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Set Ying Ting – A generation plants the trees
in whose shade another generation rests

A GENERATION PLANTS THE TREES IN WHOSE SHADE ANOTHER GENERATION RESTS

Set Ying Ting is placed third in this year's St. Gallen Wings of Excellence Award. He studies at the National University of Singapore and will attend the 44th St. Gallen Symposium as Leader of Tomorrow.

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Set Ying Ting is a scientist who specializes in the mathematical modeling of polymer solar cells. Being an analytical person, he enjoys the intellectual challenge of dissecting complex problems. He sees his work as a small but nonetheless important part in the greater effort of building an efficient and carbon-neutral energy infrastructure for a sustainable future. Having a strong interest in technology development, he aspires to be an entrepreneur in clean technology. When he is not working on his research, he volunteers at Participate in Design, a Singapore-based non-profit organization. There, he works with local communities to develop design processes that will enable them to influence their built environment. He believes in the need to develop the capacity of the society as a whole in problem solving. Having grown up in multicultural societies (Malaysia and Singapore), he is fluent in three languages and multiple dialects. He is currently pursuing a PhD in Chemical Engineering in National University of Singapore.

The need for a new generational contract in Singapore

Singapore's social contract, which emphasizes individual responsibility, self-reliance and growth with equity, has served its citizens well, enabling them to live and work in a dynamic economy with decent social protection [1-3]. Yet, despite the sound public finances, robust economic growth and low unemployment over the past decade, Singapore has not successfully tackled the growing problems that have the potential to tear apart its social fabric.

Chief among these problems is the unequal distribution of wealth. Singapore has one of the highest income inequality levels among developed countries [4, 5]; wages have stagnated for all but the top income earners [6, 7]; compared to earlier decades, intergenerational mobility

seems to have declined [8]. These developments can polarize society. For instance, the overreliance on housing as a form of retirement security, coupled with rising house prices, has split the society into the haves (typically of older generations) who rely on asset appreciation to finance their retirement needs and the have-nots (the younger ones) who desire affordable home ownership [9]. A polarized society will face great difficulty in forming political consensus and making collective decisions.

In addition, while pursuing economic growth in the face of a shrinking and ageing citizen population, Singapore has adopted a population policy that relies heavily on immigration and bringing in transient workforce for "lower-skilled jobs" [10]. While the policy has worked wonders for the economy by expanding the labor pool and

market size through population growth, it has also suppressed productivity and wage growth as employers have greater incentive in importing low cost alternatives than investing in the existing workforce [11, 12]. Furthermore, as Singapore is already one of the most densely-populated states in the world, the policy might not be sustainable in the long run as the threshold above which further increase in population is no longer physically and economically viable will eventually be exceeded. In a sense, as population ageing is almost an unavoidable fact of modern society, the policy of never-ending population growth merely postpones the inevitable problem, possibly a more severe one, to future generations.

Given current and future challenges, Singapore needs a new generational contract—an agreement between two or more generations to fulfill its econo-

mic and social obligations towards one another—that draws inspirations from past successes and is tailored for today’s and tomorrow’s conditions. Beyond its shores, Singapore can learn from the experiences of many countries worldwide on the root causes for their successes and failures; and the best practices and pitfalls. Throughout the world, generational contracts have failed because they have not been able to make transparent to all parties the true costs incurred and benefits delivered; to respect people’s sense of fairness; to anticipate and meet the challenges of population ageing, globalization and technological disruption; and to build upon a sound and sustainable economic foundation. Conversely, they have succeeded because they have invested for the future, and constantly adapted to new economic and social realities through adjustments and revisions. These lessons provide the essential ingredients for this new generational contract.

The shape of a new generational contract

Here, I outline in broad terms what a new generational contract should be and what it demands from its participants.

A new generational contract should be based on the principle embodied in the age-old East Asian proverb, “a generation plants the trees in whose shade another generation rests.” In other words, the responsibility of each generation is to build upon the legacy of the preceding generation and leave behind a greater legacy for the succeeding generation. This principle demands us to look beyond our self-interest and to see what we have received from the previous generation not as an entitlement, but a generosity

to be further augmented and passed down to the next generation. This principle should guide all policymaking that involves intergenerational transfer. For example, long-term public debt should only be used to finance investments in public, natural and human capital development and the acquisition of public assets that will generate continuous returns for the society in the long run. Adopting this principle requires fiscal discipline; as taxpayers and voters, we should ensure that public spending that generates no longterm return is funded entirely by current tax receipts and that no unfunded liabilities are imposed onto the future taxpayers. It also demands that we be suspicious of policies that promise undeserved windfalls. As an example, house prices that rise faster than income growth due to macroeconomic policies might inflate homeowners’ net worth but imperil the next generation’s chance of home ownership.

A new generational contract should meet the challenges of population ageing by focusing on productivity growth—rather than raw gross domestic product (GDP) growth—as a sustainable strategy to offset the anticipated economic strain arising from a high aged dependency ratio. A strategy based on productivity presumes a steady-state future where a more productive workforce can support a larger dependent population; whereas one based on GDP presupposes population growth in perpetuity, an unsustainable scenario that has been compared to a Ponzi scheme [13].

One important aspect of productivity growth is a sustained investment in infrastructure. As in the recent, well-documented examples of the next ge-

neration telecommunication network in South Korea and high-speed rail in China, such infrastructure facilitates the production and distribution of goods and services [14, 15]. They lay a stable foundation for the next generation to be more productive and have less difficulty in supporting a larger dependent population. On top of that, infrastructure is an ideal asset class to match the long-dated liabilities of pension funds due to the long term nature of its return [16]. In other words, a generation’s investment can not only facilitate productivity growth for the next generation, but also serve as a form of retirement security. Given the right financial structure, public infrastructural investments can be an optimal instrument to smoothen the imbalances in the intergeneration transfer arising from population ageing.

A new generational contract should meet the challenges of globalization and technological disruption by investing in human capital development and realizing the potential of the younger generation. The increased competition and the “race to the bottom” phenomenon—consequences of globalization—have weakened the bargaining power of labor and worsened income inequality [17]. The rapid pace of technological development has hastened the rise and fall of different industries, weakening job security [18]. To compound the problems, the advances in automation and artificial intelligence in the foreseeable future might render many occupations obsolete [19]. The effects of these trends could, combined, create a vicious cycle in which the already rich — with greater access to education resources to help their descendants to adapt to the changes than the poor — thrive even

better in the new economy. As such, a new generational contract demands that we provide universal access to high quality education. By ensuring equal opportunity in education, we can prevent, to a large extent, the income inequality of one generation from being passed down to the next. By cultivating the capabilities of every individual, we sow the seeds of a future workforce with diverse skills and expertise that can adapt to economic and technological disruptions and generate the productivity necessary to meet the material challenges of population ageing [20]. In addition, by developing our youth's critical literacy—the ability to participate in the public sphere and collective decision-making—we also enhance the resilience of our society.

A new generational contract should address the challenges of climate change and environmental degradation. The rapid growth of world economy has accelerated our exploitation of natural resources and increased our ecological footprint. These activities, if continued at the current unsustainable level, would undermine our natural capital and create huge liabilities for future generations. The anthropogenic climate change is one such example. The carbon emissions—accumulated over the past few generations—could impose severe cost to the future generations by causing economic loss through unpredictable weather disruptions or even threatening their survival [21]. As such, we should build the institutional mechanisms in environmental protection and resources management to ensure that the external cost of natural resource extraction and environmental degradation will not be passed down to the next generation.

Finally, a new generational contract should recognize the important reality that it is inherently an implicit agreement whose viability rests upon the participants' willingness to execute its contents; that social and economic conditions are rapidly evolving; and that the notion of fairness is often in flux and different from one generation to another. In other words, a generational contract is essentially an intergenerational consensus that has to be maintained, developed and re-invented from time to time. It must be adaptable and open to revision and adjustment. It demands that its participants from different generations contest, negotiate and compromise. To make itself viable, the new generational contract must focus on building institutional mechanisms to facilitate the intergenerational dialogue. The solutions to the problems that plague generational contracts in today's context typically require such intergenerational compromise. For example, the long term financial sustainability of many pension systems around the world can be vastly improved if the older generation concedes to delaying retirement age to match changes in life expectancy; and the younger working generation agrees to raise contribution rates to reflect the changes in population dependency ratio [22]. Such measures are possible only when the different generations can compromise and reach a consensus on what constitutes a fair deal for all.

The belief in some traditional agricultural societies that “rearing a son for old age is like storing grain for a famine” is probably one of the most ancient forms of generational contract [23]. If we could overlook for a moment the contemporaneous gender and natalistic bias and interpret it metaphori-

cally, we would realize that this notion is not necessarily outdated in modern times; the challenges to the generational contract of Singapore and most developed societies today—population ageing, unequal distribution of wealth, globalization and technological disruption — could be overcome by vigorously investing in the productivity and the capabilities of its future generations through the state. The new generational contract should adopt this future-oriented posture. It should be based on the principle that the responsibility of each generation is to build upon the legacy of the preceding generation and leave behind a greater legacy for the succeeding generation; focused on productivity growth as a strategy to adapt to the reality of population ageing; implemented through sustained investments in infrastructural, human and natural capital development; and made robust through institutional mechanisms that facilitate intergenerational dialogue and consensus.

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