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Comprehensive Policy Framework

A Life-Cycle Approach to Ageing in Thailand

UNFPA

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Acknowledgements

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Preface

Population ageing is one of the most significant trends of the 21st century. Today one in eight people in the world are aged 60 and over. As long as fertility rates continue to decline and life expectancy continues to rise, older people will steadily increase as a proportion of the population. And while population ageing is a global phenomenon, it is progressing fastest in developing countries – including those with large youth populations. Thailand is ageing fast and becomes the 2nd most aged society in ASEAN after Singapore. Currently, 20 per cent of Thais are older than 60 years old. About one-third of Thai population will be over 60 years old by the year 2030, the level not far behind what Japan is facing today.

Thailand has responded positively to the ICPD vision for a comprehensive approach to population development, including enabling people to make informed choices about their sexual and reproductive health as a fundamental human rights. The difficulties of balancing family-raising and work commitment experienced by many women underpin the very low fertility Thailand is experiencing. Policies to address this must be sought, so that the desire to raise a family can be realized without compromising other desired aspects of a full life.

As Thailand's population decline is under way, it is important to invest on human capital development throughout a life cycle, especially in fulfilling young people's potential. The government recognizes a rapid slow-down of the economy which has become more volatile. Not only Thailand's workforces are ageing fast, about 60 per cent of them are in the informal sector with inadequate social protection for a better living.

For people to make the most out of longer lives, and for societies to reap a longevity dividend, it is important that countries adopt a more comprehensive approach to ageing. The way individuals arrive at old age, critically depends on choice, opportunities, and support individuals received from the very beginning of their lives. Healthy and active ageing is determined even before the birth of a child with readiness of the mother, and it is shaped by several factors throughout the life cycle. These include access to health, including maternal, new-born and child health and sexual and reproductive health care, information and services, as well as lifelong learning. Together these factors have an influence on the transition from adolescence to adulthood, as well as the transition from adulthood into older ages.

It is not solely about well-being of today's generation of older persons, but also about investments today that will augment the well-being of the current and future generations of younger persons. The younger generation is essential for sustainable responses to population ageing, and understanding their concerns and aspirations, as well as their needs is essential for any successful response to low and falling fertility. Efforts to build and cultivate human capital must begin at earliest childhood and include investments in both lifelong education and health. Ageing is a process, not a state, and it is not only about older persons but about all of us.

If strategize carefully, Thailand can benefit from the opportunities this shifting demographic landscape presents. The country has the opportunity to invest in a new society, where all citizens across the age spectrum are able to benefit from social and economic planning and policies. Thailand can also build stronger education systems and decent employment for all especially for young people. Hence, it is in one hand the country needs to provide better long-term care and sustainable pension schemes for healthy ageing, and on the other hand to strengthen investments in fulfilment of young people potentials on one hand to capitalize the human capital development potentials.

Taking lessons learned from the climate change scenario, this report provides a comprehensive framework to support Thai policymakers to develop informed, plausible and consistent scenarios with decision-making utility. The framework aims to support establishment of the policy guidance to address social and public challenges in context of rapid population ageing.

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Overview

Comprehensive Policy Framework for UNFPA Thailand – *A Life-Cycle Approach to Ageing*

This report attempts to provide an overall analysis of trends based upon the state-of-the-art literature; an understanding of the related policies and drivers; and evidence from what can be considered international best practice.

A theoretical framework: What can ageing science learn from climate science

UNFPA Country Office in Thailand adopts a life-cycle approach to ageing. This strongly accords to the current state-of-the-art thinking in the field [7] which is moving away from an age-segmented approach to ageing policy. While a holistic

life cycle based approach is certainly preferable to a life cycle segmented approach, both the realities of policymaking and the immediate needs of certain groups of society mean that a pure adoption of such an approach is very difficult to operationalise. The first argument of this report is that policies relating to sustainable ageing society could adopt a 'climate science' approach – **considering adaptation, mitigation and resilience** to identify means of (a) adapting to immediate needs; (b) mitigating against future levels of dependency; and (c) building a society which is more resilient to the challenges of ageing in the long-term. This represents something of a hybrid between a pure life-cycle approach and the life cycle segmented view.

In the rest of the review, the report focuses on two ways by which population ageing can be managed using examples from elsewhere in the world as applied to the Thai context as applied within this theoretical framework.

Tackling 'ageing from below'? Or building a more resilient society?

Population ageing can be said to come about as a consequence of lower fertility and rising life expectancy. When looking at a population pyramid and how it changes over time, we might refer to the process of lower fertility as being 'ageing from below' while longer life expectancy is 'ageing from above'. Of course, life expectancy cannot be lowered. So, in many parts of the world, slowing 'ageing from below' has been a key policy tenet.

However, perhaps the most misunderstood aspects of ageing is that it is a 'demographic problem' which should be met with a purely 'demographic solution'. Undoubtedly, the primary driver in population ageing in Thailand is the transition to low fertility rates. In consequence, it is very tempting to see the increase of fertility as being the primary means of offsetting population ageing. To be sure, higher fertility rates will slow the process of population ageing. However, there are a number of challenges with this policy direction. Firstly, it is necessary to wait for children to enter the labour market before such an offset is seen – perhaps 20 years or more – by which time the landscape of labour and ageing may well be completely different. Of course, during this interim period, resources (time and labour) are diverted to supporting these children. Unevenly sized cohorts also make the planning and provision of public services more difficult over the entire life cycle.

Secondly, pro-natalist policies have been shown to be very expensive and are often met with limited success. There is also a rights-based issue as to whether women should shoulder the burden of meeting a national target. Policies to support families and children should, undoubtedly, be a central part of the Thai social policy framework. However, these should be aimed at supporting individuals and families to meet their own reproductive aspirations in accordance with the International Conference on Population Development (ICPD).

Finally, there is a need to re-evaluate the true nature of the threat of population ageing itself. It is often considered in terms of the overall 'dependency' of an 'older' population on a 'working age' population. In strictly demographic terms, a two-dimensional approach is to try to alter the relative sizes of these two age groups. However, a sharper view of the 'problems' associated with population ageing in Thailand along with a more holistic view of human capital can lead to a more optimistic and fruitful approach.

The first major policy area concerns improving productivity among the 'working population' (as it becomes proportionately smaller in size to the 'older' population. This can be brought about by not only curriculum reform at school, but also through lifelong learning and retraining. It is critical, also, that the right skills are learned for the modern Thai economy – and learned well – rather than simply more education. These skill-sets will revolve around fundamental skills, high-level functional skills; on-the-job training; social-emotional skills. The Thailand 4.0 framework will be at the heart of this skills revolution – and, in turn, could yield the productivity gains required to offset the negative impacts of population ageing on the economy and on public finances. New modes of assessment and delivery (e.g. Thailand Massive Open Online Course Platform – ThaiMOOCS) will also need to be developed in order to ensure that these skills are properly assessed and are accessible in an inclusive manner. International migration will also be a critical component of this human capital development program – both in terms of highly skilled migration, but also in other shortage areas as the expectations and willingness to take on particular types of work among Thailand's own labor force change over time.

In other words, there are many more 'tools in the kit' to allow Thailand to tackle 'ageing from below' – or more precisely 'from the bottom up' when looking at the population pyramid.

Mitigation and adaptation: better ageing, better lives

The danger of the two-dimensional view of population ageing set out above is that it can lead both the problematization of ageing, as well as policy paralysis in the face of an overwhelming structural, economic and social change which is impossible to hold back. This has led to the take-up of the offensive expression of the 'silver tsunami'. Rather, a more nuanced look at how both the challenges and opportunities coming about from an expanding number of older people is required. The Thai pension system, for example, is a complex one and is going through a series of adjustments. However, this is just part of the landscape of possible income protection measures for older people. Successful ageing, active ageing, and productive ageing programs are also going to be essential in maximising the economic and social potential of the growing older population both at the societal level, but also for individuals themselves. Thailand can learn from the experiences of many other settings in the world, and apply and adapt these

polices for the particular Thai context. Before doing so, however, it is critical to understand what is meant by 'successful' ageing for Thai people themselves.

Health is also a key factor for 'successful ageing' for individuals, their families and caregivers – but also for public financing. According to the WHO, healthy ageing is made up of the intrinsic capacity of the individual – or their own mental and physical capabilities – and the environmental characteristics of the home, community, society, family, values, social policy and so on. In sum, 'being able to live in environments that support and maintain your intrinsic capacity and functional ability is key to Healthy Ageing'. From economic aspects of the life-cycle approach, early investment on education and health will certainly the most effective ways to achieve better well-being, rather than curative ac-hoc approach to problems that have already been established.

Again, there is plenty of international experience in the field of health ageing against which Thailand can be benchmarked, and experiences drawn and adapted. We might say that Thailand is very much in the process of developing these capacities on healthy ageing and evidence-based health policy. However, as far as combating ageism and transforming understanding of ageing and health is concerned, there is still significant progress to be made. There is no specific law on age discrimination, for example. Other areas of necessary development have been identified. The ability to foster older people's autonomy at least through physical infrastructure is very much lacking in Thailand, for example. While Universal Health Coverage is a tremendous achievement, many still 'fell through the cracks' and were not able to receive adequate treatment. It has been observed that 'The current acute-oriented health system has little space for subacute labour-intensive rehabilitation care which requires more time'. This is an issue of critical importance given the current challenges and changing nature of the burden of disease. Closely linked to this is the state of long-term care in Thailand, which requires significant attention in the near future. Rural-urban disparities in both infrastructure and access to health care can serve to exacerbate possibly already existing health inequalities. Finally, the changing household structure of Thailand means that an ever increasing proportion of the older population will be living alone. This can have important consequences not only for health, but also for accessing health services. Again, an integrated multi-sectoral approach which covers community level actions and both formal and informal care systems is critical to offsetting these potential issues.

Clearly, then, there are many policy areas concerning older people in need which require urgent policy attention. However, we must also observe that from a life cycle perspective – or, in ageing science framework, a 'mitigation perspective' – more must be done to ensure the next generations 'age healthily'. Lifestyle change at any stage of life may extend healthy lifespan, although the impact of early changes appears to be greatest.

One of the great strengths of the Madrid International Plan of Action on Ageing [MIPAA] is the recognition of a life-cycle approach to understanding ageing, and of ameliorating and offsetting some of the challenges associated with it. Gender

also plays an important role: 'for women, a life-cycle approach to well-being in old age is particularly important, as they face obstacles throughout life with a cumulative effect on their social, economic, physical and psychological well-being in their later years'. In other words, there is a recognition in MIPAA that health in older age is something that must be addressed both for older people today, but for middle-aged and young people for tomorrow. This accords with many studies which emphasize the need for a life-cycle approach to both the study of ageing, but also means of ameliorating future potential challenges.

A final critical component is the development of robust longitudinal data to examine health across the life cycle, as well as to monitor and evaluate given interventions.

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1. Introduction

1.1 A Principle of Future Scenarios

> *A scenario is a 'story' illustrating visions of possible future or aspects of possible future. It is perhaps the most emblematic Foresight or future studies method. Scenarios are not predictions about the future but rather similar to simulations of some possible futures. They are used both as an exploratory method or a tool for decision-making, mainly to highlight the discontinuities from the present and to reveal the choices available and their potential consequences [1]*

Scenarios are a very powerful means of exploring possible future conditions and pathways. They can allow new insights into the opportunities and risks involved in making decisions in various aspects of policy. By being multidimensional, they can also encourage thinking across administrative lines (e.g. ministries) to explore both consequences and potentials in policy design. As such, they are extremely powerful tools which have been at the heart of major future-oriented projects such as Foresight.

While the Intergovernmental Panel on Climate Change (IPCC) climate change scenarios are perhaps the most famous example, in recent years more attention has been paid to developing scenarios explicitly relating to population change. Some of these have been within the IPCC paradigms (so-called 'shared socio-economic pathways') [2,3]. Others, meanwhile, have more precisely sought to link alternative human capital scenarios through to demographic outcomes [4]. Much more precisely focussed scenario exercises have been developed too, for example in relation to ageing and technology [5]. At a more holistic level, as argued in *Why Demography Matters* [6], scenarios offer us a means of moving away from a 'demography is destiny' paradigm (with associated fears and concerns about ageing and other pressures) and towards owning our own future and determining how it will turn out.

As UNFPA Country Office in Thailand moves towards the development of FutureLab, there is a clear need to embrace scenario methodology in order to not only 'design the future we want' for Thai society and economy, but also map out how to get there.

Figure 1: Stages in the process of developing Foresight projects [1].

Feasibility: in this phase the organisers evaluate whether a foresight exercise is appropriate given the context and whether it will be able to yield valuable impacts on the system addressed.

Parameters: once the formal decisions to proceed has been taken, this is -broadly speaking- the design phase of the process, where the main structural decisions are discussed and taken.

Scoping: after the basic decisions are taken, the further development of a coherent and more detailed design is necessary. Two aspects define the scope of a Foresight exercise: the choice of the topics to be dealt with and the perspective to be adopted to investigate these topics.

Organization: managing time, people, participants, communications and most importantly the learning process itself is at the core of the foresight exercise itself.

Methodology: devising the methodology is effectively an element of broader scoping phase. As methodological choices are crucial and complex they deserve deeper focus and dedicated section

Management: managing a foresight project means to apply the same rules of good project management as for any other project. Similarly, manage time, people, participants, communications and most importantly the learning process itself are key aspects.

Evaluation: once the main tasks of the Foresight exercise have been completed, follow-up activities are required to ensure that the results are used effectively and all the knowledge acquired is shared.

Box 1 shows the broad process of a foresight project. It is important to note, however, that this is not sequential, but rather iterative. By developing the FutureLab plan it is clear that **feasibility** has already been considered. The **parameters** have also been explored in the *Framework of Collaboration*, as has the first aspect of the **scoping** – namely 'the choice of topics to be dealt with'.

The proposed goal of this report is to begin to address the second aspect of this scoping exercise – namely to inform the perspectives to be adopted to investigate these topics.

It can be said that, to be effective, scenarios must be plausible, consistent and offer insights into the future:

- **Plausibility:** A scenario must be plausible. This means that it must fall within the limits of what might conceivably happen.

- **Consistency:** A scenario must be internally consistent. This means that the combination of logics in a scenario must not have any built-in inconsistency that could undermine the credibility of the scenario.

- **Decision-making utility:** each scenario, and all scenarios if they constitute a set, should contribute specific insights into the future that will lead to the decision focus that was selected [1]

Furthermore, we can observe five particular stages in developing these particular scenarios:

1. **Identify the focal issue;**
2. **Identification and analysis of the drivers;**
3. **Rank by importance and uncertainties;**
4. **Selecting scenario logics;**
5. **Fleshing out the scenarios.**

Again, point 1 has been considered to a certain degree ('sustainable ageing'); but need to be more tightly focussed around what can be achieved and what is hoped for.

The functional goal of this report, then, is to gather together the information to support Thai policymakers to develop informed, plausible and consistent scenarios with decision-making utility. This can be done by identifying and analysing the drivers and the associated policies which may be implemented to develop logical scenarios.

1.2. Outline of report

1.2.1 Principles

UNFPA Country Office in Thailand has asserted a desire to adopt a life-cycle approach to ageing. This strongly accords to the current state-of-the-art thinking in the field [7] which is moving away from an age-segmented approach to ageing policy.

While a holistic life cycle based approach is certainly preferable to a life cycle segmented approach, both the realities of policymaking and the immediate needs of certain groups of society mean that a pure adoption of such an approach is very difficult to operationalise. Chapter two argue that policies relating to sustainable ageing can adopt a 'climate science' approach – considering **adaptation, mitigation and resilience** to identify means of (a) adapting to immediate needs; (b) mitigating against future levels of dependency; and (c) building a society which is more resilient to the challenges of ageing in the long-term. This represents something of a hybrid between a pure life-cycle approach and the life cycle segmented view. To a certain degree, the areas of study under the scope of policy review map onto this partial life-cycle approach based on **adaptation, mitigation and resilience**.

A final principle is that there is no such thing as an 'off the shelf' solution. Firstly, Thailand's situation is unique to Thailand. This means that this review will not make recommendations based upon the experiences of other societies to be applied to Thailand. These decisions (and the related scenarios) can only be made by stakeholders (from ministers down to people). What it can do is provide an overall analysis of trends based upon the state-of-the-art literature; an understanding of the related policies and drivers; and evidence from what can be considered international best practice (from international such as MIPAA or the various WHO guidelines, or from specific case studies).

1.2.2. Overview

A theoretical framework: What can ageing science learn from climate science

This chapter attempts to develop some of the themes discussed earlier in this introduction, namely the idea of developing some kind of theoretical framework based upon the principles of ageing science. Here, we try to find a 'third way' between a pure life-cycle approach, but avoiding some of the problems of a standard, orthodox age-segmented approach to policy formation. The chapter takes the following structure:

A theoretical framework: What can ageing science learn from climate science

- Ageing as a non-integrated, fragmented area of research and policy
- Learning from climate change as an integrated science with a strong message
- Application
- Conclusion

Policies counterbalancing the pace of population ageing

This section aims to tackle one of the most misunderstood aspects of ageing – namely that as it is a 'demographic problem' it should be met with a purely 'demographic solution'. Yet, this approach is questionable [8]. Using a state-of-the-art analysis of this issue, the framework of this section is as follows:

- Demographic forecasts
- Alternative scenarios (using WiC data. See http://www.oeaw.ac.at/vid/dataexplorer/)
- Population quantity vs quality
- Pronatalist policies around the world (and associated problems)
- Towards a rights-based approach to reproduction
- Immigration (and integration)

Policies for human capital development

This chapter will focus on the following aspects:

- Demonstrating the economic, social effects of investing in human capital
- The link between human capital investment and productivity
- Human capital across the life cycle (including life-long learning; education in active ageing and social capital)
- Types of skills required for the modern Thai economy (fundamental skills, high-level functional skills; on-the-job training; social-emotional skills)
- Existing human capital scenarios for Thailand (and their consequence)
- The current state of the Thai human capital system and its fitness for the future

Policies targeting older people and ageing

Of course, this area is extremely broad and all-encompassing. Furthermore, the policies 'targeting older people and ageing' listed in the scope of work are going to be determined by various other aspects such as **capability, infrastructure** and even more fundamental issues such as how to serve the formal and infor-

mal sectors (and how to raise money from them both), governance and political systems. This section, then, is simply an outline sketch of different policy systems around the world (e.g. World Bank income protection pillars; social welfare typologies) in order to show the wide variety of potential policy trajectories open to Thailand. This chapter relies on MIPAA and other international strategies and plans of action to determine what is regarded as a 'best practice' approach of policies targeting older people and ageing and explore the extent to which different policy systems better enable reaching those aims.

Policies promoting healthy ageing

International policies related to this area are already highly developed including those by UN ESCAP, WHO as well as NGOs including HelpAge International. Furthermore, Thailand has a highly developed research and policy framework in this area (e.g. the reports of UNFPA, Foundation of Thai Gerontology Research and Development Institute; active ageing as part of national plans and strategies). In this sense, it is only necessary to restate the *principles* of healthy (and active) ageing and their application to the Thai case. This chapter, therefore, will serve to draw attention to these international plans of action and strategies as well as case study evidence of good practice from around the world.

Photo: UNFPA / Chalit Saphaphak

2. A theoretical framework: What can ageing science learn from climate science

2.1 Ageing as a non-integrated, fragmented area of research and policy

Ageing is an inevitable, universal process for both individuals and populations. It is recognized, however, a 'malleable' process [7]. But, it is essential to recognise that different needs and challenges are likely to be more or less associated with different population sub-groups across time and space; and that it requires different strategies for different time frames. This has led to something of a 'life cycle-segmented policy approach' which tries to 'tackle ageing at different ages' rather than a genuine 'life-cycle approach' [7,9] which sees it as a linear, yet malleable, process. For example, wellbeing in childhood [10], and even in the

'first 1000 days' of life [11], set up foundations for the whole life cycle and investments there are likely to yield long term positive returns to offset the challenges of population ageing throughout the current century. While a 'pure life cycle' approach is justifiable, short-term political horizons may mean that this radical, longer-term approach is unfeasible.

The institutional frameworks of government and civil society often force another tension between a 'segmented' and 'life cycle' approach. The UN produces a World Ageing Report, which focuses on those aged over 60 [12]. In democratic systems, the 'older vote' is courted as a key group for politicians given their (general) propensity to vote more than younger people [13]. Influential international organisations such as *HelpAge International* campaign on behalf of older people. Older people appear to be well represented in political discourse; but in a manner which is often detached from the rest of the life cycle, built on the assumption that older people's needs are 'different' to the rest of society. The *institutional framework* of government, meanwhile, tends to (inadvertently) promote a more holistic approach. While many countries have ageing 'commissions' or 'champions, few, if any countries, have a 'Ministry of Ageing' with real power of implementing policy – although there have been calls in Singapore to inaugurate one. This means that if – a big if – government agencies and departments could coordinate, a holistic, life-cycle approach could be delivered. However, this is much easier said than done – as many governments have found.

In the same manner that we have segmented policies towards ageing across the life cycle, there is also a general lack of integration across sectors and across the development spectrum. Much focus has been placed on health to change the future of chronic disease and its impact on health systems [14]. 'Fixing' the pension crisis has been a perennial concern of policymakers and other stakeholders in many countries of the OECD [15]. But the linking of, say, income protection and health as interdependent factors in determining wellbeing is often missing. The challenges of ageing are often considered as being particular to the institutional systems of different countries, with very little attention paid to what can be learned from other parts of the world. Integrated frameworks which explore linkages across the policy spectrum exist, but are not without their faults. The 'active ageing' agenda, for example, has been criticised for its emphasis on health and not being sufficiently policy-oriented [7]. With reference to the development spectrum, of the 937 communities in the WHO 'Age-Friendly Cities Network', only around 13 (<1.5%) are in low- or middle-income countries (defined as in DAC List of ODA Recipients) [16,17].

All of this translates into a nebulous, disjointed narrative about aging and how the global community should respond to it. It is considered to be a 'silver tsunami' which will pose an existential threat to societies and economies; or that the continuing enhancement of human capital will write a future story of higher productivity and better health at old ages [18] – even that there will be a 'second demographic dividend' from ageing [19]. On the policy response side, many governments view ageing as a 'demographic problem' which can be 'solved' in a two-dimensional, 'demographic' way though increasing the fertility rate

or through immigration [8] – with limited success. The only holistic, UN policy framework on older people (*Madrid International Plan of Action on Ageing* [MIPAA] [20]) has around 240 deliverable 'Actions' (with no discernable priority framework). While this 'Theory of Change' approach to a better future is certainly aspirational, the breadth and scope of the Actions makes an integrated, holistic response almost impossible for most countries. Progress towards meeting these myriad goals has been limited [21]. Many of these actions further exemplify this 'life cycle-segmented' policy approach: 'Promote equal access to clean water and safe food for older persons', for example. The SDGs do adopt a more age-neutral approach – 'ensure healthy lives and promote well-being for all at all ages', for example [22]. But, again, gives relatively little guidance on how governments and other stakeholders should try to get there.

The standard measures of ageing are unfit for purposes in terms of either gauging the issue or of monitoring and evaluating the impact of any interventions. The standard demographic measures based on the relationship between those over and under a certain age (such as 60 or 65) epitomise this 'life cycle-segmented' approach. Such measures are also tone-deaf to either the institutional context of different countries (for example where there is a limited redistribution of resources across generations) or differences over time or space in terms of the *characteristics of* '(60 or) 65 year old' [23]. While new measures and data frameworks of health and wellbeing have been expanded, they are not without their challenges. In addition to the challenges of harmonising what can be subjective measures over time and space, concerns have been raised over the veracity of data in some countries [24] and the conceptual framework of the presentation of disability-adjusted life years [25] in the Global Burden of Disease, for example. Harmonised longitudinal surveys of ageing around the world have revolutionised our understanding of older age and the interactions of social, economic and health factors over time and space. However, again these represent a 'life cycle segmented' view by focussing only on those in (later) middle-age or above.

2.2 Learning from climate change as an integrated science with a strong message

Ageing represents a fragmented science characterised by confused policy statements, inadequate measures and a lack of a coherent, multi-dimensional narrative able to capture global attention and inspire imagination for solutions. One of the key developments of climate change science was the development of a multi-dimensional approach to both the measurement of climate change, and of responding to it. **Adaptation** meant taking steps to live with the current effects of global warming; **mitigation** meant slowing the rate of global warming; and, in the long-run, countries would need to develop a greater **resilience** to the effects of climate change [26]. This allowed for a simple, yet holistic and integrated means of presenting the various measures of climate change, but also to determine a three-pronged, temporally variated means of responding to it. The development of scenarios and associated pathways gave the inter-

national community a means of 'owning' the future by being able to observe the consequences of (in)action. Rather than just relying on simple measures of, say, CO2 emissions and/or surface temperature, it was recognised that a more complex (and still contested) array of measures would be required to denote the scale of the challenge, to gauge the impact of any interventions [27]. While climate change is represented as a holistic challenge to economy and society, if an adequate response is given, it is also presented as an historic opportunity to reframe our society along more equitable and sustainable lines [28]. While there is much disagreement and dissent both within and surrounding climate change science, there is, without doubt, a strong impression of science which projects a clear message both in terms of the urgency of the need for action, and a framework for achieving it.

Adaptation, mitigation and resilience for ageing individuals and societies

This report suggests that ageing can learn from climate change in terms of presenting a multi-dimensional, holistic research, policy and measurement framework. This can (a) convey a globally consistent strategy but can also be tailored for regional priorities; (b) represents a balance between the political and practical benefits of a 'life cycle-segmented approach' and a more scientifically valid 'pure life cycle' approach; (c) allows for multiple sectors and institutions to be explored and (d) presents a simpler, cleaner presentation of the challenges and policy responses to ageing. This framework is outlined at a conceptual level in Figure 2.1.

Figure 2.1: Conceptual framework of a new ageing science approach based on a climate change science model.

	Concept
Adaptation	Improving wellbeing for those in need today
Mitigation	Improving the current and future condition of people who have already had many aspects of their life cycle in train
Resilience	Ensuring the youngest in society age well and can maximise their social and economic potential

This is not the first time that such a suggestion has been made. In 2007, Lutz [29] first suggested the study of ageing could learn from climate change policy discussion. He suggests that while climate change policy had focussed overwhelmingly on mitigation, 'exactly the opposite is the case for ageing', where mitigation policies based upon fertility and migration are seen as 'terribly politically incorrect' in Europe [29]. Yet, the proposed approach differs from this in two

a distinct way. Such policies to 'mitigate' ageing are no longer 'terribly politically incorrect', especially beyond Europe, with many government coming up with ever more imaginative and far-reaching policies designed to spur childbearing [8]. While migration can play a key role in tackling some of the challenges of ageing; and a somewhat higher fertility rate will slow the pace of ageing this conceptualisation of mitigation is still based upon the closed, two-dimensional demographic system discussed above. Rather, this report proposes a multi-dimensional framework which addresses ageing in a much more holistic manner, and is sensitive to life cycle considerations.

In this conceptualisation, **adaptation** can be thought of as improving the well-being of those 'in need'. To be clear, this is not about saying that all people over the age of 60 are 'in need'. Quite the opposite. Drawing on the notion of a 'characteristics approach to ageing' [30], this 'need' is determined not determined by chronological age (e.g. over 60, or even over 80) but by 'actual' need which can be differentiated by all areas of policy such as income and poverty, health, infrastructure, housing and so on. This means that something needs to be done, urgently, to improve their immediate wellbeing. This notion of 'in need' will, inevitably, be judged on a national (or sub-national) level according to local priorities, cultural particularities and the relevant capacity of stakeholders. Despite this, the core SDG principles of 'No one left behind' – on the most vulnerable – can still be applied as a core, global principle [22]. When we apply a pure life-cycle approach, we would say that 'in need' is completely 'age blind' – this issue will be discussed at the end.

Unlike the demographic conceptualisation of Lutz asserted above, in this framework **mitigation** is about ensuring those who are already ageing age better. We cannot hold back time – people's 'chronological age' will inevitably increase. But when we take a more holistic 'characteristics approach' to ageing [30], we can 'change the curve' in terms of wellbeing and, hence potentially lessen burdens of dependency.

Resilience is about recognising the long-term implications of investing early in life to shift the paradigm on ageing all together. As well as health and child development, however, a focus on the foundational education and skills which will be brought into working careers is essential. There is a strong crossover with mitigation policies. It could easily be argued that resilience is just mitigation with a longer time frame – which it broadly is when considered in a 'pure life cycle' approach. Again, though, for practical and pragmatic purposes we can 'segment' these overlapping groups to determine certain policy priority areas which may better map onto the policy frameworks of stakeholders. Finally, longer-term resilience will also require deep thinking about the state of long-running institutions and their capacity to be fit for purpose.

This is not about age-segmented policies, though. Rather, we can write 'chronological age' out of the equation. A 80-year old female in one town may well be living a healthy, happy, independent life; and we need to design (mitigating) pol-

icies to ensure that she stays that way, able to 'age in place' for the rest of her life. A 55 year old man in the same town may well be living in poverty, suffering from chronic sickness in a town with dire infrastructure. This requires (adaptive) policies to improve his wellbeing. However, how do we ensure that (a) the next generation do not suffer the same fate as the 55-year old man, and (b) that the government can afford to pay for the policies? The answer lies in developing (resilence) longer-term policies concerned with the development of the younger population, and improvements in productivity.

Data is a critical component in both determining need, but also the impact of any interventions. However, as discussed above our current repository of data is not fit for purpose. Climate change science relies on an array of measurements to indicate both the multi-dimensional nature of the challenge, and the efficacy of interventions made. Measuring the challenges of ageing (and policy responses) is often perceived in a two-dimensional manner: the number of 'old' and 'working-age' versus fertility rates.

To move away from a two-dimensional, demographic view of ageing and towards a holistic framework based on the principles above, we would need a wider array of information to draw upon. The work of the recently formed Titchfield City Group on Ageing [31] which seeks to 'develop standardized tools and methods for producing both data disaggregated by age and ageing-related data' will furnish researchers and policymakers with the tools to better understand ageing, but also for monitoring and evaluation of policies. Sophisticated and multidimensional modelling techniques such as *Population Ageing and Care Simulation* [32] will be useful too. However, the evidence to determine the population 'in need' and the monitor and evaluate the impact of interventions would ideally be based upon a (subjective) interpretation on data from longitudinal surveys. We have an invaluable set of harmonised longitudinal surveys of ageing from many parts of the world curated by the *Gateway to Global Aging Data project* [33]. These surveys have undoubtedly revolutionized our understanding of the social, medical and economic processes of ageing. A 'characteristics' approach to measuring ageing (and hence need) on the micro-level is therefore desirable [30]. A first problem, though, is that the global coverage of such surveys is limited – especially in low- and middle-income countries. In concentrating in populations over age 50 it is not possible to view changes across the life cycle and, especially, how factors in earlier middle-age (let alone in childhood or younger ages – impacts upon later life). While they are harmonised, comparing *subjective* measures (say of health) is always challenging. Finally, such surveys – let alone expanded ones to cover the entire life cycle – are very expensive and require a long-term commitment.

Therefore, while countries can become more age-neutral in their policy development, and we can aspire to determine need taking a 'pure, micro-level characteristics approach' using survey data, it is recognised that this is not always possible. At the same time must also observe that those at 'older ages' are more likely to be vulnerable to certain needs (based upon their health, or poten-

tial income streams) than others. But, how do we define 'older ages', when we know that it is a meaningless concept when comparing over time and space: apart from their chronological age, a 60 year old in contemporary Japan has little in common with a 60 year old in Sierra Leone today or a 60 year old in either 1950 or, likely, 2050. A shorthand (especially where such surveys do not exist) could be derived from the 'prospective age' paradigm, where the 'boundary to old age' is fixed at a given remaining life expectancy (perhaps fifteen years) [23]. While rather arbitrarily defined, it gives a more pragmatic, comparative 'place to start' defining the older population in need and, hence, where to begin targeting policies of adaptation in older age.

2.3 Application

To a certain degree, many actions from existing documents such as the WHO's *Global Strategy and Action Plan on Ageing* [GSAP] [14] and MIPAA [20] can be delineated into the adaptation, mitigation and resilience framework. However, as intimated before, such 'strategies' focus on adaptation and mitigation; they use a definition of 'old' which is age-delineated and vaguely defined in a qualitative sense; and as 'global targets', they specify end goals rather than a road-map of how to reach them. Again, there is a tension between a practical, yet arbitrarily defined 'target' for policies, against the more justifiable 'holistic, pure life-cycle approach'. Despite this, many actions are linked through to developing long-term resilience, such as in GSAP, where it is noted that 'at younger ages, and when capacity is high, the priority will be on preventing the common non-communicable diseases by enabling physical activity and good nutrition, avoiding tobacco and fostering the responsible use of alcohol' [14].

To meet wide-ranging global principles such as the SDGs or the myriad actions in MIPAA, local contexts and institutions must be considered as well as priorities set. To a certain degree, health is one of the easier systems to 'divide' into adaptation, mitigation and resilience. How do we better help those in society who are in a state of ill-health (however defined); how do we keep those who are in better health in such a condition; and how to we ensure children and younger people have a long and healthy life? However, beyond such simple principles stark political decisions have to be made. For example, adaptation of global health systems to meet the needs of sufferers of long-term, chronic diseases is an urgent need; as is the development of a professional social care sector, especially in the era of the significant growth of diseases such as Alzheimer's. However, this will come (and, for some countries, has) come at a very significant economic (and perhaps political) cost. Therefore, the moral imperative and the 'global goals' in the GSAP and the MIPAA clash with political and economic reality. However, this again is potentially where such an integrated, life-cycle approach can be of benefit. By 'reshaping the curve' for the future (in this case of long-term care needs), we will be better able to design systems which are *sustainable* and not ones which will buckle under the strains of the growing demand which will result from pop-

ulation ageing under a 'business as usual' scenario for all other aspects (such as health, or even productivity in terms of paying for these services). We plan and adapt for the future, but ensuring that 'no one is left behind' in the present.

Consider income protection. Goal 1 of the SDGs calls for 'an end to poverty in all its manifestations by 2030' [22]. A 'life cycle segmented approach' would deal with policies to tackle 'elder poverty'; while a pure-life-cycle approach would consider poverty across the life cycle and be age neutral. However, a compromise would be to recognise that those who are in poverty in later life are more likely to suffer from multiple vulnerabilities (relating to health), and may well have less opportunity to avail themselves of the full array of potential poverty-reduction measures. Designing poverty reduction strategies to assist those most in need now is an urgent priority. Multidimensional poverty reduction strategies, which are life cycle appropriate and sensitive to multiple vulnerabilities are therefore preferable to those which are either catch-all/age blind or age deterministic in terms of design and implementation. Tackling poverty among the entire population is a critical mitigation and resilience policy, given what we know of the effects of poverty across the life cycle.

A final example perhaps seems more trifling, but encapsulates the problem of a disjointed, age-segmented approach. In their guide to 'Age-friendly cities', the WHO note that 'transportation, including accessible and affordable public transport, is a key factor influencing active ageing' not least because the ability to move around the city 'determines social and civic participation and access to community and health services' [34]. The 'Guide' later states that 'In Shanghai, older people and caregivers value the benches, shelter and lighting provided at some transport stops' – but does this imply that 'non-older' people do not mind standing in the rain in the dark waiting for buses? This is age-neutral issue. A society where all bus stops had light, and a bench, and shelter would be a better one for all. Having said this, there are issues in the 'Guide' which require policy *adaptation* to suit the needs of people with all kinds of needs, especially relating to accessibility; and recognizing that many will be in older age. Improving transportation networks could have huge implications for active ageing (as the WHO state), productivity and other mitigating aspects. When designing transport systems from scratch, we might consider how suitable they are for a changing set of demands; and address them from the very start. Again, therefore, we can address all aspects of transportation policy from an adaptation, mitigation and resilience perspective.

New ageing strategies could be based upon this framework of adaptation, mitigation and resilience. Again, the basis has to be in measurement. Who are the people in need; what are they in 'need' of; and what can stakeholders do to meet that need? Then, how do we mitigate this 'need' in the future – both on the individual level, but also at the institutional and economic level? Then in the long-term, how to ensure that our children and grandchildren will age well, and fulfil their fullest potential to themselves and to society?

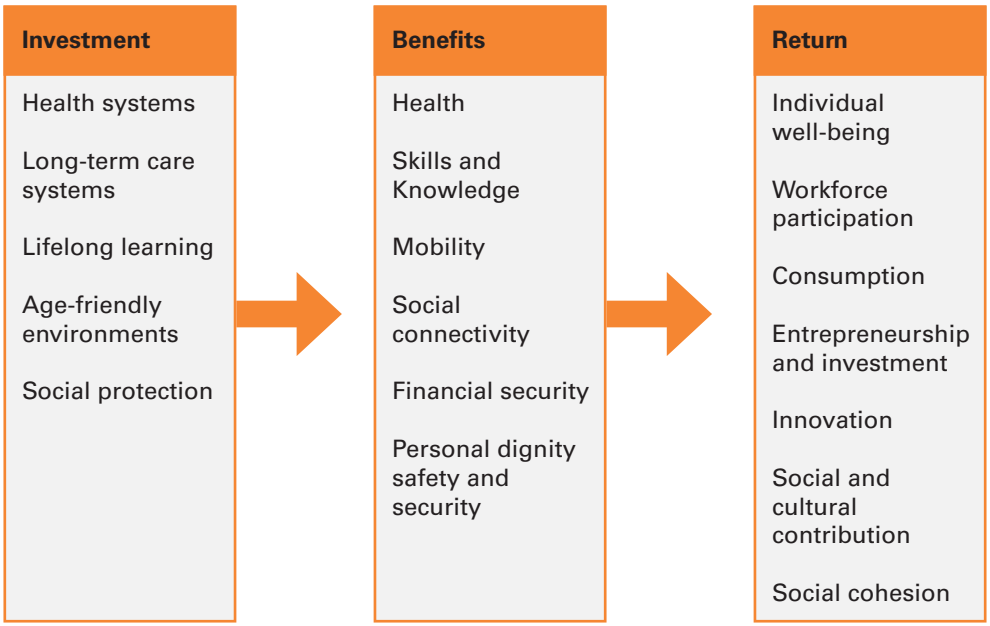
2.4 Conclusion

Climate change is termed by the UN 'an inevitable and urgent global challenge with long-term implications for the sustainable development of all countries' [35], while ageing is 'poised to become one of the most significant social transformations of the twenty-first century' [36]. Yet, while climate change and aging are considered to be 'global' or 'grand' challenges for the twenty-first century, there is a marked difference in the approach to tackling them.

While not without its sceptics and dissidents, the approach to climate change has developed into an integrated multidisciplinary science, with an agreed roster of multidimensional measurements and a direct link from academic research through to praxis. Rather than being 'responsive' to a cataclysmic future, climate change science has evolved and become more proactive in determining a series of scenarios which lead to more or less desirable visions of the future.

Ageing, however, is presented as 'all or nothing'. It is an existential threat, a 'silver tsunami' that will destroy existing systems of healthcare and welfare, but also represents a bleak future for citizens of countries which happen to 'get old before they get rich'. Demographic policies which attempt to 'mitigate' ageing (demographically) appear to be gaining little traction; hence further despair. But, we are told that healthier, wealthier, better educated populations will age better, and that many of our concerns can be allayed, with education sometimes presented as a panacea. As Figure 2.2 below shows, there are significant returns to investing in ageing populations.

Figure 2.2: Investment in, and return on investment in ageing populations [37].



Source: adapted from unpublished information from the World Economic Forum's Global Agenda Council on Ageing, 2013.

From a Theory of Change perspective, we already have many of the goals that we would like to achieve; these are found in the SDGs, MIPAA and other international conventions, strategies and plans. But how do we get there? How do we determine priorities? How can we create a narrative which is consistent and equally applicable across the development spectrum? How do we make sure no one is left behind? This report argues that there is a potential to develop an integrated, inclusive framework based upon that used in climate science – adaptation, mitigation, and resilience to make the compromises we need and to start to get there; and that we can also benefit from a multidimensional set of age-sensitive measures and a more sophisticated, proactive approach to defining the future we want, rather than fighting a (losing) battle against a future which we are presented with [6]. It can offer a 'third way' between a politically pragmatic 'life cycle segmented approach' and 'pure-life-cycle approach' which is arguably a more scientifically justifiable, yet harder to implement as it can be distilled down to 'making everything better for everyone'. Grounded in an assessment of the holistic characteristics of the population, rather than their chronological age, this approach again offers a third way of looking at how we define the population in need, away from an 'all or nothing approach'.

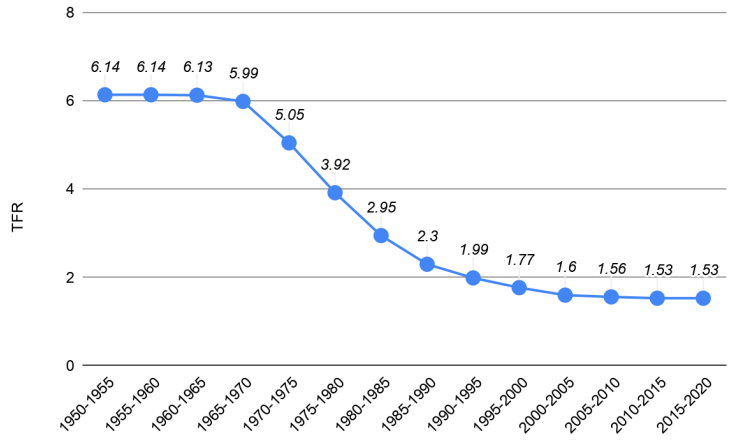
3. Policies counterbalancing the pace of population ageing

3.1 Fertility transition in Thailand

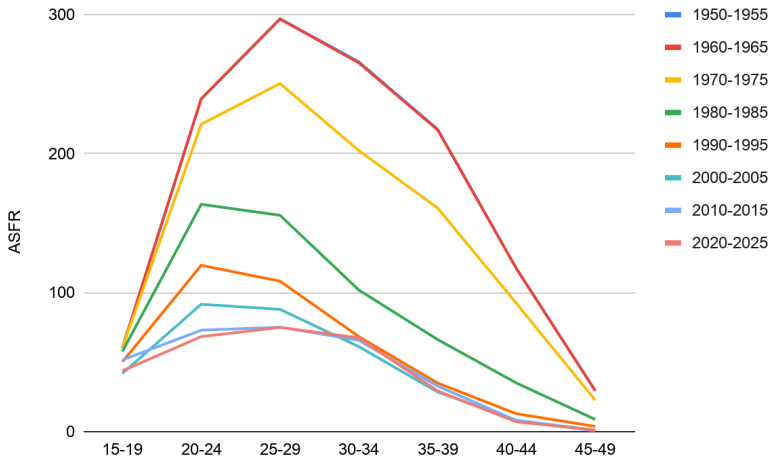
It is, of course, widely known that Thailand is one of the fasted ageing populations on earth. This has largely come about through a rapid transition to low fertility (see Figure 3.1 below). This phenomenon has been studied at length elsewhere [38–43]. High fertility rates persisted through the 1960s. On March 17, 1970, however, the Royal Thai Government issued a statement "supporting family planning through a voluntary system, in order to resolve various problems concerned with the very high rate of population increase, which will constitute an important obstacle to the economic and social development of the nation"

Figure 3.1: Fertility transition in Thailand, 1950-2020 [53].

(a) Total fertility rates



(b) Age-specific fertility rates

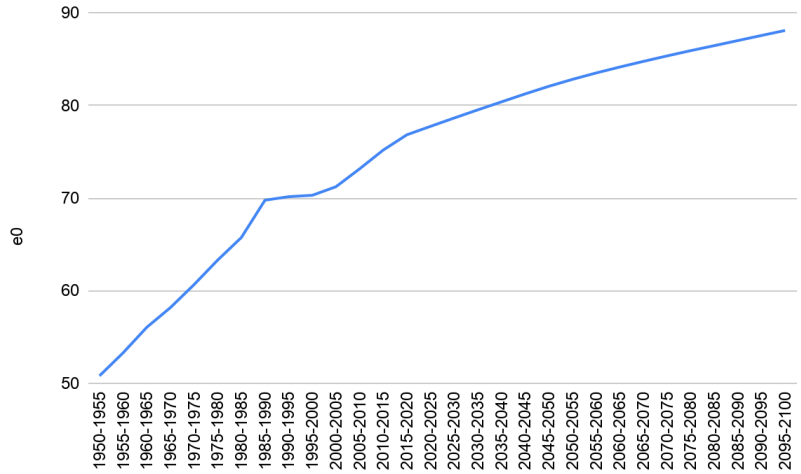


[44]. Indeed, from the Third Five-Year Plan (1972–76) onward, a key aim in Thailand was to lower population growth rates [45]. In 1987, Knodel, Chamratrithirong, and Debavalya [40] identified a series of "interwoven components" which drove the timing, pace, and extent of Thailand's fertility decline. Firstly, rapid social and economic change caused couples to increasingly view large numbers of children as an economic burden; secondly, organized efforts to provide modern contraceptive methods combined with a latent demand for acceptable and effective means to control fertility led to a highly effective family planning programme; and thirdly, and contributing to the first two factors, "there are a number of important and relatively persistent aspects of Thai culture that facilitate the adoption of family-size limitation as a means of adjusting to changing socioeconomic circumstances" (p.196). These include reproductive autonomy among couples themselves, relatively high levels of female autonomy, and the silence of Buddhism, the majority religion, on reproductive behaviour. The current fertility rate in Thailand is around 1.5 – much lower in Bangkok and other cities.

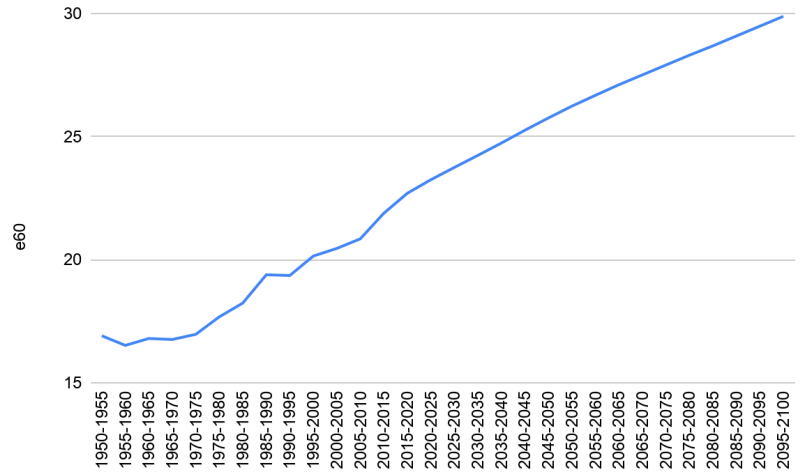
Over the same period, significant improvements in health and mortality have been seen. These improvements have been seen both in terms of overall life expectancy at birth, but also at older ages (Figure 3.2). The survivorship curves represented in Figure 3.3 add a second dimension. In other words, Figure 3.3 shows that many more people are surviving to older ages; and Figure 3.2 shows that, upon reaching that age, Thais are living for longer. Again, the issue of mortality transition in Thailand has been studied extensively elsewhere [46–49]. In common with other countries going through mortality/epidemiological transition, following the start of the transition towards a more urbanised and industrialising society [50], the first stage was a five-fold reduction of infectious disease-associated deaths over the period from the late-1950s through to the mid-1990s [51]. This was largely achieved through significant decreases in deaths from malaria,

Figure 3.2: Changes in life expectancy in Thailand, males and females [53].

(a) Life expectancy at birth

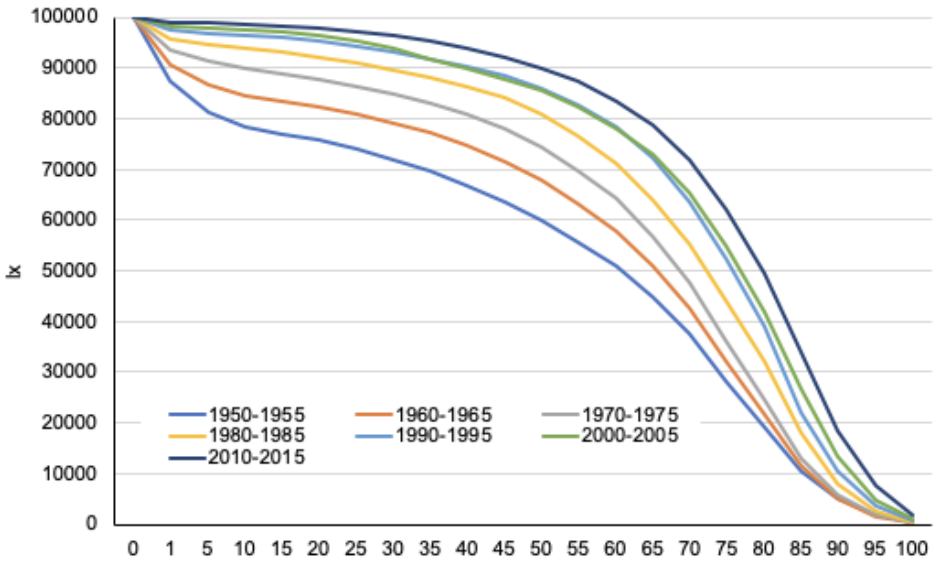


(b) Life expectancy at age 60



tuberculosis, pneumonia, and gastrointestinal infections. From the late-1980s, the growth of non-communicable diseases moved Thailand into the next phase of the epidemiological transition. While an increase in mortality was observed at the turn of the millennium, linked to spikes in AIDS, tuberculosis, and pneumonia, the mortality rate has declined in recent years [52].

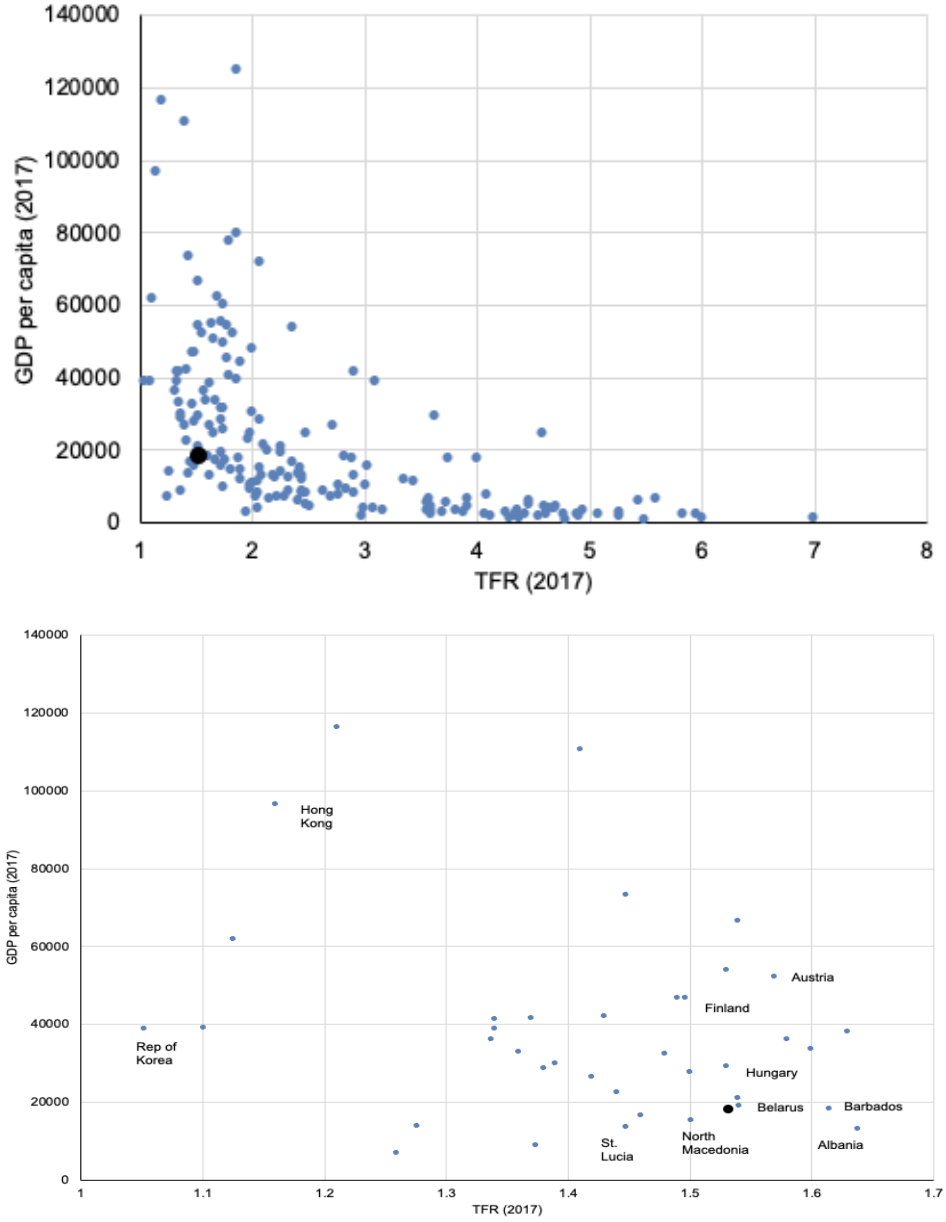
Figure 3.3: Changes in survivorship, Thailand [53].



Because of its comparatively low fertility and mortality, Thailand has been identified as a 'demographic forerunner' when compared to other Asian countries [54]. However, it should also be observed that Thailand's demographic characteristics are somewhat ahead of expectations when judged by income levels. As Figure 3.4 shows, for example, Thailand represents a relatively new model of countries characterised by very low fertility and incomes very much lower than the traditional sites of such low fertility (i.e. in western Europe, North-East Asia etc) and is more akin to South Eastern Europe and the Caribbean. This is all the more striking as it has not had the same history of proscriptive birth control policies as seen in China, for example.

Together, this has led to a concern that 'Thailand will get old before it gets rich'. According to a recent report by Standard Chartered Bank, in explicit reference to Thailand and China, 'These countries need to find ways to manage their already rapidly ageing populations or they will end up stuck in the middle-income trap' [55]. This concern about the demographic circumstances is widespread. Bloomberg News, for example, declared that 'Thailand Has a Developing Economy and a Big First World Problem', referring to rapid ageing and population decline. In 2019, a newspaper article on the Thai population situation said 'The

Figure 3.4: Income (GDP per capita) and TFR in 2017 – All countries, Thailand marked in black.



Source: Calculated by author using, World Bank 2019.

prospects for Thailand if the birth rate continues to decline, **are grim**' (emphasis added) [56]. Finally, *The Economist* stated that, in terms of the challenges of ageing, 'The next Japan is not China but Thailand' [57].

In this sense, then, ageing is presented as a 'demographic problem'. Naturally, the response to this is to try to solve – or at least slow – the problem *demographically*. This response is seen in many parts of the world and translated into policy frameworks either explicitly or implicitly. Fertility, migration and mortality

are three core demographic drivers of ageing; however, of course, only the first two are areas for which policy can be designed and implemented to ameliorate the pace of ageing.

3.2 Migration as a means of offsetting population decline and ageing

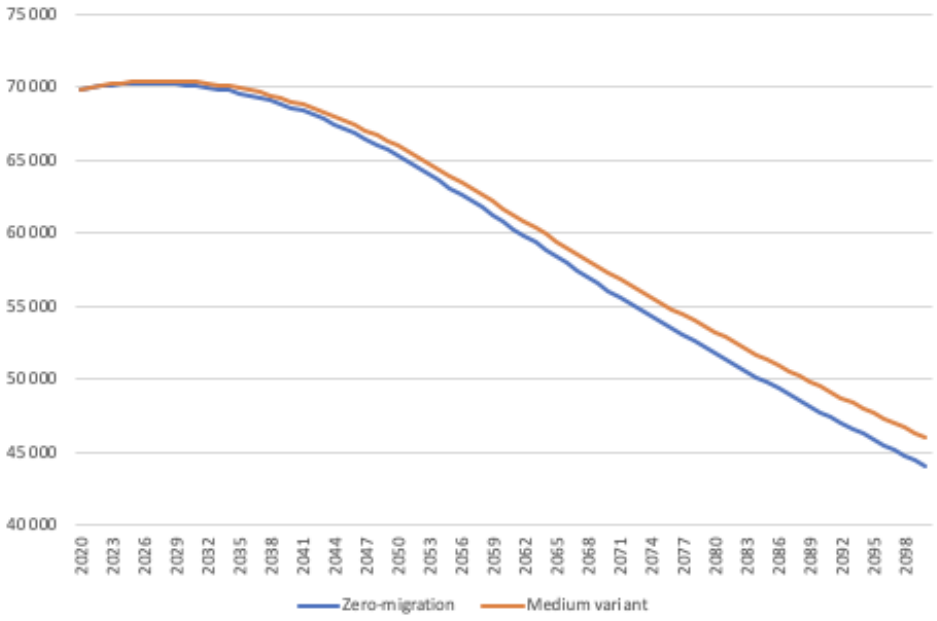
Migration has been widely discussed as a means of offsetting population ageing. In its most simple form, the notion of 'replacement migration' has been touted as a means of slowing, ageing. According to the UN, replacement migration 'refers to the international migration that a country would need to offset population decline and population ageing resulting from low fertility and mortality rates' [58]. When writing on the development of below-replacement fertility in Thailand in the early 2000s meanwhile, [38] observed that in replacement migration had been a policy response in 'many developed nations, where there 'had been an influx of labour to take up unskilled jobs or those shunned by local people'. These, then, offer two rather distinct views of what replacement migration actually is. The technical, UN definition is that it is a purely demographic response to offset or slow ageing or decline; while the implicit definition by [38] is that it is related more to specific labour market shortages. I will address each in turn here.

The first conception of replacement migration is that of a formal mechanism to offset decline and/or ageing. In recent years, this demographic driver has been intimated as a reason for supporting migration into some European countries throughout the so-called 'migration crisis' [59,60] . In the series of simulations run by the UN in 2001, it was found that replacement migration could, in some cases, be an adequate means of compensating for projected population decline and, in some cases, the amount of migration needed was less than or comparable to recent experience. However, for other countries such as Italy, the Republic of Korea and Japan, the number of migrants required to offset projected population decline was significantly higher than recent experience.

As Figure 3.5 shows, the UN projects that the Thai population decline will begin in 2032 – although the total population will effectively stagnate from now until that point. By 2052, it is forecast that the population will shrink by 5 million, with another 5 million by 2062, declining further to 55 million by 2075 [53]. These estimates are based upon a constant pattern of net migration based on recent experience. As the figure for zero migration demonstrates, however, net migration is forecast to play only a relatively modest role in shaping the total population of Thailand (at least in the UN assumptions).

According to the IOM [61], 'The total number of non-Thai citizens living in the country remains difficult to determine precisely due to the presence of a large number of migrants who lack legal status. Particularly in relation to labour migration, it is important to include an estimate of the number of irregular migrants in

Figure 3.5: Forecast of total population, Thailand [53].



Thailand given that they constitute a significant proportion.' Using various sources, the IOM calculate an estimated total non-Thai population living and working in Thailand in November 2018 as 4.898 million – somewhat higher than the figure estimated by the National Statistics Office [62]. Under these conditions, then, in order to offset the projected population decline of Thailand, the total migrant flow and stock would have to increase significantly. In other words, if we assume that around 5 million out of the current total population of 70 is non-Thai, this represents around 7%. In order to maintain a population of 70 million by 2050 (net of feedback effects) through migration alone, it will be necessary to double this migrant stock, with a large increase in flow required.

The second aspect of replacement migration relates to offsetting the pace of ageing. Indeed, as the UN report on replacement migration notes, 'If retirement ages remain essentially where they are today, increasing the size of the working-age population through international migration is the only option in the short to medium term to reduce declines in the potential support ratio' [58]. However, in the UN's analysis of a number of countries in Europe, North America and East Asia, it was found that 'the levels of migration needed to offset population ageing (i.e., maintain potential support ratios) are extremely high, and in all cases entail vastly more immigration than has occurred in the past' [58]'. As an example, in order to hold the 2000 support ratio (pop. aged 15-64/65+) constant to 2050, France would have to receive more than 1.7 million migrant per year. In Japan, however, this figure rises to 10 million per year, and fully 93.6 million for the Republic of Korea. This means that, as Coleman [63] observes, effectively the entire world would have to move to the Republic of Korea. Of course, the pos-

sibility of maintaining such support ratios through immigration are completely impractical. This would certainly be the case for Thailand, especially if its current low fertility stayed constant, and mortality continues to improve.

International migration can, however, slow the pace of ageing; or, in an alternative perspective, the absence, or relative contribution of international migration will inevitably increase the pace of ageing. However, these differences can be quite modest. According to UN forecasts for Thailand, for example, the conventional Old Age Dependency Ratio (OADR) under standard (constant) migration assumptions in 2050 is 55.3. However, under a zero-migration scenario it only rises to 56.0. As well as the relatively modest recent net annual number of migrants to Thailand shaping these figures, it is important to remember the cumulative, compound effect of population ageing (i.e. that migrants become old themselves).

Taken together, then, based on projections of European countries it is observed that 'plausible immigration cannot offset the negative effects of population and labour force ageing' [64] appears reasonable to apply to the Thai context too.

The foregoing discussion is based solely on a two-dimensional view of 'demographic responses to demographic challenges'. As noted in the introduction to this report, this perspective ignores the particular institutional contexts (as well as the changing characteristics) of populations, which could be more salient to understanding the true nature of the challenges ahead. For example, a more comprehensive understanding of the labour market and methods of redistribution are required in order to go beyond either the demand for migrants, or simple support ratios.

Thailand is notable for having an extremely low unemployment rate – estimated at between 1.1% and 1.5%, or the 9th lowest in the world [65] – although of youth aged 15 to 24, 13.7 per cent or about 1.2 million are not in employment, education or training [66]. It has been argued that this is 'implicit' evidence of a labour shortage, not least because the total number of unemployed is significantly less than the number of migrants estimated to be working within the country [67]. According to the IOM, these migrant 'fill jobs that few Thais are willing to do' [61]. In construction and fishing, for example, migrant workers represent nearly 80% of the total workforce [68]. It has been estimated, however, that ongoing growth in the property sector and public infrastructure projects could stimulate considerable further demand for construction work in the future – which would likely need to rely upon migrants. Under the context of 'an ageing workforce and declining birth rate', the IOM predict that 'it is likely that labour migration will continue to play a significant role in Thailand's development in the future' – especially given the reluctance among many Thais to take low-skilled jobs [61].

Again, however, this approach to migration takes a rather static view of the Thai economy, and the likely demand for migrants. It also pays relatively little attention to the characteristics of migrants and the changing demands of the labour

market. As discussed elsewhere in this policy framework, the growing older population and their changing needs, coupled with a changing family support systems, will inevitably lead to a development in the increased demand for care services. Of course, these changes and their interaction with migration can take various forms. Migration can fill an important gap in terms of care work (often live-in) for older people in need, as it has in other countries such as Taiwan, Japan, Italy and Taiwan [69–72]. On the other hand, so-called 'retirement migration' can be a valuable economic boon. Perhaps contrary to the standard demographic narrative, here the inflow of older people – but with financial assets – can lead to a net contribution to the economy. This is already an important issue in the Thai landscape [73,74]. However, as with many other aspects of migration, there are cultural and practical challenges too. For example, it is observed that 'increasing negative local reactions to the influx of Westerners' exist [73], while 'frozen pensions, healthcare costs and property insecurity destabilise an initial optimism and lead to feelings of entrapment and immobility in relation to state policy and practice' [74].

More broadly, under the **Thailand 4.0** plan, there is a strategic goal to create a series of transformative shifts: e.g. from traditional SMEs to start-ups; traditional services to high value services; from unskilled labourer to knowledge workers/high-skilled labour [75]. We will return to this feature at the end of this chapter as it critical to understanding the means of managing and harnessing demographic change in Thailand. For the time being, though, we can state that as far as Thailand is concerned, there is an explicit focus in Thailand 4.0 in recruiting 'foreign talent' [76] to further develop existing and developing industries such as robotics, aviation, biofuels, medicine, logistics etc. In 2017, more than 135,000 foreigners held work permits for professional and skilled occupations in Thailand, with the largest sending countries being Japan, China and the Philippines [61]. As human capital continues to develop in the ASEAN region, the freer flow of skilled labour which is a shared goal of member countries could further facility this developmental change.

Again, we can apply the Thailand 4.0 framework to other aspects of migration, including retirement migration. While many such migrants to Thailand have been relatively affluent *by local standards*, there is still a degree of economic precarity for many [77–79]. The upskilling and development of the lifestyle, medical and healthcare sector with specialism in older people is a part of the Thai Commerce Ministry Plan [80]. In essence, trying to capture this 'Second Demographic Dividend' [19] for both international (short- and long-term) migrants as well as spurring domestic demand could be a significant economic boon [81]. For example, as Anantachai Inthiraj, a director at the Thai Elderly Promotion and Health Care Association (Tepha) remarked, 'The ageing population now offers a promising business opportunity that many business people are exploring' [82].

Finally, we must consider the impact of internal migration [83]. Employment opportunities are unevenly distributed across Thailand – in common with almost all other countries [61]. In common with processes of modernisation within the family, it is therefore natural that processes of ageing will be exaggerated at

the sub-national level by younger people seeking opportunities elsewhere. This is especially the case in rural areas. Regional development plans should take this into consideration. These issues can have important consequences for both macro-level economic development, but also for caring for individuals at the micro-level [84,85]. However, as a 2006 study of 'rural parents with urban children' in Thailand has observed, 'Negative impacts of migration on social support, defined in terms of maintaining contact and visits, have been attenuated by the advent of technological changes in communication and also by improvements in transportation' [86].

3.3. Increasing fertility as a means of offsetting population decline and ageing

Fertility is the primary driver of population decline and ageing in the medium- and long-run [87]. Given the practical challenges associated with many migration policies, it is natural for government to consider tackling this 'root cause', namely 'low fertility'. In the Thai context, low fertility has been identified as a core threat to societal and economic sustainability, and associated with dire consequences. For example, an English-language newspaper in Thailand recently reported that 'the prospects for Thailand if the birth rate continues to decline, are grim' [56]. This is very much in common with other countries and territories in Asia [8] and beyond. Indeed, many countries have sought to increase fertility rates; some more explicitly than others both in terms of their motivations and actions. Some countries have explicitly linked the low fertility rate to a 'national crisis' – even a 'national security threat' in the case of Taiwan [88] – which has necessitated very strong pronatalist messaging and supportive policies based around the notion of 'reproductive citizenship'. We can see this in recent initiatives in Hungary, Italy, Russia and Turkey, for example [6,89–92]. Ever more radical policies have been suggested by academics and policymakers to tackle this perceived 'problem' – from a 'tax on the childless' [93] through to encouraging parenthood as 'national employment' [94]. Writers and politicians in other countries have a strong narrative about the concern over low fertility rates, and have sought to 'blame' citizens – especially women – for not fulfilling their obligation. This has been particularly observed in Northeast Asia [8].

Of course, there are a number of challenges with this two-dimensional approach of 'fixing' population decline and ageing by 'fixing' low fertility.

Firstly, there is also the practical issue of the relative lack of success that wide-ranging policies to support childbearing have *in terms of a measurable demographic outcome*, namely changes in the total fertility rate. Recent initiatives in the Republic of Korea, Japan and Taiwan for example have been met with only very limited impact in terms of TFR [8]. Furthermore, it is important to consider the so-called 'tempo effect' of delayed childbearing which can affect trends in TFR. Therefore while the 'maternity capital' scheme in Russia coincided with increases in period TFR, it has been argued that this change was as much related

to recuperation of postponed births (after the economic and political difficulties of the immediate post-Soviet period) as it was to policy [6,90]. Indeed, as a kind of natural experiment, we can compare Hong Kong and Singapore. Both territories share a number of characteristics in terms of the context of low fertility (in terms of direct and indirect costs of childbearing, housing, labour market, education etc.). However, while Singapore has implemented perhaps one of the most comprehensive sets of policies to encourage and support family formation and childbearing, Hong Kong has adopted a (typically) more *laissez faire* approach, offering little more than relatively modest tax breaks [95–98]. However, despite these contrasting policy structures, neither territory have seen any real change in their TFR over time.

This then leads to the question of why such policies are not working. It can be argued that the gap between fertility *aspirations* and *reality* is a symptom of many other institutional failings which do not adequately support women (and men) to adequately manage a satisfying work and family life [8]. Low fertility – or more precisely this gap – is then a *symptom* of a series of upstream difficulties, rather than a *problem* to be fixed in its own right. Furthermore, in their two-dimensional approach, these policies do not usually recognise the heterogeneity of the work and family experiences of citizens in contemporary Asian societies, and their changing expectations. As such, 'one-size-fits-all' approaches are unlikely to be effective.

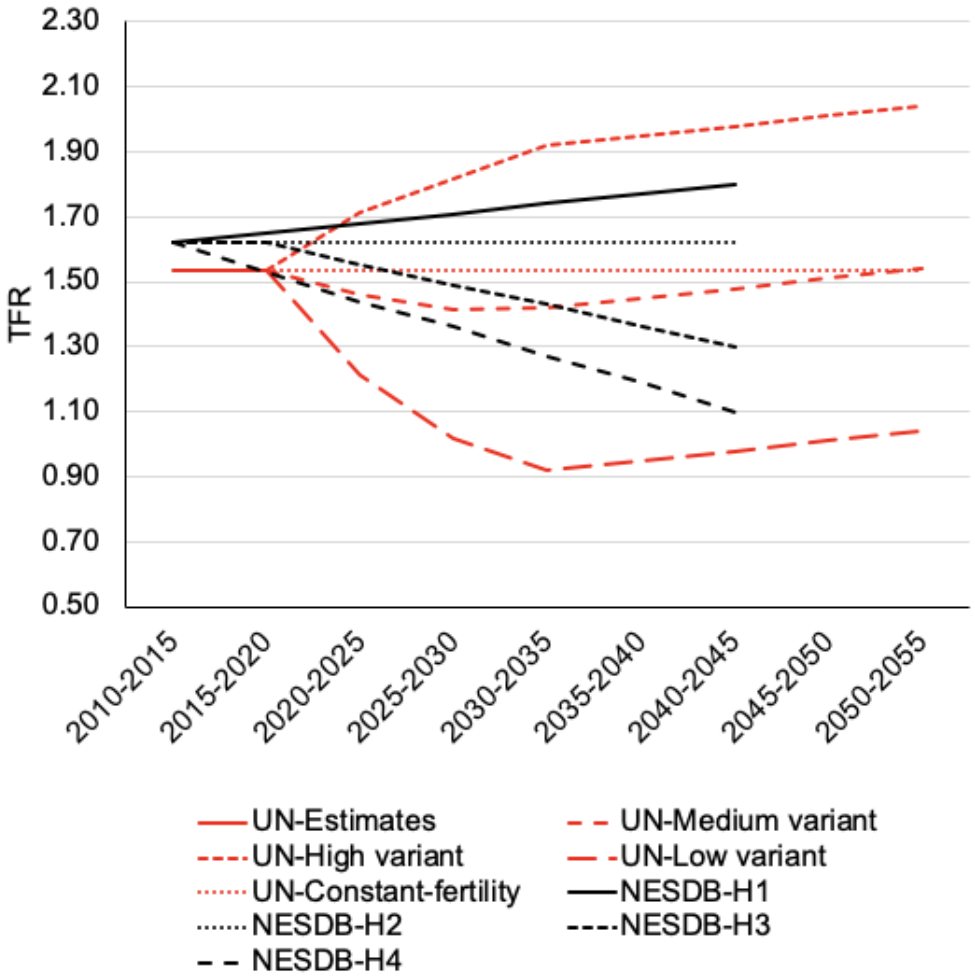
The circumstances and characteristics of fertility transition in Thailand has been widely covered elsewhere [38,42]. Furthermore, various UNFPA reports, such as the *State of Thailand's Population* [99] and *Impact of Demographic Change in Thailand* [45] extensively explore both the demographic and policy landscape of childbearing and family formation in contemporary Thailand.

3.4 The effectiveness of pro-natalist policies

Figure 3.7 shows various assumptions of the future of fertility in Thailand as used by the UN (red) in the latest version of their *World Population Prospects* [53]. The high and low variants are based on the medium variant TFR +/- 0.5. The black lines, meanwhile, represent future hypothetical scenarios for TFR as published by the Office of the National Economic and Social Development Board in 2013 [100]. These represent a plausible range of future fertility trajectories for Thailand.

Undoubtedly, these alternative trajectories of fertility will have an important impact upon the total size of the population. Figure 3.8, for example, shows the total population sizes consequential of Thailand following the various UN-derived fertility variants. By 2040, for example, the difference between the low and high variant is some seven million people. As the hypothetical assumptions of the future fertility trajectories published by the Thai NESDB are somewhat more conservative, so too are the differences in the forecast population for 2040:

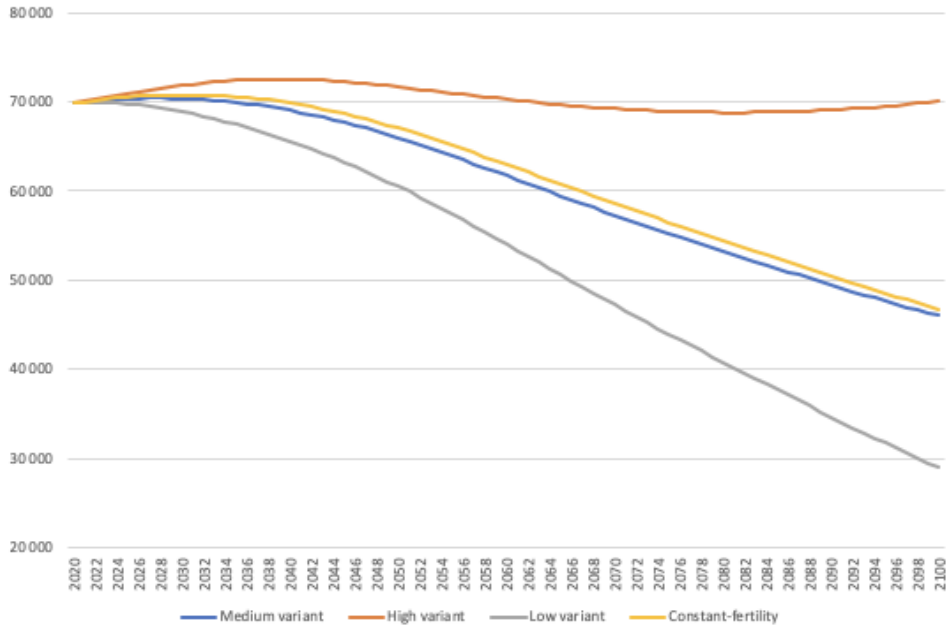
Figure 3.6: Fertility assumptions used by the UN and Office of the National Economic and Social Development Board (NESDB) of Thailand, TFR, 2010-2055 [53,100].



ranging from 62.3 million under hypothetical scenario 4 up to 66.5 million under hypothetical scenario 1. Of course, total population size in an important feature in classical economic growth models. However, our relatively limited global experience of managed population decline means that the consequences are not as clearly elucidated as we might imagine [101].

However, given primary interest in increasing fertility to offset ageing, however, the evidence in Figure 3.9 can be considered. This represents the changes to the classic Old Age Dependency Ratio (OADR taken as the population aged 65+/20-64 or 60+/20-59) by fertility variant for Thailand. Regardless of the fertility variant, the OADR will remain unchanged until 2040; and only modest changes will be seen in the period immediately after then as it takes a longer period of time for the new born children to grow up reach twenty years old. However, even going to the second half of the century, the difference between the medium or

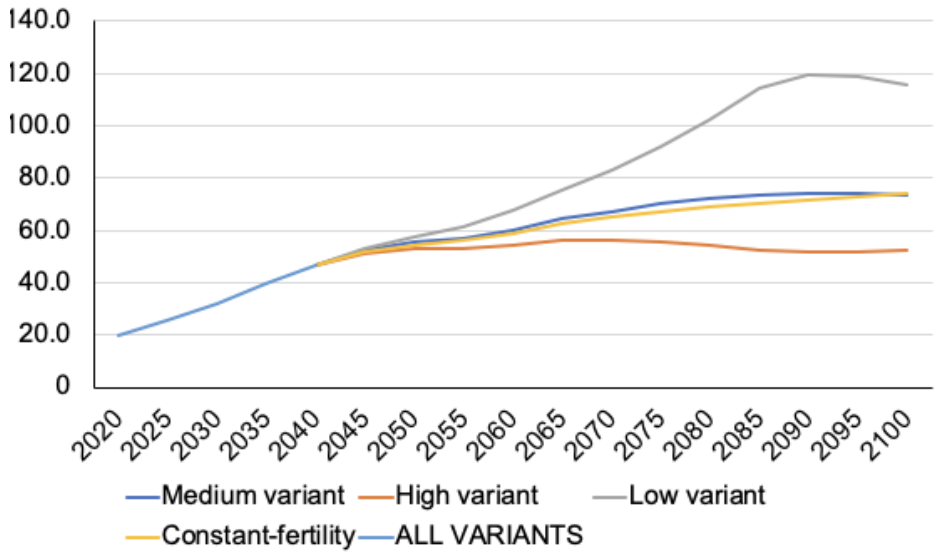
Figure 3.7: Total population size by UN fertility variant, Thailand [53].



constant variant of fertility as compared to the higher (+ 0.5) variant is relatively modest. There is, indeed, a larger gap later in the century between medium and low variants, because of the transition to extremely low (TFR<1.0) that this scenario suggests.

In essence, Figure 3.9 demonstrates the zero impact of increasing the period TFR in the short- to medium-term on OADR; and only the modest impact in the

Figure 3.8: Old Age Dependency Ratio (taken as the population aged 65+/20-64) by fertility variant for Thailand, 2020-2100 [53].



long-term. Of course, it is also important to observe other aspects relevant to this 'demographic solution' to ageing. Firstly, the labour market requirements in twenty years are likely to be quite different from those today – especially if the Thailand 4.0 plan is successful. This means that our understanding of labour shortages today may be inappropriate to plan for the future. A second, more fundamental issue, is that while more children will decrease the old-age dependency ratio in the long term, they will inevitably *increase* the child dependency ratio in the *short to medium*- term. Knowing from National Transfer Accounts, for example, the nature of the generational economy is that resources (including time) are redistributed not only from 'working' people to 'older' people, but also downwards towards children – either through the mechanism of the state and/or the family [102].

At the household level, an increase in fertility can divert human resources away from the labour force towards unpaid care – especially for women under conditions of unequal gender roles, and especially where access to adequate childcare is low. As observed by UNIFEM (currently known as UN Women), 'A pronatalist policy can in principle frustrate women's entry and participation in the public sphere by confining women to caring work in the reproductive/domestic sector' [103]. At the macro-level, investment in education and other child and family related services will be required as well. Furthermore, in the absence of sustained increases in fertility (i.e. a cohort shift), unevenly sized cohorts can exist, leading to challenges both for planning purposes, but also uncertainty and challenges for the populations born in them as they go through life [104] as well as planning more broadly [105].

Figure 3.9: Child dependency ratio (0-19/20-64), Thailand, 2020-2100 [53].

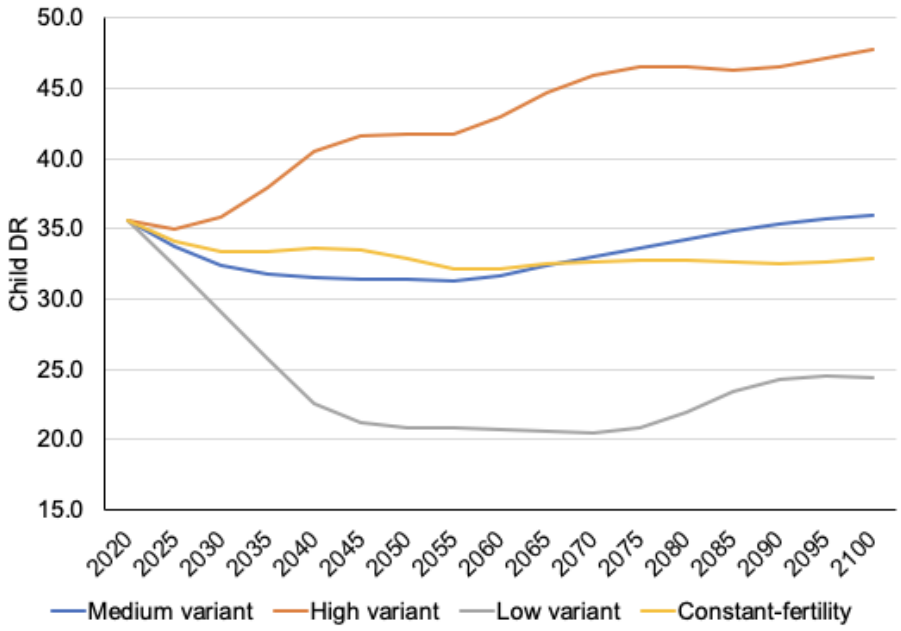
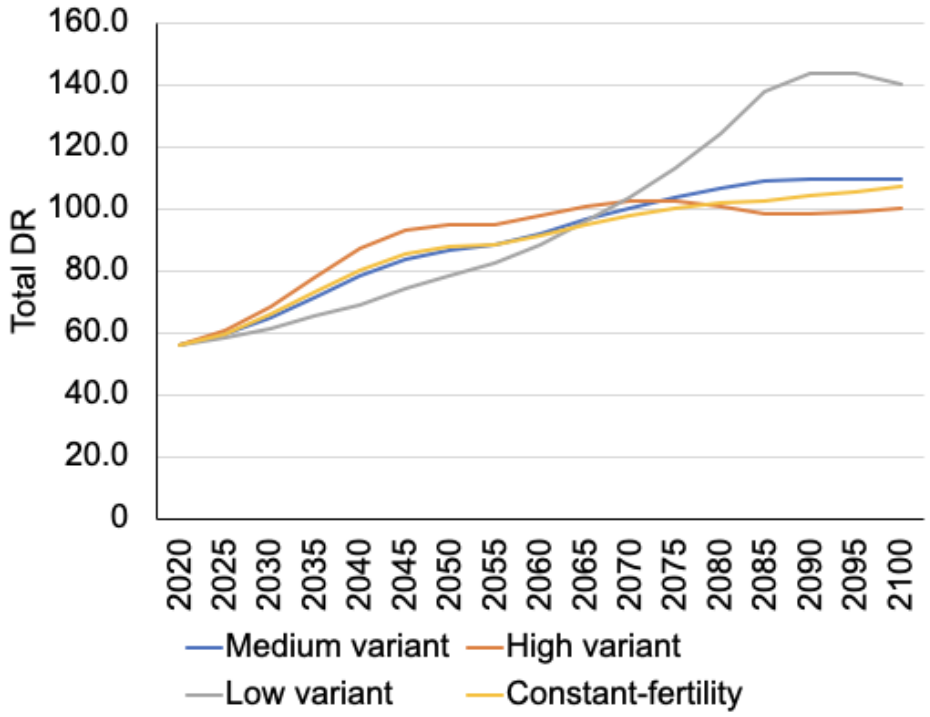


Figure 3.10 shows the child dependency ratio under the different UN variants of future fertility, while Figure 3.11 shows the *total* dependency ratio, again under different fertility variants. To a degree, these encapsulate the 'trade-offs' of looking solely towards a demographic solution to slowing the pace of population ageing. Figure 3.11 clearly shows that increasing fertility will increase the total dependency ratio until the 2060s/2070s. In other words, the power of fertility to offset the old age dependency ratio in the medium- to long-term, is counteracted entirely by the increase to child dependency ratio, ensuring that the overall total dependency ratio continues to increase. In the context of intergenerational transfers, these are important considerations.

Figure 3.10: Total Dependency Ratio, (0-19+>65/20-64), Thailand, 2020-2100 [53].



3.5 Is there a role for population policy?

The foregoing discussion demonstrates the capacity of policies to adequately slow the pace of population decline and, more importantly, ageing. In demographic terms, Increasing net migration and fertility will, of course, slow the pace of both population decline and ageing. But, only under very particular circumstances; and with a series of associated issues. For example, an unimaginable degree of migration would be required for it to be used as a primary tool of keeping the support ratio the same. Increasing fertility would see a decline in the old age dependency ratio; but this would only begin to be felt after two decades. Furthermore, when considering intergenerational transfers, the increase

in the number of children would see a rise in a different type of dependency, which would in turn see an increase in overall total dependency ratios.

This does not, however, mean that there is no role for population policy.

It was suggested that 'Thailand needs clear and effective manpower planning as well as international migration policies addressing the labour requirements and demands arising from future demographic and economic development trend.'[38]. However, it may be more helpful to consider this as a need for 'human capital; more generally, rather than just a need for 'people'.

Clearly, migration will play a key role in shaping the Thai workforce, for example. This, in turn, will slow the pace of *population* ageing, but more importantly, provide key areas of support for growing needs relating to ageing as well as supporting economic growth more generally.

Similarly with increasing fertility. If we set about trying to increase fertility in order to offset ageing, it is difficult to see how this would be an effective policy in the medium term when we look beyond pure numbers. However, if we take a more holistic approach to *understanding* the current circumstances of very low fertility in Thailand, and consider more broadly the consequences, then we can see how the low fertility situation in Thailand is, indeed, very pertinent to understand the landscape of life cycle ageing beyond pure numbers. Increases in childlessness, double income, no kid (DINK) households, one-person households, same-sex couples and skipped-generation households means that hegemony of the 'standard' nuclear family unit is waning in Thailand. This clearly has critical implications both for the circumstances of ageing for different groups in different family systems, but also for the family and ageing policy initiatives that may be introduced.

There is clearly an unmet need for children in Thailand. The average fertile woman in Thailand has a desired fertility of 1.93 children, the average number of living children per woman is only 1.67 [106]. It is important, then to explore why this is the case. When doing so, we might then see that this gap could be 'the problem', rather than 'low fertility' itself. It has been observed of Thai fertility that:

> *Socially women, particularly mothers, have the odds stacked against them. In addition to having gainful employment and climbing the career ladder, the majority of domestic responsibilities and caregiving for children and elderly parents falls on women's shoulders. Increase in male spouse's support in the home has not kept pace with the changing roles of women and mothers. This can significantly deter women from wanting to have children [106].*

Clearly, there are a number of important policy areas to develop in terms of adequately reconciling work, life and family in Thailand. It can be envisaged that policies which seek to improve these necessary trade-offs will, perhaps, close the gap between fertility aspirations and reality; in other words, derive an in-

crease in TFR which, in turn, will have an ameliorating impact on long-term demographic measures of ageing. However, perhaps more importantly, it would have an important effect on the effective management of work and family and could be then linked through to greater degrees of wellbeing, higher productivity and (ironically) improved investment in human capital. To take an example, weak human resource policies and lack of adequate protection for women are recognised as a key factor in determining reproductive decision making. By improving the work culture and response to childbearing, it is likely that not only fertility increases (as a by-product), but also the recruitment and retention of talent could be better facilitated, thus bringing about improved human capital capabilities and workforce efficiency. Indeed, the broad aims are entirely in line with the aims set out in the National Strategy. We might envisage that the fulfilling of some of these aims would have an effect on closing this gap between fertility aspirations and reality; for example 'promoting gender equality and women's roles in social development', 'increasing productivity and promoting a skilled, quality, and creative Thai labor force operating in safe working environments'; 'creating comprehensive social insurance schemes that are adequate for everyone regardless of gender and age' and 'enhancing well-being and happiness of Thai families' [107].

In sum, then, the classical approach to 'solving a demographic problem demographically' is problematic to say the least – whether this is in policy effectiveness, worldview/ideology, or practical terms. This does not mean, however, that there is no means for population policy to play an active role in shaping the ageing and demographic trajectory of Thailand. On the contrary, a more holistic approach which considers both the context of these demographic outcomes (e.g. low fertility and the gap to aspirations) as well as the link between demographic change, and changing characteristics and institutions, then population policy can be a central component in not only ameliorating some of the challenges associated with ageing; but also taking advantage of some of these changes, and making the most of both existing and future human capital.

Photo: UNFPA / Chalit Saphaphak

4. Policies for human capital development

4.1 'Demographic metabolism'

4.1.1 From the past to the present

In the previous chapter, we demonstrated how certain key demographic mechanisms had served to transform Thailand from a 'young' society' to an 'older society'. It was suggested that while supporting childbearing and improved migration policies could certainly help meet some of the challenges of an ageing population, these mechanisms of ageing are 'difficult to turn around' – i.e. it is nearly impossible to solely seek a 'demographic solution to a demographic problem'.

However, this transition to an older population is not the only demographic change which has occurred in Thailand over the past decades. In order to understand the nature of the changing population, we have to look multidimensionally. Figure 4.1 compares the standard population pyramid for 1980 with 2015. Clearly, this is where the standard narrative of population ageing comes from. In 1980, the largest age group was aged 5-9; in 2015 it is 45-49. As Figure 4.2 shows for 2050, the largest age group will be 70-74. Combined with the old age dependency ratio (shown above in Chapter 3) and other 'standard measures' of ageing, the picture of a 'crisis in ageing' is clearly made apparent.

Figure 4.1: Population Pyramids, 1980 and 2015, Thailand [108].

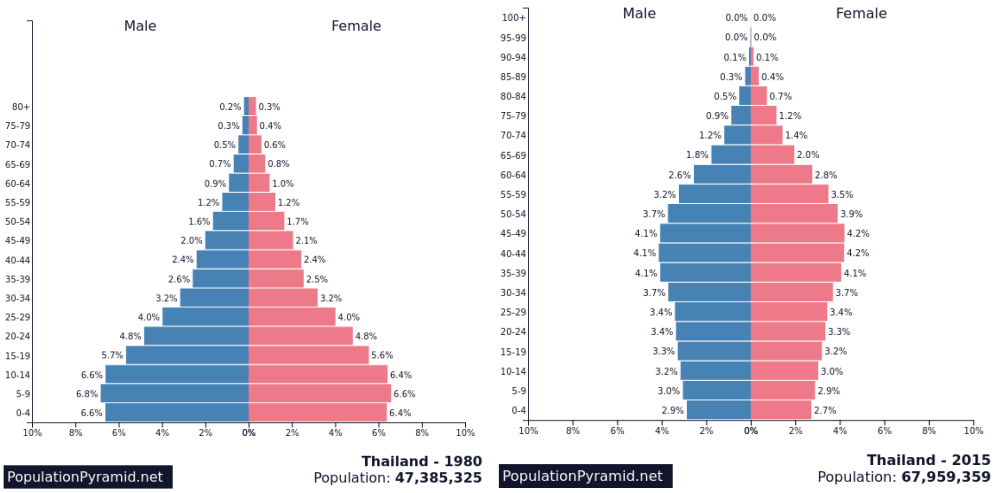
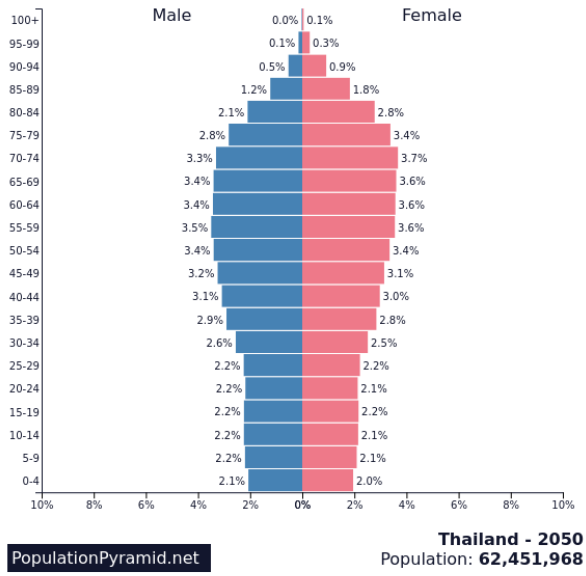


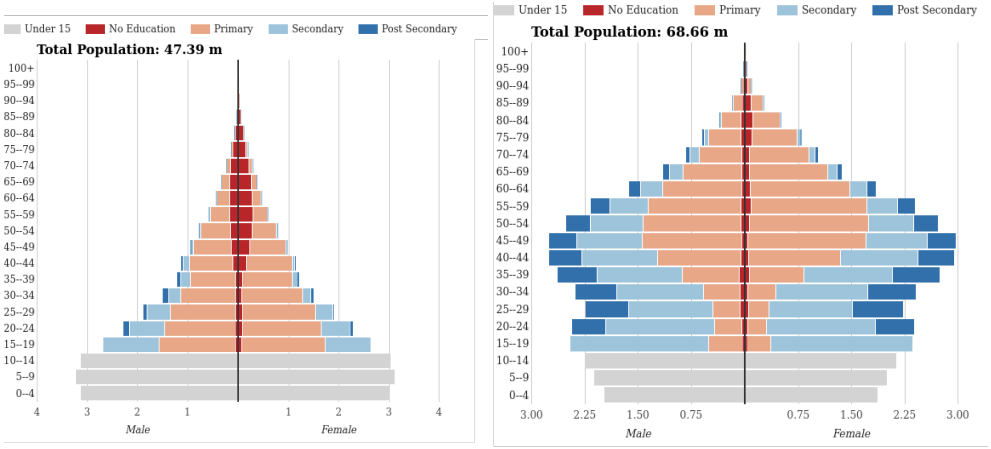
Figure 4.2: Projected Population Pyramid, 2050, Thailand.



However, Figures 4.3 show both the same, and very different, figures for Thailand. The shape of the population pyramid is still the same, with the same clear process of ageing and shift from a younger to older aged population. However, Figure 4.3 has the added dimension of educational attainment and its change over time from 1980 to 2015. We can see a number of transformations:

- The tremendous relative decrease in the overall population with 'no education'
- The transformation of the 'older' population from one characterised by 'no education' to primary, and increasingly, secondary and post-secondary
- The transformation of the 'middle-age' population from primary to a mix of primary, secondary and postsecondary
- The transformation of the 'younger' population from a primarily primary education to an overwhelmingly secondary and post-secondary education population
- Finally, the transformation of a bias in attainment which privileged males – especially at older ages – to on which is more equal at older ages and, in fact, privileges females at younger ages.

Figure 4.3: Education specific pyramids, 1980 and 2015, Thailand [109].



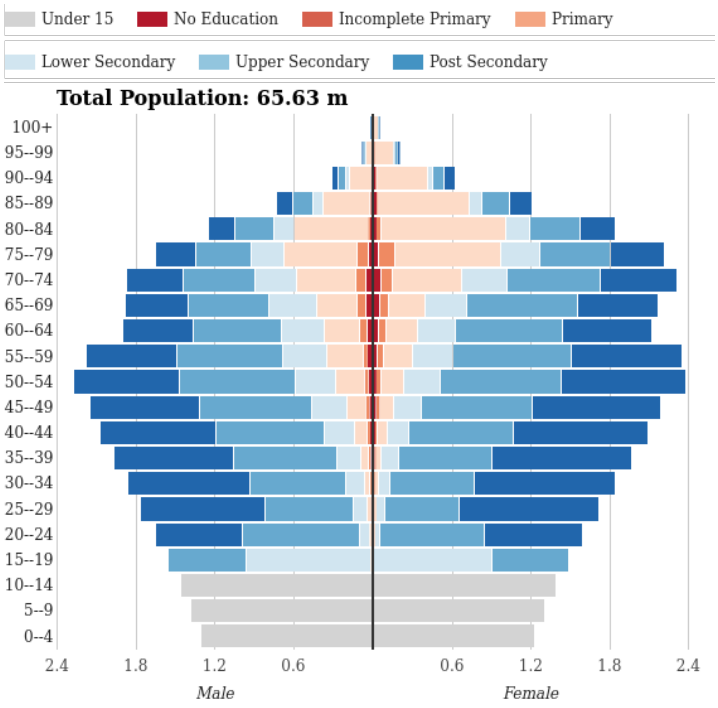
Together, this transformation is termed by Lutz as being 'demographic metabolism' – i.e. that a population is indeed, getting older, but that other transformations are occurring – in this case educational attainment [18]. It is argued, then, that this multidimensional view of changing population structures means that the challenges of population ageing can be somewhat offset by this *qualitative* change in the population. Indeed, it has been argued that this educational shift, rather than just the changing age structure of the population, is the primary driver of the 'demographic dividend' which has been a feature of the economic-demographic nexus of Thailand – and other countries – in recent decades [110]. This view is reflected in other studies. For example, de la Fuente [111] concludes that

'investment in education has a positive, significant and sizable effect on productivity growth'. Furthermore, he continues that 'the social returns to investment in human capital are higher than those on physical capital in most EU countries' [111].

4.1.2 Future scenarios

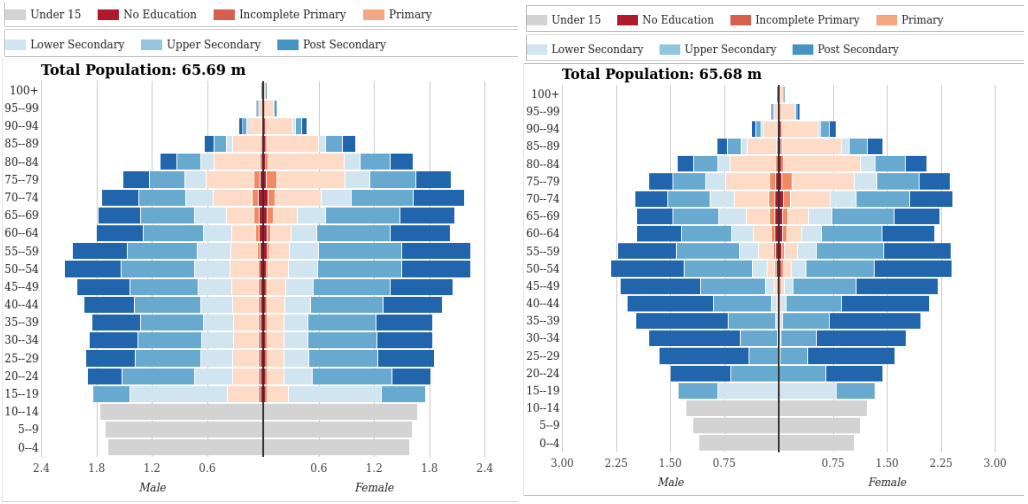
The pyramids presented above represent change over time in the past – but what of the future? Figure 4.4 is a representation of the education-specific projected population for Thailand in 2050 under the 'medium' scenario of the forecasts produced by the Wittgenstein Centre for Demography and Human Capital in Vienna [112] – see also Appendix I for projection assumptions. Clearly, the population age structure is getting older. However, when compared to Figure 4.3 above, we see a further transformation. Primary educational attainment for younger age groups is almost non-existent. Secondary education – and especially upper secondary and postsecondary – is the new norm. Furthermore at older ages, although the number of people increased dramatically, they are characterised by a completely different educational attainment profile to today – and especially when compared to 1980 – with the majority of people aged between 60 and 85 with secondary education or higher. Finally, we also see the further enhancement of female educational attainment, as well as the increasing relative and absolute size of the female older population – a common feature throughout the world [113].

Figure 4.4: Education-specific population forecasts for Thailand, Medium (SSP2) scenario, 2050 [109].



However, this scenario is just one possible future direction in which the population-education nexus of Thailand could travel. Figures 4.5 a and b represent two quite alternative futures. SSP3 represents a 'stalled development future' where enrolment rates are held constant, despite growing populations. Here, ageing is slower; but this is as a consequence of lower educational attainment being linked through to higher fertility rates. We also see that among younger and middle-aged populations, primary education attainment still features as a notable maximum level for the population. The 'rapid development' scenario, however, combines rapid education expansion (e.g. meeting of SDG education goals) with rapid fertility and mortality decline [112]. The pace of ageing is much faster here with higher orthodox measures of ageing (such as OADR and median age). However, the educational profile is quite different. In fact, because of Thailand's recent rapid development and success in educational reforms, coupled with its low fertility rates, the 'rapid development' scenario is remarkably close to the 'medium' scenario'.

Figure 4.5: Education-specific population forecasts for Thailand, Medium (SSP2) scenario, 2050 [109].



4.2 Beyond attainment: Skills training, pedagogies and lifelong learning

4.2.1 New curricula and Thailand 4.0

Educational attainment is not the only marker of human capital success. In fact, there can be diminishing returns to improvements in educational attainment. The Twelfth National Economic and Social Development Plan (2017-2021), for example, emphasises the 'skills and competency mismatches between labour

and supply, noting that 'as many as 60 percent of all Bachelor degree holders are unemployed, while a sample survey by the Ministry of Labor showed that 64 percent of the labor demanded by employers are those with an educational attainment of less than secondary school degree level (M6 and below)' [114]. In other words, while 'currently most industries are still very labor intensive...the workforce increasingly has higher educational attainment' and, in common with other places, many of the available jobs seem unappealing for many young Thais [114]. This is echoed in the ICPD@25 review, which emphasises the frequent disconnect between high educational attainment and decent employment, especially among younger generations [115].

In this context, then, the development of Thailand 4.0 and the adaptation of the labour market itself can be critical to bridging this gap and delivering success both on the macroeconomic level, but also – key for our purposes here – enabling each person to maximise their full potential. Schools and universities will, inevitably, need to adapt their pedagogies and curriculum to meet the needs of the Thailand 4.0 framework, and the shift to a higher-skilled economy, continuing reform in the past [116]. The shift to a more highly educated population as discussed above is a key factor in shaping Thailand 4.0. For example, with regard to the development of logistics-related industries, The Twelfth National Economic and Social Development Plan (2017-2021) states a goal to

> *Enhance the quality of logistics human resources and planning to meet the demands of the business sector. The emphasis should be on escalating workforce productivity through promoting collaboration among the business sector and educational institutes (vocational colleges, universities and training institutes) in revising both vocational and university-level educational programs and organizing training in both operational and technical skills [114].*

But, according to the World Economic Forum, 'A focus on the state of the talent pipeline for traditional formal qualifications and hard skills therefore risks dramatically understating the scale of impending skill set disruption if a large part of the existing subject knowledge of the current workforce will be outdated in just a few years' [117]. This can mean that skills which are relevant today, may become quickly redundant. It is tempting to 'follow the trail' of economic strategies such as Thailand 4.0, the development of training programs in narrow fields such as smart electronics or digital economy. It is estimated, for example, that 'current technological trends are bringing about an unprecedented rate of change in the core curriculum content of many academic fields, with nearly 50% of subject knowledge acquired during the first year of a four-year technical degree outdated by the time students graduate, according to one popular estimate' [117].

However, beyond learning 'topics', there is increasing evidence that transferable 'skills'; and capabilities – both within traditional school years and across the life cycle – are just as important, if not more so [118]. In other words, 'even though

education and labour market experience are both considered as *inputs* into the production of human capital, they are not direct measures of the *outputs* (i.e. a set of skills, competencies and knowledge needed by individuals to have a successful life in society)' [118]. In order to better understand what leads to this 'successful life in society', and how human capital development can contribute to it, we need to take a more holistic view which goes beyond formal education, knowledge and capabilities [119–121]. For example, rather than just a means to an end such as economic growth, education – or more specifically 'learning' can be linked through to many other aspects of a 'successful life in society'. This includes the development of interpersonal trust, where education and skills play a role independent of socioeconomic status , and is in turn seen as a necessary condition for further engagement with many other social activities [122] as well as something that fosters economic growth [123]and political stability [124,125]. Skills are also positively linked to volunteering [126] which, in turn, is considered to 'social outcome that mainly benefits society as a whole' [118]. Clearly, these can all have positive feedback effects in ageing populations. Volunteering and civic engagement is a key element of both the success of active ageing programs [127], but also the process of volunteering can be highly beneficial for older people themselves in terms of societal participation, fighting loneliness, having a sense of worth and building social capital. (Of course, it is not only education and skills which limit volunteering (e.g. in older age); we must also consider functional limitations reduce volunteering [128], and poor physical and mental health conditions [129,130] – see discussion in the health section).

Although educational attainment in Thailand has seen a revolution in the past decades, there are still issues to be tackled. As The Twelfth National Economic and Social Development Plan (2017-2021) notes, for example, 'In 2014, school age children had an average IQ score of 93.1, which was below the global average of 100, while the average EQ score recorded in 2011 was only 45.12, which was well below the normal range of 50-100' [114]. Similarly, The Twelfth National Economic and Social Development Plan (2017-2021) observes that 'Despite a constant increases in the mean number of years of schooling of the working age population aged 15-59 years old, from 8.8 years in 2008 to 9.3 years in 2015, learning achievement among Thais is, however, a concern, as reflected in the average scores of the O-NET and PISA exams' [114]. It continues 'the design of both curricula and the teaching system, which mainly focuses on testing students' memory of what they have been taught rather than their understanding of the content, causing a lack of creativity among students. As noted above, there are many means of considering the *quality* of education rather than simply the *quantity*. UNESCO – in a working paper by [131] – propose the following 'shifting conceptualization' in (a) teaching and learning, (b) curriculum design and (c) education planning and management.

Clearly, as part of this we would identify a need for innovative pedagogies designed to equip skills for the twenty-first century place an emphasis on softer skills, innovative thinking, self-learning, problem solving and teamwork, rather than learning by rote. These new systems include blended learning [132], reflective and experiential learning [133], flipped classrooms [134] and so on. It is

Figure 4.6: Shifting conceptualizations of various aspects of education, skills and learning [131].

(a) teaching and learning

FROM FOCUS ON : ➡	TO CONCERN WITH :
Teaching	Learning
Schooling	Life-long learning
Time-bound learning	Outcomes-based
Transmission of information	Learning to learn
Passive learning	Active learning
Memorisation & rote learning	Understanding, analysis, synthesis and application
Teacher-centered approaches	Learner-centered approaches
Summative evaluation	Formative evaluation

(b) curriculum design

FROM FOCUS ON : ➡	TO CONCERN WITH :
Fragmented curricula	Integrated curricula
Specialized subjects	Learning areas
Content defined as knowledge	Development of skills and competencies
Centralized curricula	Diversification: regional and local curricula

(c) education planning and management

FROM FOCUS ON: ➡	TO CONCERN WITH:
Supply	Demand
Quantitative approach	Qualitative dimensions
Access	Quality & Relevance
Inputs	Outputs, Outcomes, Results & Impact
Investment efforts	System efficiency
Centralized management	Decentralization

said that these new skills are even more required given the ongoing threat of automation and AI to certain jobs, especially those reliant on rote learning [117]. In this context, it may well be that such new modes of learning may be just as – if not more important – than the determination of *what* students are learning. Thailand is making good progress in developing such new pedagogies [135,136]. Piriya Pholphirul, director of the National Institute of Development Administration (NIDA) Graduate School of Development Economics recently observed that 'If [Thai] universities do not move quickly to transform themselves into educational institutions for a technology-assisted future, they risk becoming obsolete'. This meant that learning would be flexible, on-demand, and tailored to what students wanted to achieve. As Pholphirul continues, 'Students will be able to study in multiple modes, switching seamlessly between on-campus, mixed or wholly online study, to suit their lifestyles and fit learning around work and other activities' [137].

4.2.2 Lifelong learning

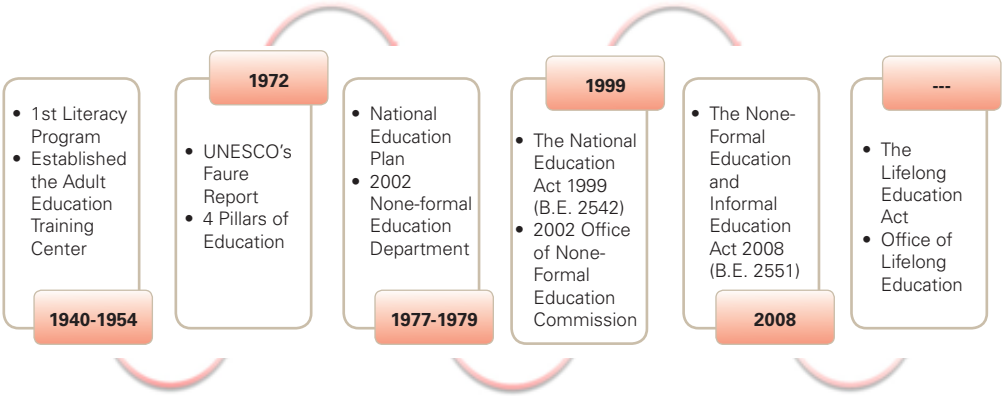
Such a way of changing the thinking of established modes of learning can also be applied to the period of time in which learning is concentrated. Currently, of course, formal education is primarily concentrated in the period between 5 and 22 years of age (although the increasing preponderance of postgraduate study has pushed this upper limit upwards. As discussed in the 'active ageing' section of this framework, it has been observed elsewhere that lifelong learning has not necessarily been fully integrated into this framework [138]. However, lifelong learning opens up a wide variety of possibilities – especially in the context of population ageing.

Firstly, in common with other places characterised by low fertility and in the broader context of globalisation, traditional universities may struggle with demand to fill places. Under these circumstances, opening up universities to new markets can stimulate growth in the sector [139]. As Patrachart Komolkiti, the director of the Learning Innovation Centre at Chulalongkorn University observes, 'Thailand's birth rate has fallen drastically, so universities will not be able to rely on secondary school graduates anymore' [137]. Secondly, under conditions of extended longevity, and rapid structural transformation of the economy (and society through, for example, urbanisation), the need to 'reskill' – and the period of time in which to do so – is growing. As Komolkiti notes, 'People will live longer and work longer, and that means they will need universities to help them acquire new sets of skills' [137]. Thirdly, and related to this previous point, lifelong learning can be an important means of developing economic capabilities and accelerating regional development – especially among areas and people 'left behind'. It has been observed, for example, that under such straitened demographic conditions as Thailand finds itself 'ensuring the adaptability and employability of their existing workforce will become as important as recruiting and inducting young workers entering the labour market for the first time' [140]. Elsewhere, lifelong learning has been considered to be an effective means of increasing and enabling regional development [141]. This can be especially effective in offsetting past inequalities in the education and economic systems. Fourthly, studies have shown that older adults' participation in lifelong learning is positively associated with social inclusion, their psychological wellbeing and other markers of health [142–144]. As a recent study in Canada found, lifelong learning represents 'a compensatory strategy to strengthen their reserve capacities, allowing them to be autonomous and fulfilled in their everyday life' – even for the most vulnerable [138].

The history and development of lifelong learning in Thailand has been recently and extensively reviewed elsewhere [145–147]. An overview of the historical timeline of lifelong learning and education in Thailand can be found in Figure 4.7 below. The principles of lifelong learning are strongly supported in Thai Law and strategies, including the *Promotion of non-formal and informal education act, B.E. 2551 – 2008*, which explicitly prioritises a multi-stakeholder approach to non-formal education [148]. The goal of this holistic approach has been to focus

on 'the triangle of knowledge, skills, and mindset that enhances employability, personal development, active citizenship, and social inclusion [146].

Figure 4.7: Historical timeline of lifelong learning and education in Thailand [146].



In recent years, some specific case models have been suggested as a means of operationalizing this lifelong learning modality [146]:

1. **Creating lifelong learning centers and use of resources.** This involves the development of both digital and physical spaces for non-formal learning to occur, such as the development of science museums, libraries, discovery museums and so on. The 'Smart Book Home' project aims to 'instill in Thai people a love for reading, especially [in] rural and remote areas' [149]. 'Digital community Centers' at the tambon level can be hubs for digital literacy programs [150]. This is strongly in line with 20-year National Strategic Plan (2018-2037), Area 3: 'Development and promoting reading habits and lifelong self-development among the human resources to be innovators, thinkers, and entrepreneurs, focusing on the transformation of learning' [107]. In 2017, there were 64,000 elderly enrolled in 1,163 schools for elderly to promote lifelong learning, established by the Department of Older Persons [151]. Such schools for the older persons are 'one way to give older persons the opportunity to pursue topics of interest that suit their lifestyle, and acquire new skills that can be applied in the home or home community' [151].

2. **Using Information and Communication Technology (ThaiMOOCs) to Foster Lifelong Learning Opportunities for All.** MOOCs and other modes of online learning can operate as a means of bridging these various different demand factors and challenges in supplying high quality, relevant education. ThaiMOOCs is a mega-project designed to offer users free (or highly subsidised) education 'on demand'. Established

in 2017, by 2019 the program had more than 94,000 members with 153,981 registrations and 300 active courses [152]. The four phases of the ThaiMOOC development plan, and other aspects of the plan, have been described elsewhere [152–154].

3. **The Equivalency Programs for Promoting Lifelong Learning.** This involves 'accrediting and/or certifying levels of learning of individuals as comparable to the formal education system; based on clearly defined procedures and methods of assessment, measurement and evaluation of learning; in reference to national education standards' and is achieved through the use of NGOs, schools, vocational centers and COmmunity Learning Centers' designed for literacy and continuing education.

4. **A Professional Learning Community (PLC) for Improving Teaching Quality.** This represents lifelong learning for teachers, to a certain degree. The development of a PLC of a supportive community for educational professional is seen as critical to develop both educational quality and satisfaction for teaching professionals [155].

4.2.3 New modes of assessment

In truth, of course, a balance should be struck between 'front-loaded' training and lifelong learning [156]. Also, there is a danger that new modes of learning, when not designed or implemented properly, can be just as ineffective as traditional modes and that a 'technological deterministic' view could, in fact, be damaging [157,158]. Further efforts can be mode to identify 'best practices' in lifelong learning from elsewhere, and attempt to apply sensitively to the Thai context [159]; whether drawn from the public or private sector [160]. For example, the World Economic Forum propose a number of key pathways for change in terms of 'Accelerating Workforce Reskilling for the Fourth Industrial Revolution' [160], namely:

- Take stock of and recognize existing skills
- Understand skills demand
- Adopt the right mix of financing instruments
- Build and sustain motivation for adult learning through active labour market policies and accessible resources
- Create shorter learning modules that foster continued learning
- Determine the role of different stakeholders
- Recognize and promote on-the-job training opportunities and maximize informal learning opportunities
- Reach those that need it most—SMEs, lower-skilled workers and older workers
- Customized teaching for adults
- Harness the power and scalability of blended offline and online learning, enhanced with virtual and augmented reality when relevant

Finally, these new sets of approaches, in turn, require alternative means of measuring quality in education which go beyond attainment, or even metrics such as PISA scores. Such holistic approaches include the UNESCO Santiago Model [161] which measures 'Relevance, Pertinence, Equity, Effectiveness and Efficiency'; and the Tikly [162] model of good quality education (see Figure 4.8 below), which recognises the possible differing values amongst the various stakeholders involved in education (learners, parents, teachers, government). Figure 4.9 represents the 'fabric' of quality of education approach suggested by [163]. Here 'the quality of education is much like a 'fabric': that is, it is at its strongest when 'stretched' or maintained in tension. the framework emphasizes the need to seek a contextually relevant balance among the seven dimensions, where 'balance' does not imply a simple equalizing across all dimensions, even if that were conceptually possible...The needs and the possibilities for action within different educational contexts will vary and decisions must be made over what is desirable and feasible within a specific situation' [131]. Effectively, all of these modes of assessing quality in education represent a radical departure from the standard ' input-process-output model'.

Figure 4.8: Tikly's model of good quality education [162].

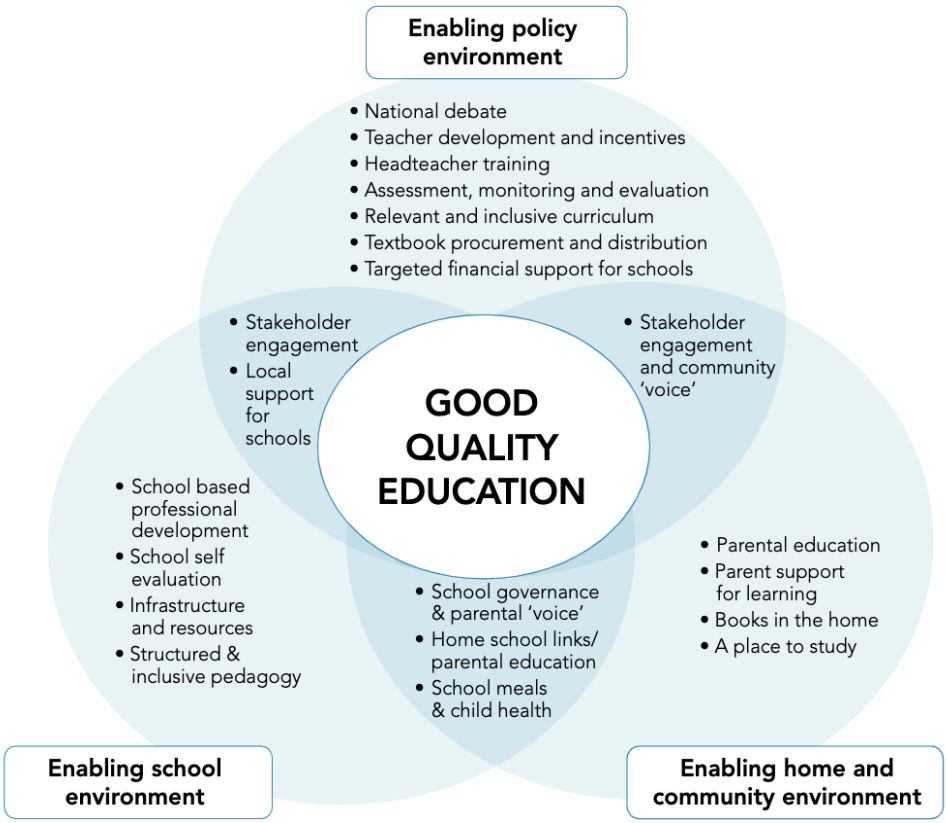
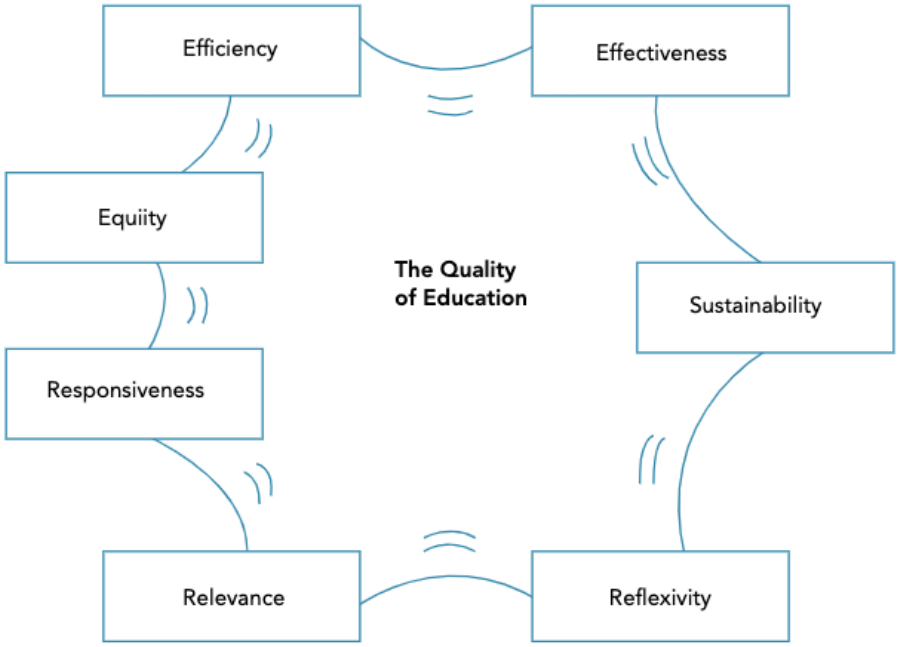


Figure 4.9: The 'Fabric Model' of Quality in Education [163].



4.3. Conclusion: Sustainable Policies?

There are strong laws, institutions, plans and strategies already in place to enhance human capital development in Thailand. Thailand 4.0 sets out a strategic view of a new economic orientation, which will remould the labour market and skills system [75]. The National Education Act 1999 and its amendment, the National Education Act Amendment (Issue 2) 2002; as well the Non-formal Education and Informal Education Act 2008 form the basis of a series of educational developments which are being enhanced and supplemented by a new passion for delivering lifelong learning; while The National Health Act (2007) 'codifies important rights and duties on health that are not prescribed in any other laws, such as the right to live in a healthy environment, the right to receive sufficient health information to make an informed decision to accept or refuse any health service, etc' [164]. 'The Strategy for Human Capital Development and Strengthening' within the *National Strategy (2018-2037)* [107] and the 'Strategy for Strengthening and Realizing the Potential of Human Capital' within the *12th National Economic and Social Development Plan 2017–2021 [114]* suitably encompass the key life cycle human capital capabilities which can form the fundamental basis for managing and offsetting some of the challenges of population ageing. Indeed, these strategies clearly take a life-cycle approach – albeit without necessarily linking them together as a changing cohort. For example, as the

Human resource development should be consistent with labor market demand and the skills needed to function in the 21th century among all age groups. School age children and adolescents must be imbued with systematic and creative analytical knowledge and skills, and preparedness for building on all kinds of skills, including working and life skills, that are vital for labor market participation. Working age people will be equipped with knowledge and skills that are responsive to the demands of the labor market, namely basic skills, specialized skills, emerging entrepreneurial skills, and self-employment skills. The older persons will be encouraged to develop working skills that are suited to their age and individual experience.

Photo: UNFPA / Chalit Saphaphak

5. Policies targeting older persons

5.1 Introduction

The danger of the two-dimensional view of population ageing set out above is that is can lead both the problematization of ageing, as well as policy paralysis in the face of an overwhelming structural, economic and social change which is impossible to hold back. This has led to the take-up of the offensive expression of the 'silver tsunami'. Rather, a more nuanced look at how both the challenges and opportunities coming about from an expanding number of older people is required. The Thai pension system, for example, is a complex one and is going through a series of adjustments. However, this is just part of the landscape of possible income protection measures for older people. Successful ageing, active

ageing, and productive ageing programs are also going to be essential in maximising the economic and social potential of the growing older population both at the societal level, but also for individuals themselves. Thailand can learn from the experiences of many other settings in the world, and apply and adapt these polices for the particular Thai context. Before doing so, however, it is critical to understand what is meant by 'successful' ageing for Thai people themselves.

In this chapter we explore some of these policies which target older people themselves.

5.2 Pensions and Income Protection

The Multi-Pillar Pension Taxonomy of the World Bank is perhaps the most well-known framework for understanding and comparing income protection systems around the world. The main components are shown in Figure 5.1.

Figure 5.1: World Bank Multi-Pillar Pension Taxonomy [165].

	Target Groups				Main Criterial	
Pillar	**Lifetime Poor**	**Informal Sector**	**Formal Sector**	**Characteristics**	**Participation**	**Funding/ collateral**
0	X	X	X	"Basic" or "Social pension," at least social assistance, universal or means-tested	Universal or Residual	Budget/general revenues
1			X	Public pension plan, publicly manages, defined-benefit or notional defined-contribution	Mandated	Contributions, perhaps with financial reserves
2			X	Occupational or personal pension plans, funded defined-benefit or funded, defined-contribution	Mandated	Financial assets
3	X	X	X	Occupational or personal pension plans, funded defined-benefit or funded, defined contribution	Voluntary	Financial assets
4	X	X	X	Personal savings, home-ownership, and other individual financial and non-financial assets	Voluntary	Financial assets

The development of the Thai pension system – and the broader systems of older age income protection – has been covered in depth elsewhere [166,167]. Presently, of course, the family is the most important source of financial security for the older persons in older age [168]. However, with changes in the nature and size of families, it is inevitable that such patterns of informal financial support may change over time [169]. There is also a very strong awareness of the need to make plans to prepare for financial security in old age [170].

The contemporary Thai pension system (or, perhaps, better termed, older income protection) has been described as 'complex in many aspects' [171]. As Figure 5.2 shows, a number of different income protection measures and schemes exist in Thailand, and map onto Pillars I, II and III, and are targeted at different groups within the population. In Pillar One, we see the old age allowance The development of this scheme has been explored elsewhere [170]. This old age allowance was initially placed at 500 Baht per month; although a top up of 100 baht was approved in 2018 for those with an annual income of less than THB30,000. There is now an increment by age: 600THB for those 60 and above, 700THB for 70+, 800THB for 80+ and1,000THB for 90+. However, while the goal of this allowance is to protect against poverty, in reality the amount offered is still significantly below the actual poverty line.

Figure 5.2: Mapping of Thai income protection systems onto World Bank Multi-Pillar taxonomy [171].

<table>
<tr><td></td><td colspan="3">Target Population</td></tr>
<tr><td></td><td>Government Officers</td><td>Workers in the formal sector</td><td>Workers in the informal sector</td></tr>
<tr><td>Pillar I</td><td></td><td colspan="2">Old-age allowance</td></tr>
<tr><td rowspan="2">Pillar II</td><td>Old Civil Service Pensions</td><td rowspan="2">Section 33 of Social Security Fund</td><td rowspan="2">Section 39 and 40 of Social Security Fund</td></tr>
<tr><td>Government Pension Fund</td></tr>
<tr><td rowspan="3">Pillar III</td><td colspan="3">Retirement Mutual Fund and Pension Insurance</td></tr>
<tr><td></td><td colspan="2">National Saving Fund</td></tr>
<tr><td></td><td>Provident Fund</td><td></td></tr>
</table>

In Pillar II, apart from the Civil Service Pensions, the Social Security Fund [SSF] offers a number of benefits including pensions, disability benefits and so on, and is set up as a funded defined benefit structure where formal workers and their employers. Enrolment is compulsory, and contribution rates for employers and employees are 5% of salary with a Government top-up of 2.75%. Section 33 of the Social Security Fund Act stipulates the means by which pensions are distributed to persons aged over 55 who have contributed for more than 180 months.

In Pillar III, the Retirement Mutual fund is a defined contribution fund where the government provides an incentive to support and promote savings for retirement. While there are a number of tax benefits to the RMF, an alternative 'Long Term Equity Fund' has the same tax benefits but more flexibility. The National Pension Fund [NPF] is a planned nationwide DC fund for all workers in the formal sector as an alternative in case employers do not provide provident fund – especially the case for small and medium enterprises. As of late 2019, the draft bill on NPF has not yet been passed into law. The National Savings Fund [NSF] is a DC scheme to pay pensions and was introduced as a savings scheme for (non-Government) workers in 2011. The target group here is low income workers, so the minimum contribution is low (50THB per year) and maximum of 13,200THB per year. The government matches these contributions and guarantees a minimum return and a pension for at least 20 years after the pensionable age. While the government is considering raising the maximum threshold to further encourage saving, this may lead to an introduction of a cap on the amount of payable pension guaranteed by the government. Also under Pillar III, employers can also opt to voluntarily set up a provident fund for their employees. Contributions for employees and employers are tax deductible and can range from 2-15% of salary. However for this the coverage rates are not high – perhaps around 3m workers of a total of around 17m in the formal sector.

There are certain key challenges for the Thai pension system [171]. Firstly, in common with many countries, there is a significant issue relating to the coverage of informal workers. While there are over 20 million workers in the formal sector, only 4.2 million are members of the SSF and 0.5m are members of the NSF. Furthermore, coverage rates of provident funds or formal workers are also low (around 22%). It is also noted that payouts for many informal workers who have contributed to the SSF will generally below expected spending needs during retirement. While some studies have shown higher degrees of financial literacy among 'middle class' in Thailand [172], this is not altogether widespread [173]. The government is currently trying to shift from a defined benefit pension structure to a defined contribution fund format. However, as observes below [171].

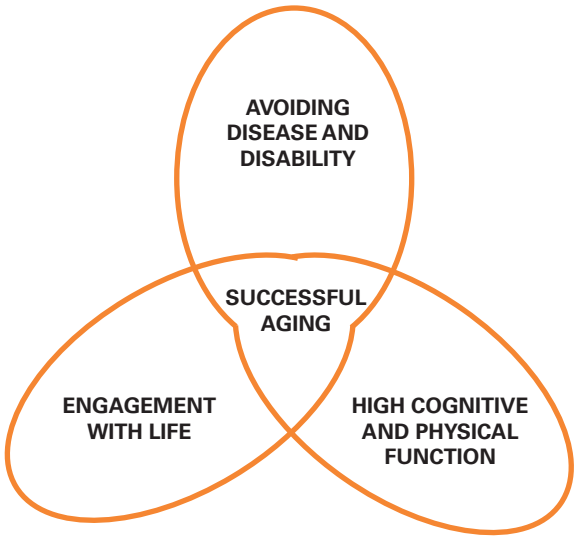
The implementation of DC funds will be successful only if households acquire a certain level of knowledge about financial risk, return, and the importance of saving for retirement. Without an appropriate level of financial literacy, Thai households will only save at the minimum contribution and will only invest in an investment policy that may be too conservative and not appropriate in the context of long-term savings for retirement.

5.3 Successful ageing; active ageing

5.3.1 Successful ageing

The idea of 'successful ageing is a very influential paradigm in gerontology. In this model, developed by Rowe and Kahn [174], (see Figure 5.3) the avoidance of disease and disability and the maintenance of high cognitive and physical function are at the heart of a strategy to maintain healthy ageing. 'Engagement with life' is perceived to be a critical third factor in this relationship. We explore the concept of 'successful ageing in greater depth in Chapter 6. At this point, however, it is worth making a critical observation which will be strand through the various international policies and paradigms discussed in the remainder of this report. The notion of 'successful' is a highly normative one; and one which can be subjectively driven by the paradigms prevalent in the host countries of the authors. In other words, different countries and different cultures – and different people at the micro level – will have different conceptualisation of what 'successful ageing' actually means; and by what mechanisms such success' can be achieved. For example, in the Thai context, it has been suggested that the following aspects are the key components of 'successful ageing': 1) engaging with others; 2) religiosity; 3) financial stability; and 4) health [175]. Again, in the Thai context, there are notable differences in the relative contribution of different factors to what is felt to be 'successful ageing'. In one study [176], for example, social engagement was felt to have the strongest relationship, followed by family functioning and mindfulness, respectively. Again, this issue is explored in greater depth in the following chapter.

Figure 5.3: The Rowe and Kahn model of successful ageing [174].



5.3.2 Active ageing

Active ageing has been a core part of the policy paradigm in relation to older people for some decades now. As Figure 5.4 shows, it is a multidimensional, multi directional approach to understanding the various different means by which people can 'age' better'. The approach is extremely influential, and has been studied and explored in great depth elsewhere for various different contexts [7,138,177]. Without doubt, the life-cycle approach of the active ageing model lends itself well to the development of policies to ameliorate some of the challenges of population ageing. In this definition, 'active' does not just mean continued participation in the labour force [178]. Rather it is a broader concept of continuation of participation in social, economic, cultural, spiritual and civic affairs. However, as with any general model, there are challenges in applying the model universally. For example, as Paúl et al. [179] observe 'The profile of active ageing is expected to vary between contexts and cultures and can be used to guide specific community and individually based interventions'.

Figure 5.4: The Active Ageing model [178].

Punyakaew et al. [180] observe that 'Research on active ageing in Thailand has been scarce. In their small scale study of a community school for older persons in a suburban village in Northern Thailand, they found that 'level of active ageing was moderate'. It is difficult, however, to generalise from this small scale study. Elsewhere, the study by Haque et al. [181] using the 2011 Survey of Older Persons in Thailand found that '[the] active ageing level in Thailand is not high (evidenced as far behind the goal)'.

Against this backdrop, the 'Asian Active Ageing Index' [AAAI] was developed as 'a tool for quantifying the extent to which older persons have and can realize their potential' [182].This Index was operationalised to allow for comparative analysis of active ageing, primarily in the ASEAN region. Although it is based on the European Active Ageing Index, the AAAI is sensitized to the cultural differences of exploring South East Asia, namely considering norms relating to the role of older persons in society, the changing norms of family relationships and the informal nature of contributions of older persons to their families and communities. The domains and indicators in the AAAI can be found in Figure 5.5 below. For further details and how weightings and adjustments were made, please see the study by [182]. In Thailand, the primary data sources used for the construction of the AAAI are the Labour Force Survey, 2015; Population censuses in 2000 and 2010; the National Survey of Older Persons in Thailand (2011, 2014) and the Study on Health, Ageing, and Retirement in Thailand, (2014).

Figure 5.5: Domains and indicators of the Asian Active Ageing Index [182].

Overall Index	**Asian Active Ageing Index**			
Domains	Employment	Social participation	Independent living	Capacity / enabling environment
Indicators	Employment rate 55-59	Voluntary activities 55+	Physical exercise 55+	Remaining Life Expectancy (RLE) at age 60
	Employment rate 60-64	Care to child / grandchildren 55+	Access to health insurance or health benefit 55+	Share of Healthy Life Expectancy (SHLE) at age 60
	Employment rate 65+	Care to older adults 55+	No ADL difficulties for 55+	Mental well-being 55+
		Civic and religious activities 55+	No IADL difficulties for 55+	Subjective well-being 55+
			Relative median income 65+	Social connectedness 55+
			No poverty risk 65+	Physical safety 55+
			Home ownership 55+	Use of ICT 55+
				Educational attainment 55-74

The most recent operationalisation of the AAAI is a systematic comparison between Thailand and Indonesia [182]. The results of the comparison can be found in Figures 5.6-5.9 below. The exercise found that there were very high rates of employment among older people in both countries, more likely out of economic necessity rather than by desire. Grandparental care is common; and related to both tradition as well as the lack of childcare infrastructure. Participation in civic and religious activities is high; but this may have a consequential impact on voluntary activities. We see lower levels of care to older adults (see healthy ageing chapter). Levels of physical exercise are rather low in Thailand; as is the use of ICT and educational attainment.

Figure 5.6: Employment domain index for Indonesia and Thailand, by males and females [182].

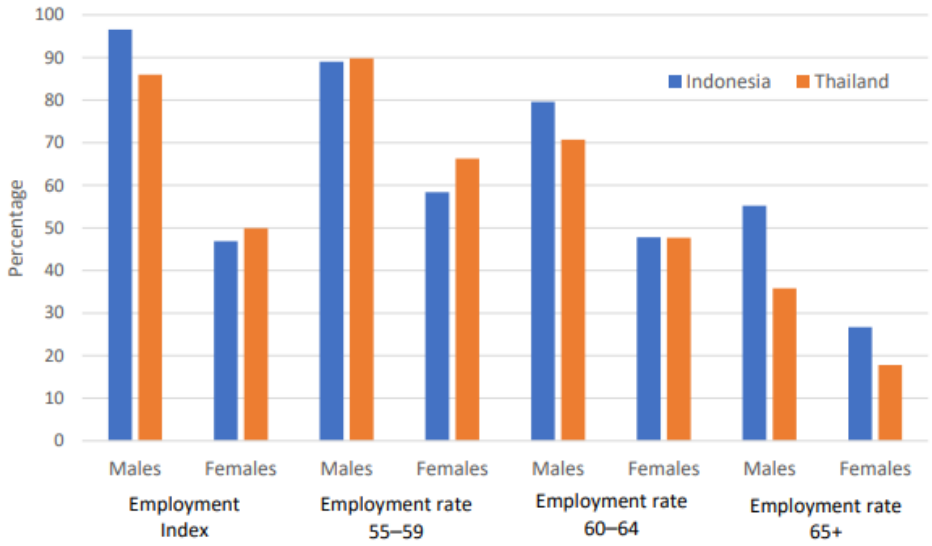


Figure 5.7: Social participation domain index for Indonesia and Thailand, males and females [182].

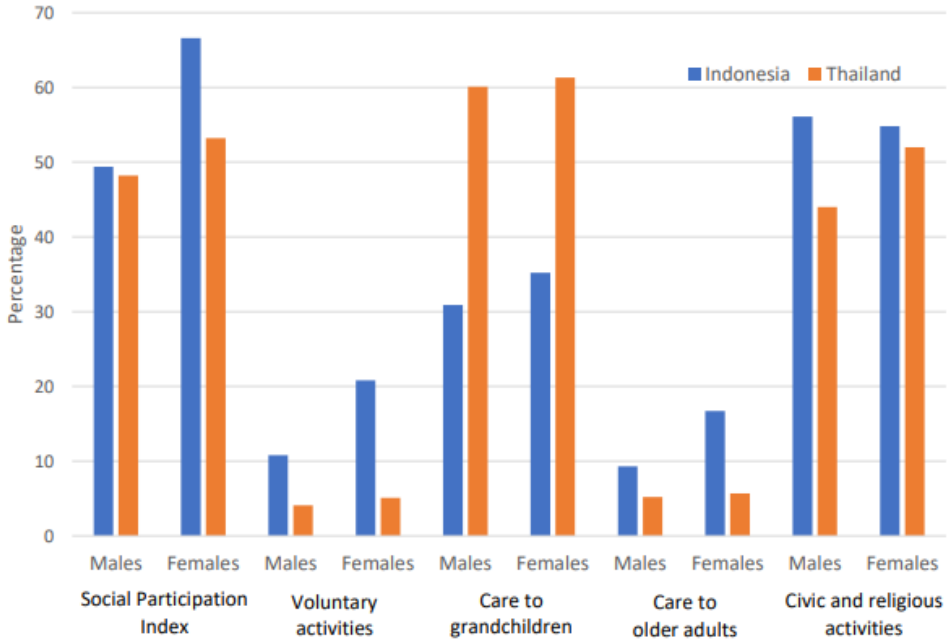


Figure 5.8: Independent, healthy and secure living domain index for Indonesia and Thailand, males and females [182].

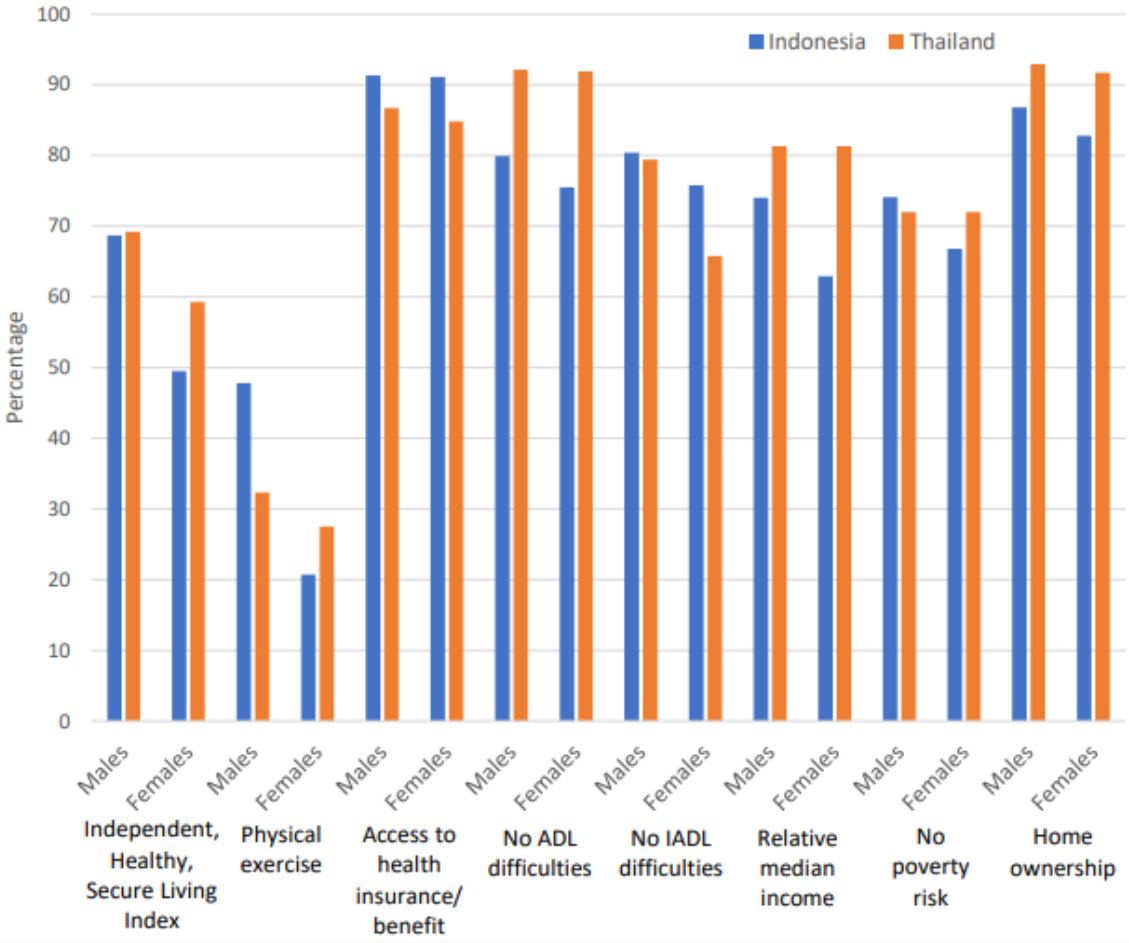
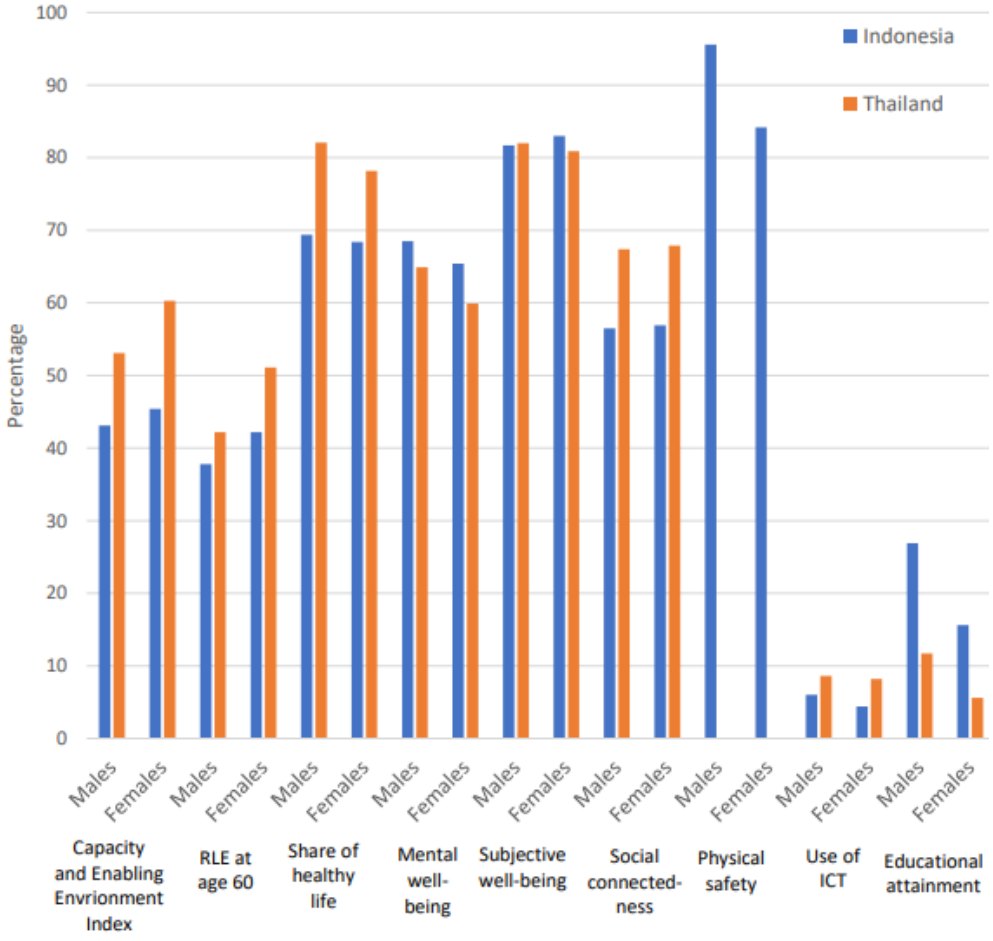


Figure 5.9: Capacity and enabling environment domain index for Indonesia and Thailand, males and females [182].



5.4 Conclusions

The active ageing agenda is perhaps the most comprehensive holistic policy framework of policies targeted at older people, but also with a life cycle perspective in mind. The multidimensional approach helps us to identify strengths and weaknesses in the existing policy paradigm. However, we must be on our guard to check that our measures are culturally sensitive and context-appropriate.

Clearly, Thailand has made significant progress in areas of developing policies in these areas; but improved income protection as well as developing all components of active ageing remain a priority.

Photo: UNFPA / Chalit Saphaphak

6. Policies promoting healthy ageing

6.1 The context of healthy ageing

What is healthy ageing? WHO defines 'Healthy ageing' as 'the process of developing and maintaining the functional ability that enables wellbeing in older age' [183]. This 'functional ability is defined as the capability of all people to be and do what they have reason to value. This, in turn, is made up of the **intrinsic capacity** of the individual – or their own mental and physical capabilities – and the **environmental characteristics** of the home, community, society, family, values, social policy and so on. In sum, 'being able to live in environments that support and maintain your intrinsic capacity and functional ability is key to Healthy Ageing' [183]

Of course, the literature on this subject is very broad, and the WHO view is not the only approach we can see. From a medical perspective, this can mean the ability to maintain physical, psychological, and social function, and postponing or averting chronic disease [184]. From a sociological or psychological perspective, meanwhile, healthy ageing focuses more on one's attitude, autonomy, support structure, and individual independence as fundamental aspects of healthy ageing [185]. In nursing, meanwhile, healthy ageing is more focussed on maintaining an individual's ability to perform normal daily activities, social and psychological aspects.

We also need to be mindful as to what *regional contexts* of healthy ageing might be. In Thailand, nursing research tends to focus on the interaction between physical, mental, environmental, and religious dimensions [186–188]. For example, the model of healthy ageing developed by Thiamwong et al. [189] for Thailand comprised three themes: 'normality which means living a normal life, nature which comprises living a simple and natural life, and dharma which focused on practices in Buddhism.' On the other hand the model of comprised of 'independence, no chronic diseases, a positive aspect of psycho-emotional outlook, and social contribution'. Finally, the study of Manasatchakun [185] of healthy ageing in Isan-Thai culture emphasized "being independent in dependence," "being at peace," and "being a valuable person."

In turn, each of these factors can – and needs – to be unpacked and considered in the relative cultural context. Take the notion of 'independence' for example. This is taken to be very important in the Western conceptualisation of healthy ageing; but may well be valued differently in different cultures [190–192], for example where there is greater emphasis on *interdependence*. In other words, 'independence is a cultural value' [184]. For example, in the Thai case, this 'interdependence' with the family is a key societal and religious aspect of ageing [186,193,194] – although evidence appears to be suggesting that such values may be changing [169].

The reason why this matters is because understanding what healthy ageing means is important not just to define policies and other top-down indicators; but also – and perhaps more significantly – to build care systems which take into account the perspectives of older people themselves [195].

Finally, there is an issue relating to the age-groups at which healthy ageing policies are targeted. Many of the academic studies discussed above focus on the *conditions* of healthy ageing among older people. While the WHO definition of healthy ageing is based around a process of *maintaining* 'functional abilities', it is impossible to deny that much of the focus around WHO healthy ageing policy is based on people who are currently 'older'. This can be seen in the context and framing of the policies – such as the increase in the number of people aged 60 and above, denting a 'target' group, as well as many of the key priority areas, such as combating ageism, or developing long-term care systems [196].

International policies related to this area are already highly developed. WHO as well as NGOs including HelpAge International. Furthermore, Thailand has a

highly developed research and policy framework in this area (e.g. the reports of UNFPA, Foundation of Thai Gerontology Research and Development Institute; active ageing as part of national plans and strategies). In this sense, it is only necessary to restate the *principles* of healthy (and active) ageing and their application to the Thai case. This section, therefore, will serve to draw attention to these international plans of action and strategies as well as case study evidence of good practice from around the world.

6.2 Healthy ageing, successful ageing

The concept of healthy ageing is a somewhat contest one, as outlined above. Furthermore, the relationship between healthy ageing and other related paradigms concerning ageing is not often clear. In Chapter Five, for example, we explored the concept of successful ageing. In effect, healthy ageing is a critical component of this. This concept has been employed in various studied of Thailand in comparative context [197]. However, there are a variety of other dimensions to consider when evaluating what the health component linking into successful ageing actually means. Some studies, for example, particularly emphasise certain psychological facets such as the promotion of emotional regulation strategies in order to facilitate cognitive functioning and, hence, successful aging [198].

Having said this, other studies in Thailand place other components well ahead of health as markers of successful ageing; such as 1) engaging with others; 2) religiosity; 3) financial stability; and 4) health [175]). In another study social engagement was found to have the strongest relationship to successful ageing, followed by family functioning and mindfulness, respectively [176].

In Gray's [199] study of successful ageing in Thailand the following specific components were outlined. Firstly 'avoiding disease and disability' was associated with 'Number of chronic diseases; ability to see; ability to hear; ability to control urination; and ability to control defecation'. Maintaining physical and cognitive functioning was associated with 'ADL scores, IADL scores' as well as non-medical issues such as using money correctly. However, it was found that 'Continuing engagement with life' – discussed in Chapter 5, but broadly relating to giving and receiving support and participation in various private and public activities – was the most important contributor to successful ageing in Thailand; with maintaining physical and cognitive function in second place, and avoiding disease and disability in third place.

As pointed out in Chapter Five, however, the successful ageing model – including its health component – is subject to some critique. Katz and Calasanti [200], for example, observe ask whether the model of Successful Ageing 'appeals more than it illuminates', especially as it says so little about social inequality, health disparities and age relations. More broadly, a number of critiques have suggested that the normative model of 'Successful Ageing" is, by definition, exclusionary [201]. This is particularly the case in terms of its application to an alternative, non-Western setting.

As such, it may be necessary to look beyond the notion of successful ageing to consider the potential role of health. Some other models have been proposed, such as 'balanced ageing' [202], 'resilient ageing' [203] and 'harmonious ageing' [204] as well as meaning-based models and spiritual models [205].

6.3 Benchmarking healthy ageing in Thailand to the international paradigms

6.3.1. WHO Healthy Ageing Strategy

In terms of international benchmarking, perhaps the most comprehensive framework is that of the WHO. The strategic objectives of the *Global Strategy and Action Plan on Ageing and Health'* are reproduced as Figure 6.1below.

Taking these in turn for the case of Thailand, we might say that Thailand is very much in the process of developing these capacities on healthy ageing and evidence-based health policy. However, as far as combating ageism and transforming understanding of ageing and health is concerned, there is still significant progress to be made. There is no specific law on age discrimination, for example [206].

Figure 6.1: Strategic objectives of WHO Healthy Ageing Global Strategy

Strategic objective 1: Commitment to action on Healthy Ageing in every country
- 1.1: Establish national frameworks for action on Healthy Ageing
- 1.2: Strengthen national capacities to formulate evidence-based policy
- 1.3: Combat ageism and transform understanding of ageing and health

Strategic objective 2: Developing age-friendly environments
- 2.1: Foster older people's autonomy
- 2.2: Enable older people's engagement
- 2.3: Promote multi-sectoral action

Strategic objective 3: Aligning health systems to the needs of older populations
- 3.1: Orient health systems around intrinsic capacity and functional ability
- 3.2: Develop and ensure affordable access to quality older person-centred and integrated clinical care
- 3.3: Ensure a sustainable and appropriately trained, deployed and managed health workforce

Strategic objective 4: Developing sustainable and equitable systems for long-term care
- 4.1: Establish and continually improve a sustainable and equitable long-term care system
- 4.2: Build workforce capacity and support caregivers
- 4.3: Ensure the quality of person-centred and integrated long-term care

Strategic objective 5: Improving measurement, monitoring and research on Healthy Ageing
- 5.1: Agree on ways to measure, analyse, describe and monitor Health Ageing
- 5.2: Strengthen research capacities and incentives for innovation
- 5.3: Research and synthesize evidence on Healthy Ageing

In terms of Strategic Objective 2, one informant in the interview exercise suggested that the ability to foster older people's autonomy at least through physical infrastructure was very much lacking in Thailand. Other studies, meanwhile, have identified a significant degree of potential to further expand older people's social engagement depending on the type of activity. Health, in turn, is an important predictor of the ability to be in such social engagements [207]. In terms of multisectoral action; a number of the key informants discussed the issues relating to local government and the implementation of policy at the local and provincial level. This issue is covered in greater depth elsewhere in this report. However, challenges relating to multi-sectoral action have been observed elsewhere. The study on implementing a total ban on chrysotile asbestos in Thailand (see [208], for example, highlights the challenges of developing clear policy across sectors. It suggests, for example, that while the National Health Assembly is 'a useful platform for policy formulation on complex policy issues requiring multi sectoral action…[it] is not designed to enforce implementation, especially when power and authority lie with state actors'. This therefore limits is capacity to develop and implement such multi-sectoral action. Elsewhere, the study by Rajan et al. [209] confirms the value of the National Health Assembly, citing its role in creating a 'qualitatively improved policy dialogue' it is observed that it has a major challenge in terms of 'ensuring a sustainable link to decision-making and the highest political circles. Despite this, the model of the National Health Assembly is, of course, very positive; allowing as it does citizens the capacity to be engaged in policy decisions on health – an important part of MIPAA (see below) [210]. As it is described, 'Stipulated in the National Health Act 2007, National Health Assembly is one of the most significant social mechanisms to facilitate evidence-based policy making with great emphasis on inclusive participation. The National Health Assembly is a year-round policy process, not a one-time event [211]. Indeed, it is widely considered to be something of model institution which could be deployed elsewhere [212].

In terms of objectives 4 and 5, a full length review of the development of the Thai healthcare system is beyond the scope of this report. However, it is important to observe some key features. Of course, the development of universal health care in Thailand in 2001 has been widely discussed [213]. Before this time, Thailand's health system was a 'a patchwork of arrangements for different population groups: the tax-financed civil servants' medical benefit scheme for public employees; the contributory social security scheme for private employees; the tax-financed medical welfare scheme for people in poverty; and the contributory voluntary health card scheme for households' [213]. Despite this, many still 'fell through the cracks' and were not able to receive adequate treatment [214]. Universal Health Coverage (UHC) has been especially significant in contributing to a low prevalence of unmet needs for outpatient and inpatient services [215]. However, while the success in primary care of UHC is without doubt, there are still some challenges which develop as the epidemiological transition takes shape. It has been argued, for example, that 'the system has to move from its traditional role of providing basic disease-based care to being the first point of contact in integrated, coordinated, community-oriented and person-focused care' [213]. Elsewhere, it has been suggested that 'Remaining challenges include preparing

for an ageing society, primary prevention of non-communicable diseases, law enforcement to prevent road traffic mortality, and effective coverage of diabetes and tuberculosis control' [216]. It has been noted that attention must also be paid to environmental health risks as determinants of health: for example, those who have low levels of education are subject to lesser awareness about health and the alternatives for a healthy lifestyle, such as: food safety risks, air pollution exposure, and road accidents [114]. Again, this means that multi-sectoral action is of critical importance.

Put another way, Jongudomsuk [217] has suggested that 'The current acute-oriented health system has little space for subacute labour-intensive rehabilitation care which requires more time'. This is an issue of critical importance given the current challenges and changing nature of the burden of disease. As Jongudomsuk (2015) continues: 'The rapidly growing number of older people in Thailand and persons with disabilities, including patients with chronic conditions who need continuity of care, indicate the need for long-term care system development. It was projected that the number of older people with severe to profound dependency levels would increase from 40 000 men and 60 000 women in 2004 to 110 000 and 170 000, respectively, in the following 20 years' (see also [218]).

In terms of long-term care, the government in Thailand has been making significant investments. The National Health Security Board has approved the Strategies for Long-term Care for Dependent Older Persons 2014–2018 with an aim to set up LTC systems in communities with the support of local governments and healthcare facilities [217]. In 2016, over 17 million USD was allocated by the National Health Security Office to develop LTC facilities for the older persons [219]. Other pilot projects have been developed too. In 2011, for example, a new community care policy was developed as a part of a project in the district of Lam Sonthi, in Lopburi Province [220]. In the fiscal year 2016, a trial program announced by the government. However, there are clearly a number of challenges facing LTC in Thailand. In tandem with the growing need for LTC in terms of the ageing population, other social changes are likely to further contribute to increasing demand for such services. Through a combination of changing family sizes, significant levels of internal migration and the modernisation of the family in terms of expected roles, the potential for in-family care is declining. This has been explored in various studies such as [221], [222] and [169]. Urbanisation is also a critical determinant on the changing nature of the demand for LTC [223].

On the other hand, there is the issue of financing. A number of studies have identified the relatively high costs of LTC in Thailand, both as a burden to the national budget, but also for the general public engaging with private providers [224]. Indeed, the lack of appropriate regulation for many such private providers in Thailand has been identified as a further challenge [225].

The issue of income and rural-urban disparities is of critical importance. As Khongbook and Pongpanich (2018) observe, these disparities can serve to exacerbate possibly already existing health inequalities. As they note, 'The superior

ability to pay of urbanites enables them to access better quality health care services, whereas even small LTC expenditures can have a devastating impact on the household economy of rural residents' [226].

A challenge, then, is to reduce these inequalities in terms of access to LTC at the individual as well as regional level. [226] conclude that 'Reorganizing country delivery systems and finding a balance between formal and informal care are alternative solutions. However, care must be taken not to reverse gains made in gender equality by placing the burden of care disproportionately on the shoulders of women. Indeed, this mixed-mode approach was endorsed by the National Health Assembly in 2009, when it passed a resolution supporting the principle of family- and community- based systems to cater for the needs of older people with the 'strong support from and coordination with health and social welfare sectors' [217]. A recent study by Lloyd-Sherlock et al. [225] explored the potential role of the voluntary sector in developing sustainable, high quality LTC systems. They observe that 'between 2003 and 2013 Thailand's programme trained over 51,000 volunteers, reaching almost 800,000 older people.

It must be noted that the changing household structure of Thailand means that an ever increasing proportion of the older population will be living alone. This can have important consequences not only for health, but also for accessing health services. Again, an integrated multi sectoral approach which covers community level actions and both formal and informal care systems is critical to offsetting these potential issues [114].

Other concerns about the development of LTC in Thailand concern the need to scale up the training of caregivers and care managers; and making the community-oriented LTC systems more robust. A shortage of physiologists and occupational therapists is also seen as a significant challenge [217].

Finally, in terms of the final objective, there have been ongoing efforts to design a more robust integration of developing systems to measure, and monitor health ageing, as well as developing a broader evidence-base on the topic. It is strongly recommended that a more systematic appraisal of progress made towards both the MIPPA and WHO Healthy Ageing objectives should be an urgent priority.

6.3.2 MIPAA

As mentioned throughout this report, the Madrid International Plan of Action on Ageing – MIPAA contains a comprehensive array of objectives and sub-objectives which may be broadly considered to be internationally benchmarked aspirations toward best practice paradigms.

'Advancing health and well-being into old age' is the second policy direction of MIPAA. (Of course, there is significant overlap with the other two policy direc-

tions of 'Older persons and development' and 'Ensuring enabling and supportive environments'. Within this 'Policy Direction' there are six 'Issues': health promotion and well-being throughout life; universal and equal access to health-care services; older persons and HIV/AIDS; training of care providers and health professionals; mental health needs of older persons; older persons and disabilities. These 'issues' are then broken down into a series of 'objectives'. These objectives include 'Reduction of the cumulative effects of factors that increase the risk of disease and consequently potential dependence in older age' and 'Development and strengthening of primary health-care services to meet the needs of older persons and promote their inclusion in the process'. Clearly, these objectives are very broad. As such, they are broken down into 'actions' – 81 in all. For the latter objective above, for example, these include:

(a) Take measures to provide universal and equal access to primary health care and establish community health programmes for older persons;

(b) Support local communities in providing health support services to older persons;

(c) Include traditional medicine in primary health-care programmes where appropriate and beneficial;

(d) Train primary health-care workers and social workers in basic gerontology and geriatrics;

(e) Encourage, at all levels, arrangements and incentives to mobilize commercial enterprises, especially pharmaceutical enterprises, to invest in research aimed at finding remedies that can be provided at affordable prices for diseases that particularly afflict older persons in developing countries and invite the World Health Organization to consider improving partnerships between the public and private sectors in the area of health research.

Before even considering the overlaps to other 'Actions', it is clear that the scope of MIPAA in relation to health alone is exceptionally broad. Benchmarking the situation in Thailand against these actions is beyond the scope of this report. As noted above, however, this could be a key first step in the policy scanning – examining where Thailand lies in relation to the Issues, objectives and actions in MIPAA in relation to health; and then performing some priority setting exercise in order to determine the future trajectory of policy development.

6.4 A life-cycle approach to healthy ageing

However, one aspect of MIPAA is worth exploring in a little more depth at this juncture. One of the great strengths of MIPAA is the recognition of a life-cycle approach to understanding ageing, and of ameliorating and offsetting some of the challenges associated with it. Gender also plays an important role: 'for women, a life-cycle approach to well-being in old age is particularly important, as they face obstacles throughout life with a cumulative effect on their social, economic, physical and psychological well-being in their later years' [20]. In other words, there is a recognition in MIPAA that health in older age is something that must be addressed both for older people today, but for middle-aged and young people for tomorrow. This accords with many studies which emphasise the need for a life-cycle approach to both the study of ageing, but also means of ameliorating future potential challenges. An example of a life-cycle approach to health systems design and policy can be seen in Box 6.1.

BOX 6.1: Brain health across the life cycle in Indonesia

The Indonesian Ministry of Health's Centre of Health and Intelligence, has recently implemented an initiative aimed at building cognitive resilience and functioning across the life cycle.

The activities start early in life and include:

- ensuring brain stimulation of and adequate nutrition to the fetus during pregnancy;
- ensuring sensory–motor stimulation in infants, and using games and learning tools for cognitive stimulation in toddlers;
- optimizing the learning environment for school age children and teens;
- providing health promotion activities for adults that are targeted at encouraging healthy lifestyles, physical exercise, social activities and the development of stress-management skills;
- ensuring early detection of cognitive decline or related degenerative or vascular disorders in older adults.

The central tool used in this initiative is known as the executive brain assessment. The tool assesses different competencies, emotional intelligence and cognitive function, and indicates which activities should be offered to the person enrolled in the programme.

This initiative is notable in that it demonstrates a life-cycle approach to building cognitive resilience and resources, which are important in preventing and delaying cognitive declines later in life. The Ministry of Health has implemented the programme nationally.

Source: The World report on ageing, WHO 2015.

But, importantly, these life-cycle approaches should be broken down into the various components of healthy ageing. Kuh et al. [227], for example, state the necessity of differentiating between a life-cycle approach to: physical and cognitive capability; the ageing cell; and frailty. Each of these requires a distinct approach of scientific understanding, as well as policy operation. In terms of frailty, for example, there is already considerable variation in capability by middle age [228] as well as the existence of numerous predictors of further decline [229–231]. Indeed, pre-old age health promotion to maintain a healthy ageing population was adopted as national policy agenda [217].

Clearly, there is very strong evidence that 'Lifestyle change at any stage of life may extend healthy lifespan, although the impact of early changes appears to be greatest' [232]. Indeed, the 'First Thousand Days of Life' have been identified as a most important window of opportunity for setting out the foundations for good health throughout the life ahead in various aspects [233–235].

A final critical component is the development of robust longitudinal data to examine health across the life cycle, as well as to monitor and evaluate given interventions. At the moment, such longitudinal surveys of ageing do exist; but the lower age range is usually in the 50s, which may be too late to explore the effect of interventions at an earlier ages. As such, there is a 'need for larger longitudinal studies to investigate age-related change and ethnic diversity in these objective measures, the dynamic relationships between them, and how they relate to other component measures of healthy ageing' [10].

6.4. Conclusion

In this chapter we have covered some of the main aspects of research and practice relating to healthy ageing in Thailand. To sum up, we have concluded that:

- 'Healthy ageing' is a complex notion which needs to be defined and determined in different settings to reflect cultural systems and social attitudes.
- The link between 'healthy ageing' and 'successful ageing' is clear; but again needs to be considered in a more critical and holistic manner.
- Thailand is making good progress towards the strategic objectives of the WHO Healthy Ageing Global Strategy.
- However, progress is uneven. This is especially the case with reference to infrastructure for age-friendly environments, the provision of long term care systems and the development of the Universal Health Care system from a primary focus to one where health and social care is more integrated.
- A life-cycle approach to ageing must compliment policies targeting health in older people in order to improve conditions of healthy ageing today, and tomorrow.
- There are further data needs in terms of longitudinal surveys, but also systematic benchmarking against international best practice.

Appendix: Projections made by WiC project for Thailand [236].

Thailand

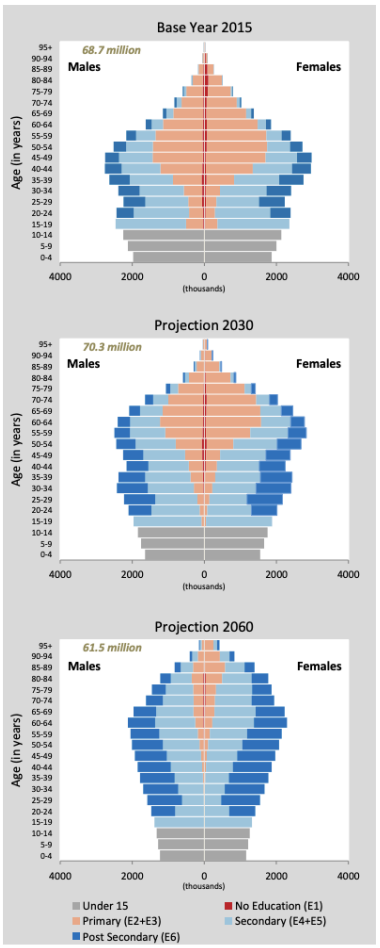
Detailed Human Capital projections to 2060

Demographic indicators, CEPAM Medium Scenario (SSP2)	2015	2020	2030	2040	2050	2060
Population (in millions)	68.66	69.69	70.31	68.88	65.63	61.55
Proportion age 65+	10.6%	12.8%	19.1%	25.1%	28.1%	29.4%
Proportion below age 20	25.0%	22.9%	20.0%	18.1%	17.0%	16.5%
	2015-2020	**2020-2025**	**2030-2035**	**2040-2045**	**2050-2055**	**2055-2060**
Total Fertility Rate	1.53	1.50	1.42	1.40	1.44	1.50
Life expectancy at birth (in years)						
Male	71.9	72.7	74.2	75.7	77.2	77.9
Female	79.3	80.0	81.2	82.5	83.7	84.9
Five-year net-migration flow (in thousands)	202.9	226.0	272.5	318.8	362.3	397.0

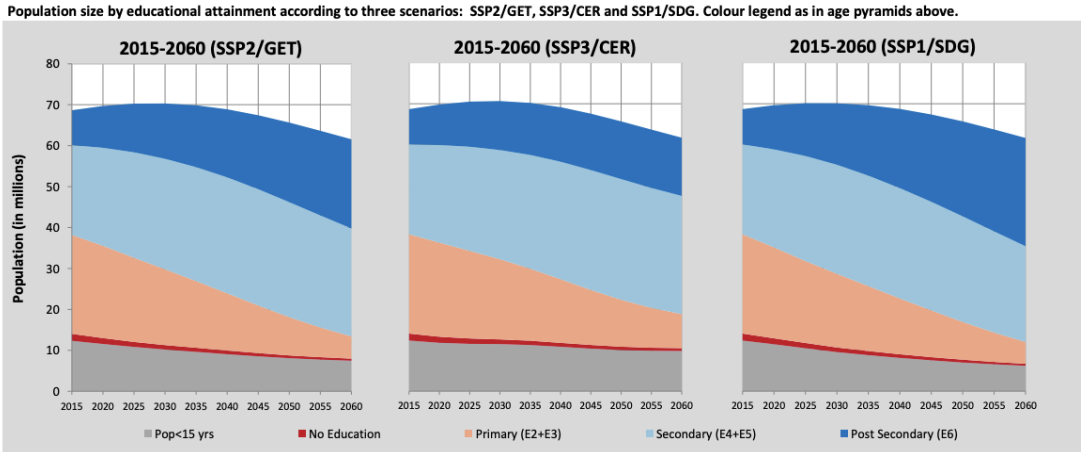
Human Capital indicators, CEPAM Medium Scenario (SSP2)	2015	2020	2030	2040	2050	2060
Population age 25+: highest educational attainment (columns sum to 100%)						
E1 - no education	3.3%	2.7%	2.0%	1.6%	1.3%	1.0%
E2 - incomplete primary	3.0%	2.8%	2.5%	2.3%	2.0%	1.6%
E3 - primary	45.7%	41.2%	32.4%	24.0%	16.2%	9.6%
E4 - lower secondary	10.7%	11.4%	12.0%	12.1%	11.5%	10.3%
E5 - upper secondary	21.2%	23.5%	27.7%	31.1%	33.8%	35.4%
E6 - post-secondary	16.1%	18.3%	23.3%	28.9%	35.2%	42.1%
Mean years of schooling (in years)	9.7	10.0	10.7	11.4	12.0	12.7
Gender gap (population age 25+): highest educational attainment (proportion males - proportion females)						
E1 - no education	-1.0	-1.0	0.0	0.0	0.0	0.0
E2 - incomplete primary	0.0	0.0	0.0	0.0	0.0	0.0
E3 - primary	-4.0	-4.0	-4.0	-3.0	-2.0	-1.0
E4 - lower secondary	3.0	3.0	3.0	3.0	3.0	2.0
E5 - upper secondary	1.0	1.0	1.0	2.0	2.0	2.0
E6 - post-secondary	0.0	0.0	-1.0	-1.0	-2.0	-3.0
Mean years of schooling (male minus female)	0.2	0.2	0.1	0.0	-0.1	-0.1
Women age 20-39: highest educational attainment (columns sum to 100%)						
E1 - no education	1.8%	1.5%	0.6%	0.4%	0.3%	0.2%
E2 - incomplete primary	2.6%	2.1%	1.4%	0.7%	0.3%	0.1%
E3 - primary	14.9%	10.3%	6.3%	2.9%	1.3%	0.6%
E4 - lower secondary	15.1%	13.7%	10.6%	7.2%	4.5%	2.5%
E5 - upper secondary	38.6%	41.5%	41.9%	41.0%	38.2%	34.1%
E6 - post-secondary	26.9%	31.0%	39.1%	47.7%	55.5%	62.5%
Mean years of schooling (in years)	11.5	12.0	12.8	13.5	14.0	14.4

Education scenarios
SSP2/GET: Global Education Trend Scenario (Medium assumption)
SSP3/CER: Constant Enrollment Rates Scenario (assumption of no future improvements)
SSP1/SDG: Sustainable Development Goal Scenario (universal primary and secondary education by 2030)

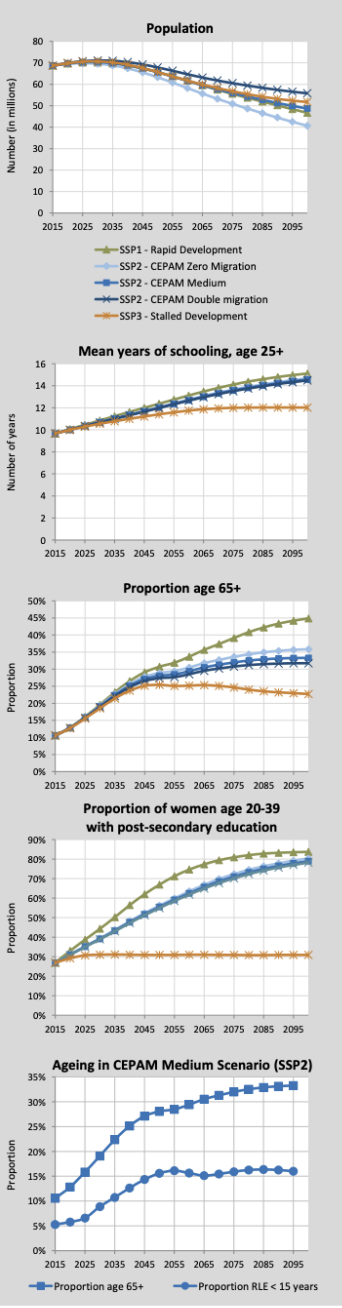
Pyramids by education, CEPAM Medium Scenario



Population size by educational attainment according to three scenarios: SSP2/GET, SSP3/CER and SSP1/SDG. Colour legend as in age pyramids above.



Thailand (Continued)



Alternative Scenarios to 2100

Projection Results by Scenario (SSP1-3)	2015	2020	2030	2050	2060	2075	2100
Population (in millions)							
SSP1 - Rapid Development	68.66	69.63	70.10	65.68	61.64	55.53	46.68
SSP2 - CEPAM Zero Migration	68.66	69.48	69.53	63.28	58.20	50.88	40.66
SSP2 - CEPAM Medium	68.66	69.69	70.31	65.63	61.55	55.92	48.68
SSP2 - CEPAM Double Migration	68.66	69.91	71.07	67.85	64.67	60.52	55.79
SSP3 - Stalled Development	68.66	69.81	70.64	65.69	61.72	56.73	51.72
Proportion age 65+							
SSP1 - Rapid Development	10.6%	12.9%	19.6%	30.7%	33.7%	39.1%	44.9%
SSP2 - CEPAM Zero Migration	10.6%	12.8%	19.3%	28.9%	30.5%	33.6%	35.8%
SSP2 - CEPAM Medium	10.6%	12.8%	19.1%	28.1%	29.4%	32.0%	33.3%
SSP2 - CEPAM Double Migration	10.6%	12.8%	18.9%	27.3%	28.5%	30.8%	31.7%
SSP3 - Stalled Development	10.6%	12.7%	18.5%	25.4%	25.2%	24.6%	22.7%
Proportion below age 20							
SSP1 - Rapid Development	25.0%	22.7%	19.1%	14.8%	13.9%	13.3%	12.7%
SSP2 - CEPAM Zero Migration	25.0%	22.9%	19.9%	16.7%	16.2%	16.2%	16.3%
SSP2 - CEPAM Medium	25.0%	22.9%	20.0%	17.0%	16.5%	16.7%	17.2%
SSP2 - CEPAM Double Migration	25.0%	22.9%	20.1%	17.2%	16.8%	17.2%	17.7%
SSP3 - Stalled Development	25.0%	23.2%	21.6%	20.7%	21.2%	22.7%	24.4%
Proportion of women age 20-39 with post-secondary education							
SSP1 - Rapid Development	26.9%	33.0%	44.3%	66.9%	74.6%	80.9%	83.7%
SSP2 - CEPAM Zero Migration	26.9%	31.1%	39.4%	56.2%	63.5%	72.3%	80.3%
SSP2 - CEPAM Medium	26.9%	31.0%	39.1%	55.5%	62.5%	71.0%	78.9%
SSP2 - CEPAM Double Migration	26.9%	30.9%	38.9%	54.9%	61.8%	70.1%	78.2%
SSP3 - Stalled Development	26.9%	29.2%	31.0%	30.9%	31.0%	30.9%	30.9%
Mean years of schooling, age 25+							
SSP1 - Rapid Development	9.7	10.1	10.9	12.4	13.1	14.1	15.1
SSP2 - CEPAM Zero Migration	9.7	10.0	10.7	12.1	12.7	13.7	14.7
SSP2 - CEPAM Medium	9.7	10.0	10.7	12.0	12.7	13.6	14.6
SSP2 - CEPAM Double Migration	9.7	10.0	10.7	12.0	12.7	13.5	14.5
SSP3 - Stalled Development	9.7	10.0	10.6	11.4	11.8	12.0	12.0

Demographic assumptions underlying SSPs	2015-2020	2020-2025	2030-2035	2050-2055	2060-2065	2075-2080	2095-2100
Total fertility rate							
SSP1 - Rapid Development	1.47	1.39	1.26	1.26	1.32	1.37	1.40
SSP2 - CEPAM Zero Migration	1.53	1.50	1.42	1.44	1.50	1.57	1.59
SSP2 - CEPAM Medium	1.53	1.50	1.42	1.44	1.50	1.56	1.59
SSP2 - CEPAM Double Migration	1.53	1.50	1.42	1.44	1.50	1.56	1.59
SSP3 - Stalled Development	1.64	1.71	1.75	1.83	1.91	2.01	2.09
Life expectancy at birth for females (in years)							
SSP1 - Rapid Development	79.8	81.0	83.2	87.7	90.0	93.4	98.0
SSP2 - CEPAM Zero Migration	79.3	80.0	81.2	83.7	85.0	86.9	89.3
SSP2 - CEPAM Medium	79.3	80.0	81.2	83.7	84.9	86.8	89.3
SSP2 - CEPAM Double Migration	79.3	80.0	81.2	83.7	84.9	86.8	89.3
SSP3 - Stalled Development	78.8	78.9	79.1	79.4	79.6	79.8	80.0
Migration – net flow over five years (in thousands)							
SSP1 - Rapid Development	203.1	223.4	255.4	306.4	320.2	321.4	295.6
SSP2 - CEPAM Zero Migration	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSP2 - CEPAM Medium	202.9	226.0	272.5	362.3	397.0	427.9	437.8
SSP2 - CEPAM Double Migration	405.4	447.0	530.4	689.1	747.8	795.2	798.6
SSP3 - Stalled Development	135.2	76.3	0.3	0.4	0.5	0.6	0.7

Ageing indicators, CEPAM Medium Scenario (SSP2)	2015	2020	2030	2050	2060	2075	2095
Median age	37.8	40.0	43.3	48.6	50.0	51.1	51.3
Proportion age 65+	10.6%	12.8%	19.1%	28.1%	29.4%	32.0%	33.3%
Proportion RLE < 15 years	5.3%	5.8%	8.9%	15.6%	15.6%	15.9%	16.0%

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