension is to look at spatial income inequality. The Revenue Department also provides tax tabulations by province.[24] In light of the post-crisis change in the structure of political and economic relations, the spatial analysis of income inequality would lend important insights into the differences between democratic and military governments.

At the mean time, this research can be a good gateway into the study of wealth inequality in Thailand. Information on wealth holding is both limited in terms of collection, but those that exist are also difficult to come by (for instance, landownership). However, this setback can be overcome through the *income capitalisation approach*. Data sources such as rich

[24]The administrative area of Thailand is divided into six regions and further into 76 provinces excluding two special administrative areas, Bangkok and Pattaya.

lists (e.g. Forbes millionaire list) and national account can allow for this methodology to be used. The first allows to correct further the potential underrepresentation of the wealthiest households, and the latter would allow us to estimate the average rate of return of different type of capital.[25]

[25] For examples of studies that have used this methodology, see Saez and Zucman (2016); Garbinti, Goupille-Lebret, and Piketty (2017)

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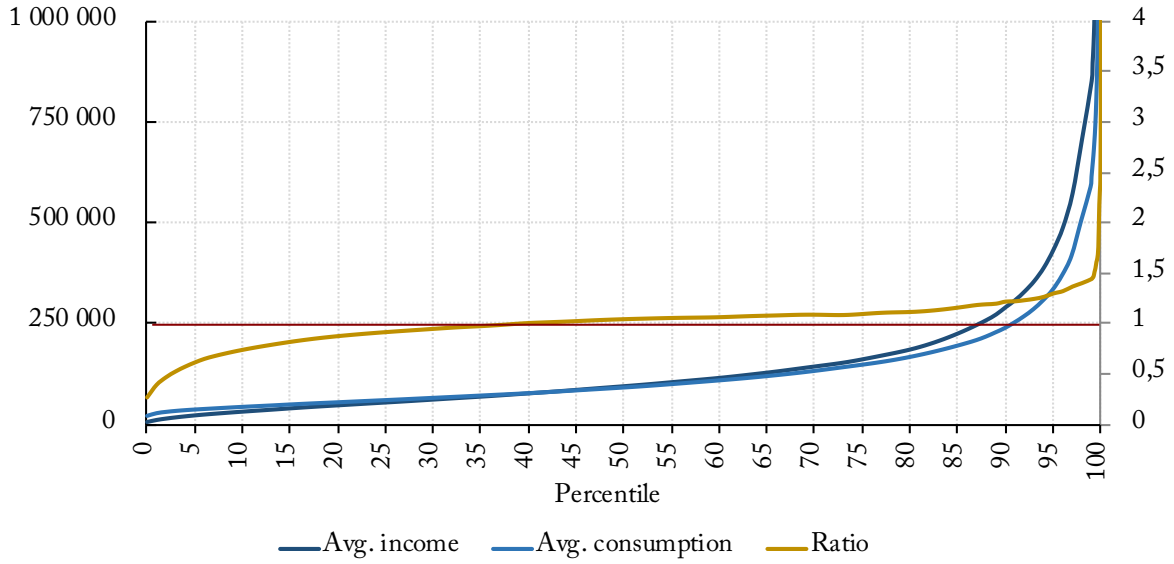
Appendix

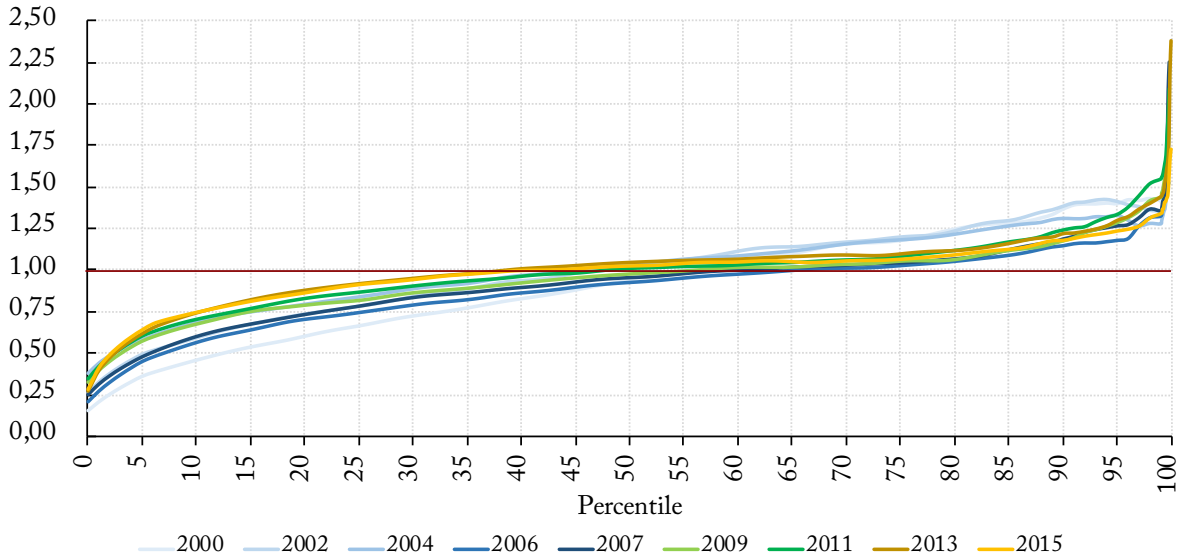
A Income imputations for survey data

Figure A1: Income and consumption by percentile from 2013 SES data



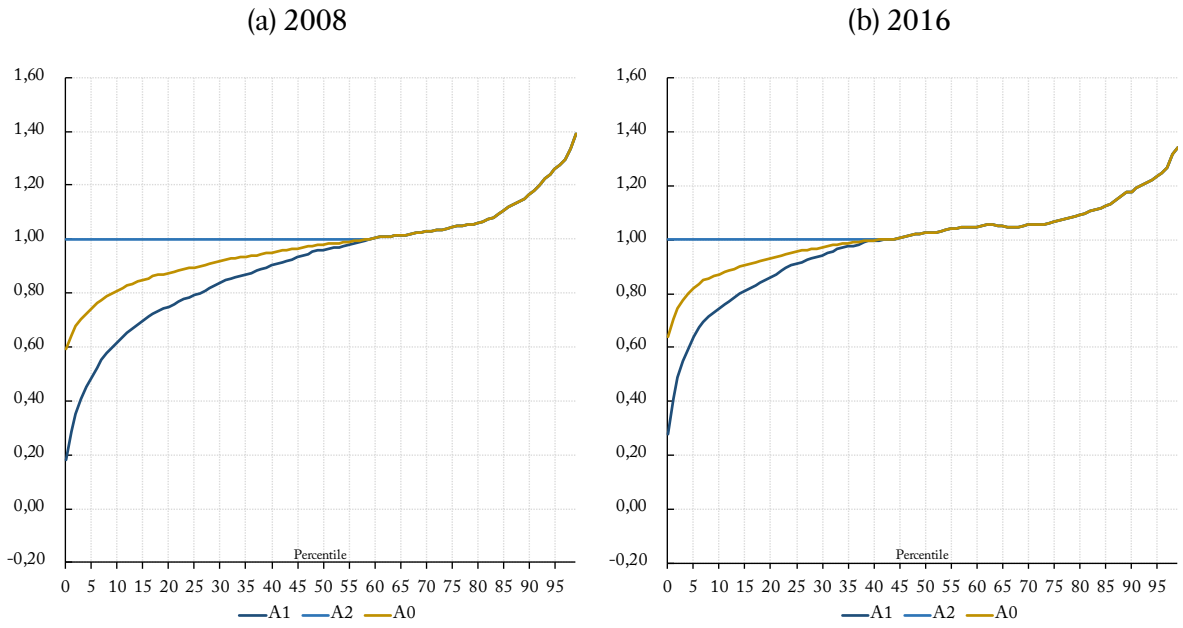
Source: author's own computation based on household surveys.

Figure A2: Income-consumption ratios from SES data



Source: author's own computation based on household surveys.

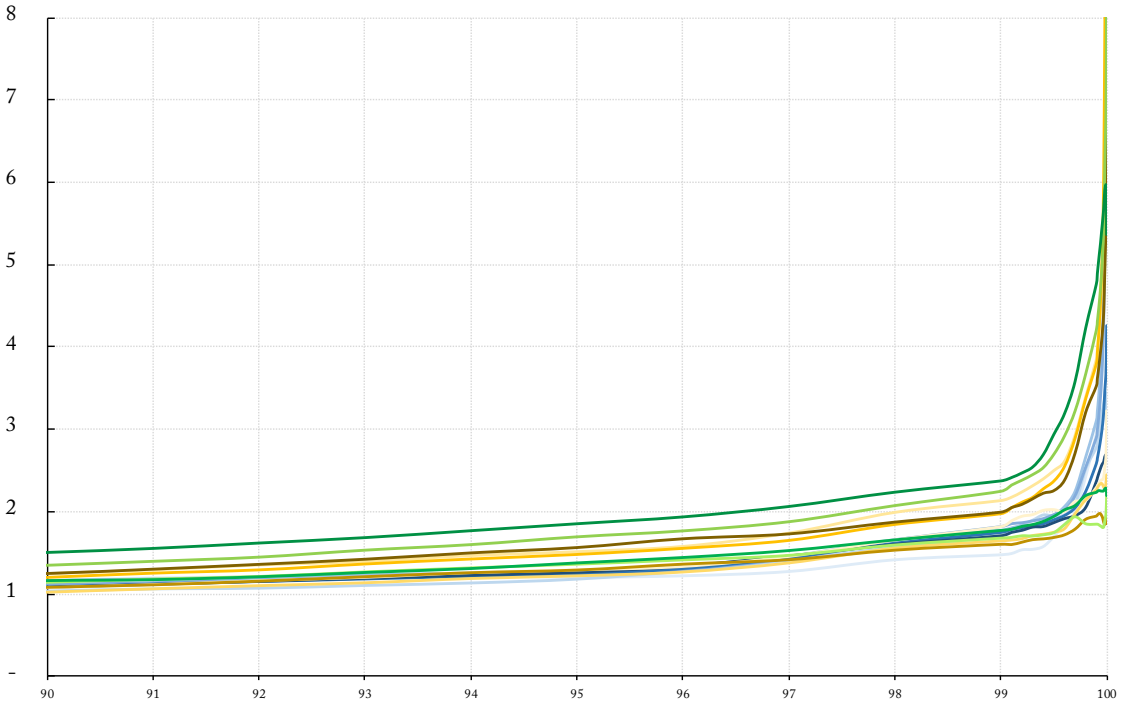
Figure A3: Theoretical Income-consumption ratios from SES data



Source: author's own computation based on household surveys.

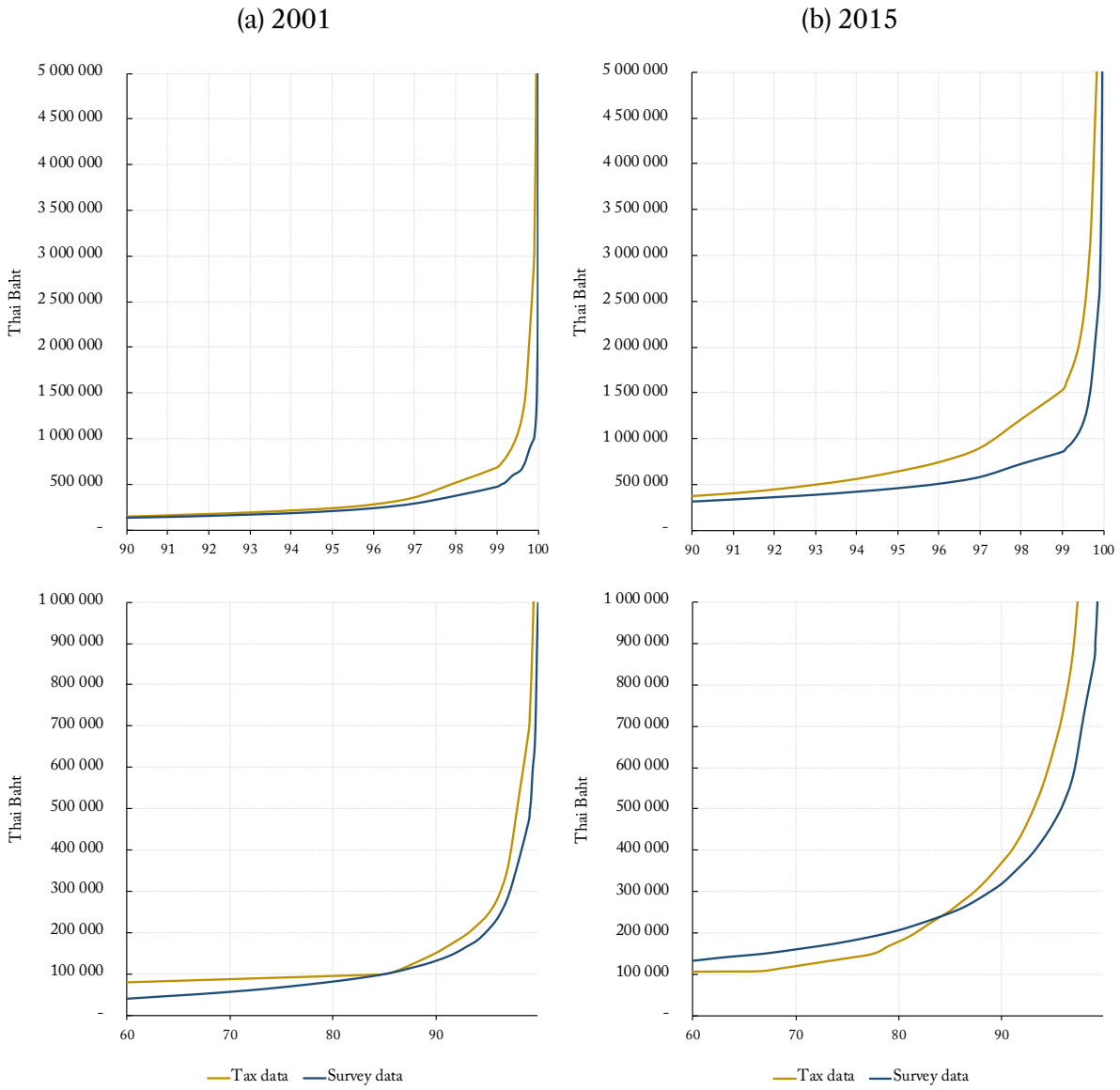
B Scenarios for Combining Distributions from Survey and Tax Data

Figure B1: Ratio between income estimated using tax and survey data



Source: Author's own calculation based on household surveys, tax tabulations, and national account. Scenario A0 is used here for years in which SES does not include the income module.

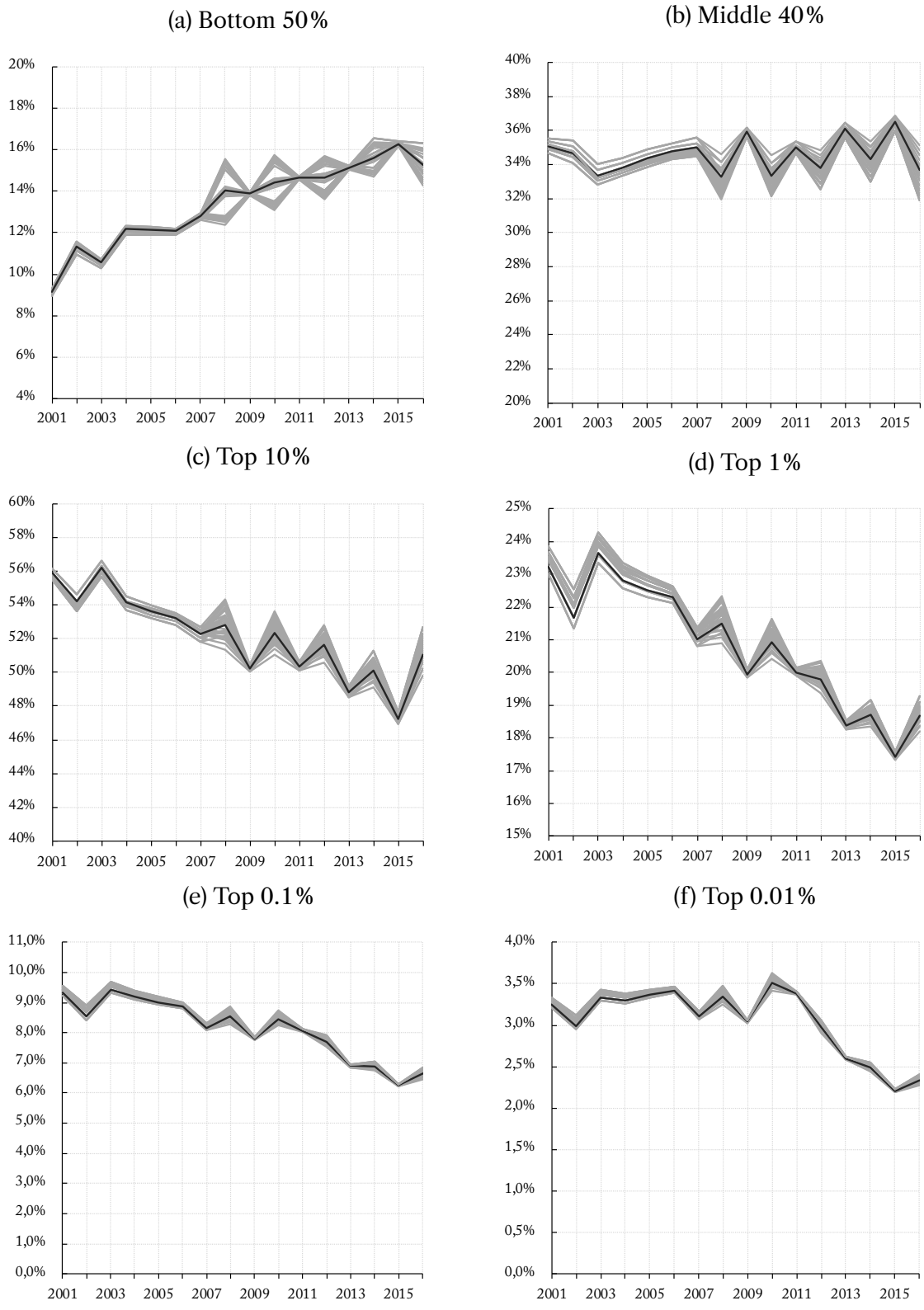
Figure B2: Comparing tax and survey distribution at the top



Source: Author's own calculation based on household surveys, tax tabulations, and national account.

C Robustness: fiscal income series

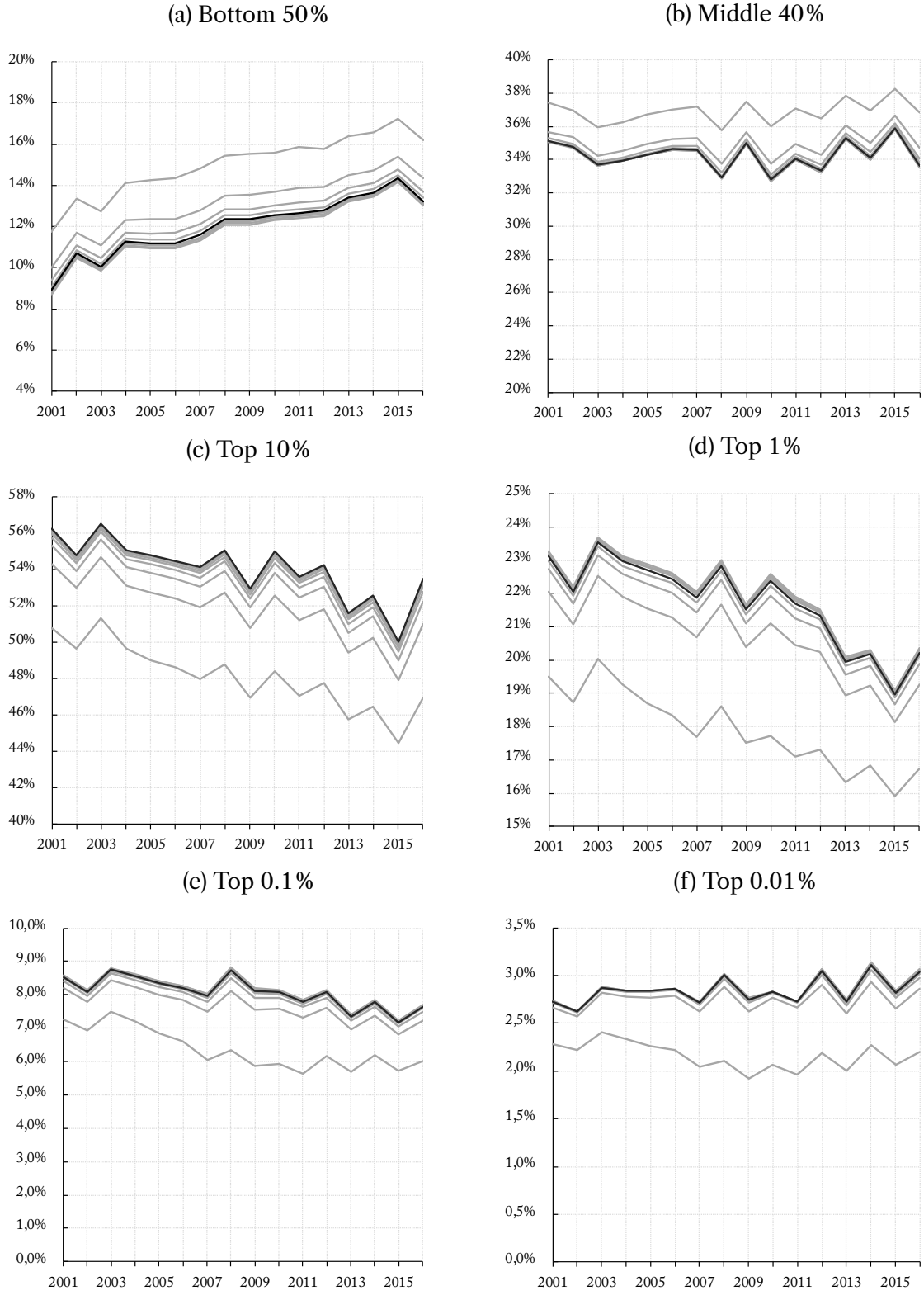
Figure C1: Income shares: 27 scenarios



Source: Author's own calculation based on household surveys, tax tabulations, and national account. The dark lines illustrate the benchmark scenario: A0B3C2 and Gumbel Copula Parameter = 3 (see section 3.5). The income definition used here is the distribution of fiscal income. The unit of observation here is equal-split adult.

D Robustness: national income series

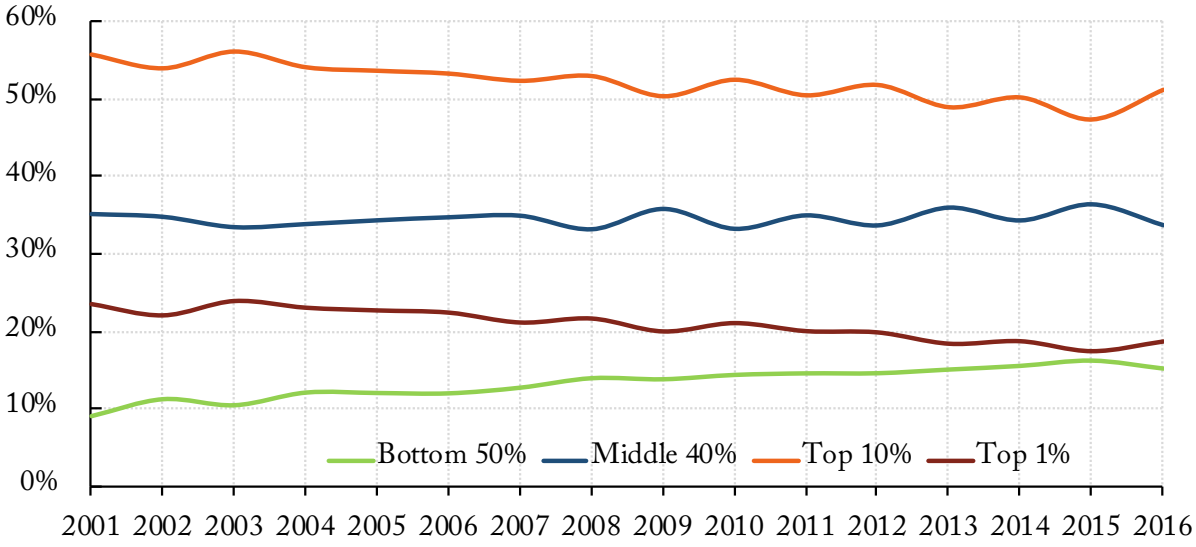
Figure D1: Income shares: varying Gumbel copula parameters (1-5)



Source: Author's own calculation based on household surveys, tax tabulations, and national account. The dark lines illustrate the benchmark scenario: A0B3C2 (see section 3.6). The income definition used here is the distribution of fiscal income. The unit of observation here is equal-split adult.

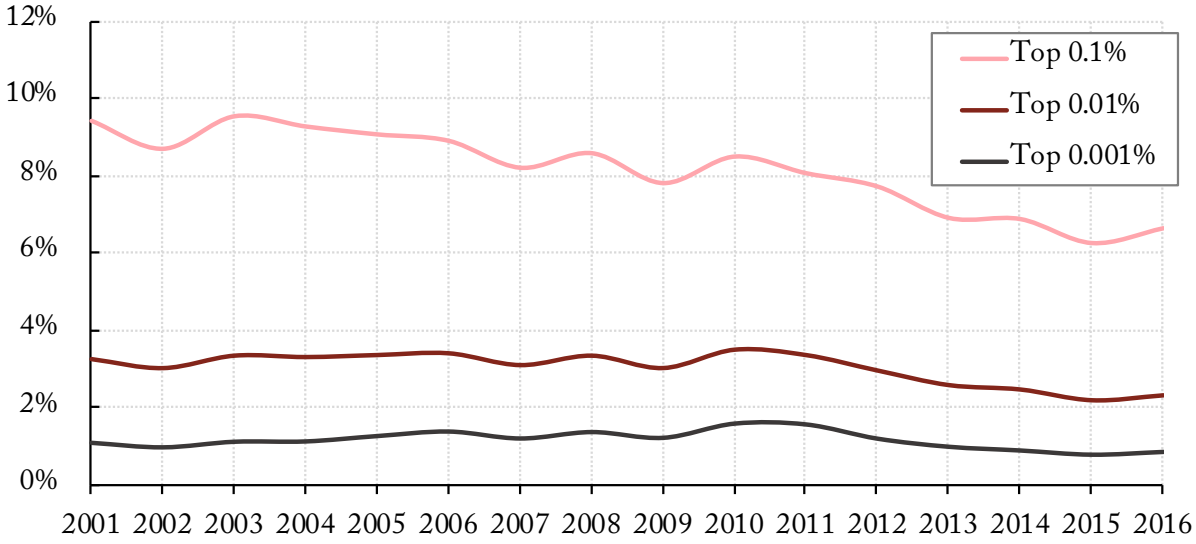
E Fiscal vs. Pre-tax national income series

Figure E1: Fiscal income series, 2001-2016



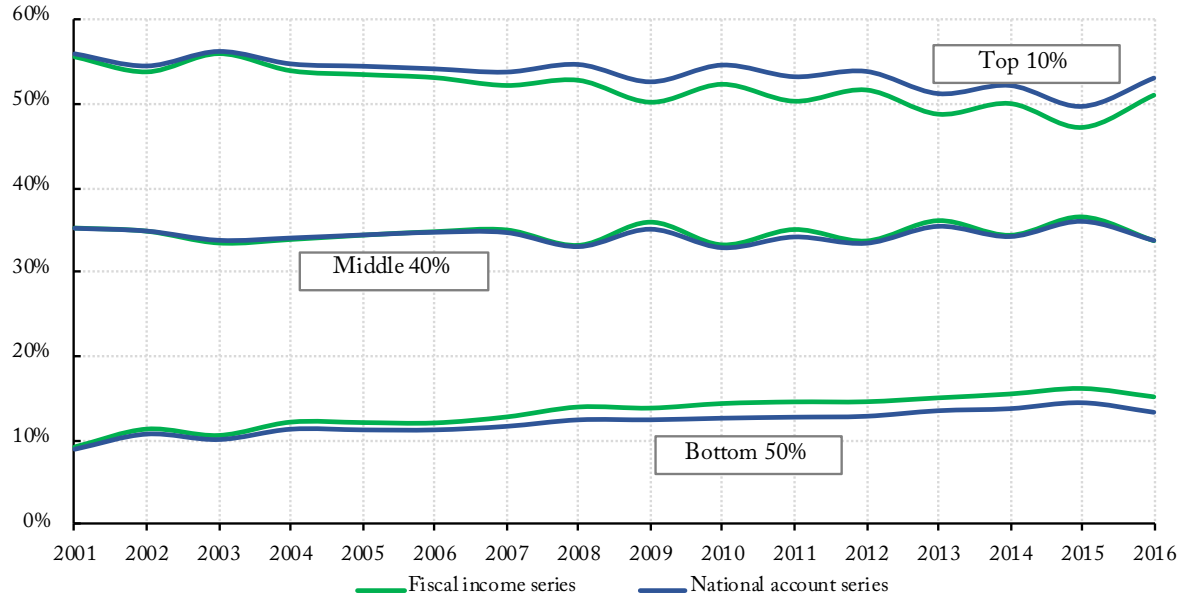
Source: Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult.

Figure E2: Fiscal income series — the very top, 2001-2016



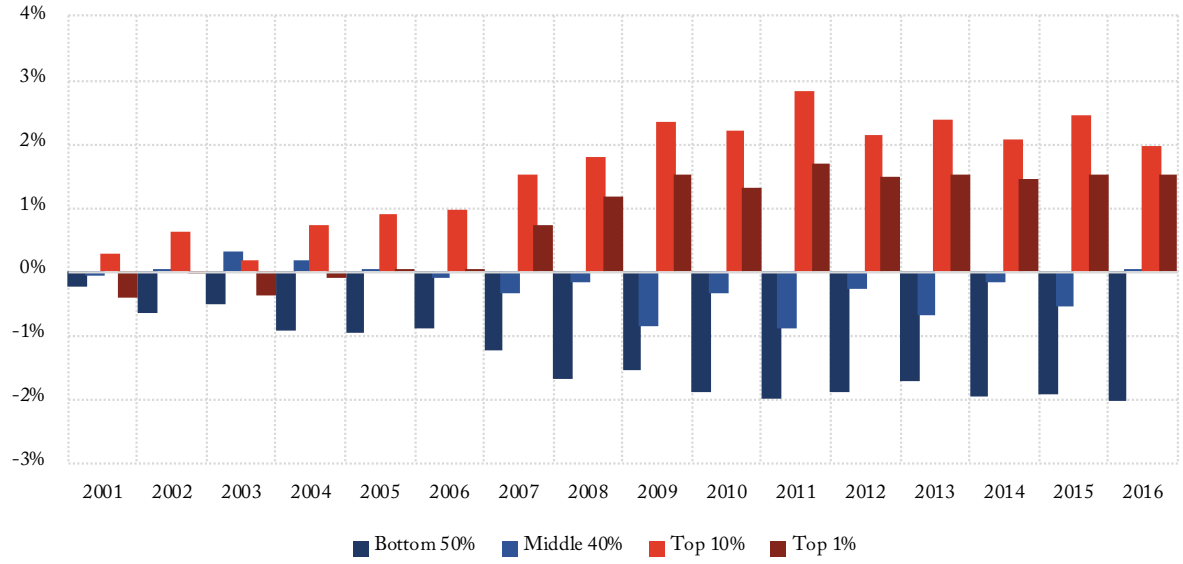
Source: Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult.

Figure E3: Comparing fiscal and national income series, 2001-2016



Source: Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult.

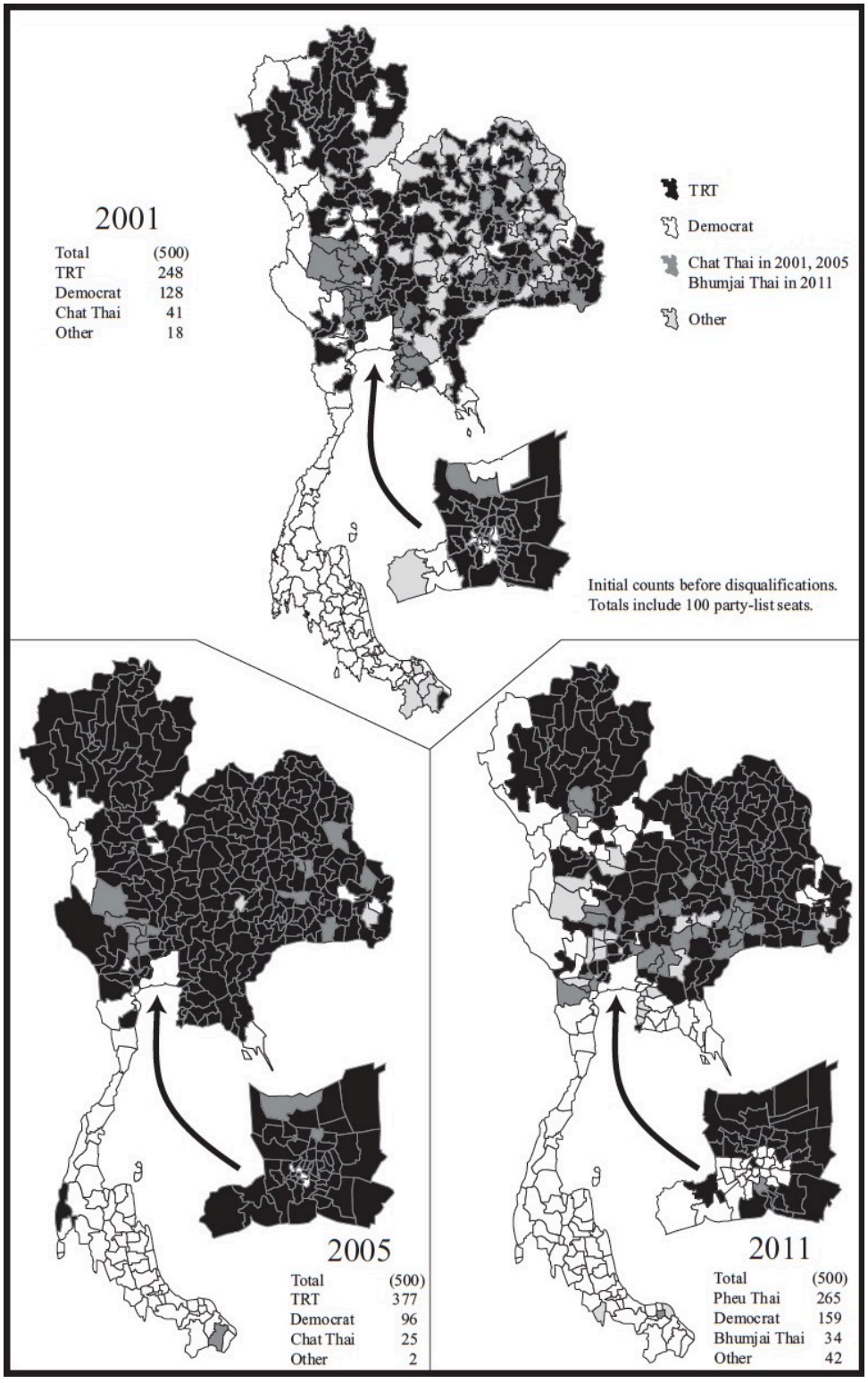
Figure E4: Changes due to national income upgrade by income group, 2001-2016



Source: Author's own calculation based on household surveys, tax tabulations, and national account. The income definition used here is the distribution of pre-tax national income (before taxes and transfer, after pensions and unemployment insurances). The unit of observation here is equal-split adult.

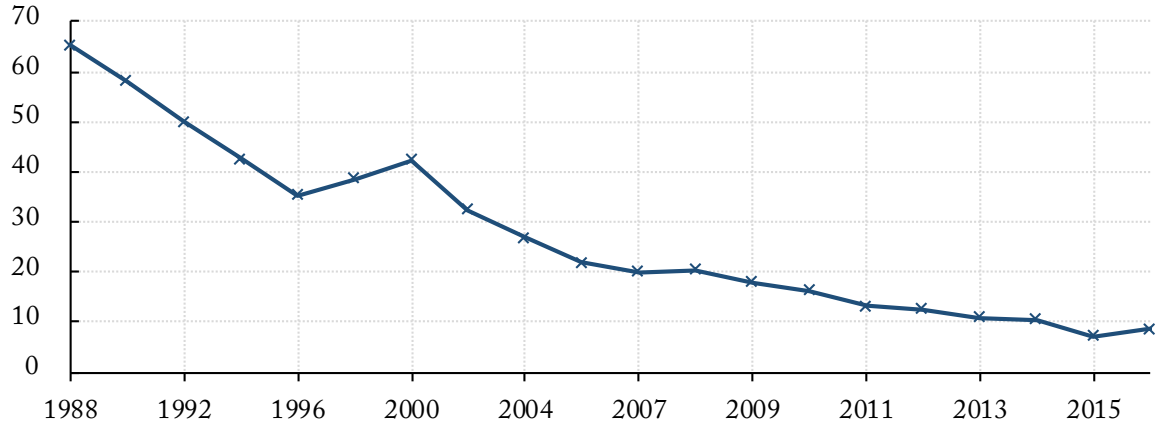
F Political economy discussions

Figure F1: Electoral geography: 2001, 2005, and 2011 election.



Source: Reprinted from Baker and Phongpaichit. (2014)

Figure F2: Poverty rate: 1988-2016



Source: NESDB — calculated using NSO's household surveys. The poverty rate is calculated based on year-specific poverty lines based on expenditure.

G DINA upgrade

Table 8: Decomposing national income and comparing to tax and survey data

	2009 Million Thai Baht	% of NI	2011 Million Thai Baht	% of NI	2013 Million Thai Baht	% of NI	2015 Million Thai Baht	% of NI
National Income	7,833,463	100%	9,295,672	100%	10,005,147	100%	10,695,446	100%
Household Fiscal Income	5,672,229	72.41%	6,574,625	70.73%	7,236,426	72.33%	7,649,801	71.52%
Survey	*3,825,298*	*48.83%*	*4,441,115*	*47.78%*	*4,878,881*	*48.76%*	*5,509,451*	*51.51%*
Tax	*3,046,060*	*38.89%*	*3,530,293*	*37.98%*	*4,067,604*	*40.66%*	*4,556,523*	*42.60%*
Wages and Salaries	2,682,329	34.24%	3,033,299	32.63%	3,600,119	35.98%	4,021,266	37.60%
Social Security Benefits in Cash	256223	3.27%	275,045	2.96%	330096	3.30%	376032	3.52%
Survey	*2,166,906*	*27.66%*	*2,436,551*	*26.21%*	*2,758,388*	*27.57%*	*3,410,729*	*31.89%*
Tax	*2,126,769*	*27.15%*	*2,468,266*	*26.55%*	*2,984,563*	*29.83%*	*3,381,947*	*31.62%*
Mixed income	2,337,435	29.84%	2,812,244	30.25%	2,664,142	26.63%	2,543,017	23.78%
Survey	*1,580,815*	*20.18%*	*1,891,180*	*20.34%*	*2,039,762*	*20.39%*	*1,993,467*	*18.64%*
Tax	*787,904*	*10.06%*	*909,319*	*9.78%*	*918,915*	*9.18%*	*1,006,749*	*9.41%*
Net Property income	396,242	5.06%	454,037	4.88%	642,069	6.42%	709,486	6.63%
Survey	*77,577*	*0.99%*	*113,384*	*1.22%*	*80,731*	*0.81%*	*105,255*	*0.98%*
Tax	*131,386*	*1.68%*	*152,709*	*1.64%*	*164,125*	*1.64%*	*167,827*	*1.57%*
Imputed Rent	53,416	0.68%	58,739	0.63%	68,161	0.68%	65,114	0.61%
Survey	*401,100*	*5.12%*	*431,685*	*4.64%*	*467,772*	*4.68%*	*569,240*	*5.32%*
Undistributed Corporate Profit	1,362,185	17.39%	1,848,648	19.89%	1,613,080	16.12%	1,663,526	15.55%
Inv. inc. payable to pension entitlement	21,534	0.27%	22,352	0.24%	29,400	0.29%	31,710	0.30%
Government factor capital income	- 9,032	-0.12%	5,941	0.06%	17,698	0.18%	25,587	0.24%
Inv. Inc. attributable to insurance policyholders	177,665	2.27%	197,138	2.12%	207,476	2.07%	251,496	2.35%

H The Evolution of Income Taxation and Redistributive Policies

Table 9: Evolution of PIT Scheme

1982 - 1985		1986 - 1988		1989 - 1991	
Net Income Bracket	Tax Rate	Net Income Bracket	Tax Rate	Net Income Bracket	Tax Rate
0 - 30,000	7%	0 - 40,000	7%	0 - 50,000	5%
30,001 - 60,000	10%	40,001 - 90,000	10%	50,001 - 200,000	10%
60,001 - 100,000	13%	90,001 - 150,000	15%	200,001 - 500,000	20%
100,001 - 150,000	17%	150,001 - 220,000	20%	500,001 - 1,000,000	30%
150,001 - 200,000	22%	220,001 - 300,000	25%	1,000,001 - 2,000,000	40%
200,001 - 270,000	28%	300,001 - 400,000	30%	> 2,000,000	50%
270,001 - 350,000	35%	400,001 - 550,000	35%		
350,001 - 450,000	40%	550,001 - 750,000	40%		
450,001 - 600,000	45%	751,001 - 1,000,000	45%		
600,001 - 800,000	50%	1,000,001 - 2,000,000	50%		
800,001 - 1,000,000	55%	> 2,000,000	55%		
1,000,001 - 2,000,000	60%				
> 2,000,000	65%				

1992 - 2012		2013 - 2016		2017 - today	
Net Income Bracket	Tax Rate	Net Income Bracket	Tax Rate	Net Income Bracket	Tax Rate
0 - 100,000	5%	0 - 150,000	0%	0 - 150,000	0%
100,001 - 500,000	10%	150,001 - 300,000	5%	150,001 - 300,000	5%
500,001 - 1,000,000	20%	300,001 - 500,000	10%	300,001 - 500,000	10%
1,000,001 - 4,000,000	30%	500,001 - 750,000	15%	500,001 - 750,000	15%
> 4,000,000	37%	750,001 - 1,000,000	20%	750,001 - 1,000,000	20%
		1,000,001 - 2,000,000	25%	1,000,001 - 2,000,000	25%
		2,000,001 - 4,000,000	30%	2,000,001 - 5,000,000	30%
		> 4,000,000	35%	> 5,000,000	35%