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The Dark Side of Escaping the Middle-Income Trap: A SAGE Study of Asian High-Income Countries

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The Dark Side of Escaping the Middle-Income Trap:

A SAGE Study of Asian High-Income Countries

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Fernanda Ortega² and Dennis J. Snower³

Abstract

The experience of rapid economic growth and transition to high-income status in Asian countries has brought about significant improvements in material well-being and aggregate economic prosperity. This article examines the degree to which economic prosperity is the “great enabler” of social and environmental prosperity. We provide conceptual reasons why this is not necessarily the case and empirical evidence that the escape from the middle-income trap in three Asian high-income countries – Japan, Singapore and South Korea – was a mixed blessing, linked to challenges regarding social solidarity, personal and collective agency and environmental stewardship. Under these circumstances, traditional prescriptions for escaping the middle-income trap are insufficient. Without success in the social and environmental spheres, social fragmentation and environmental disruption is likely to occur, possibly leading to political instabilities, economic fragmentation and social conflict. This paper investigates this problem for the three Asian high-income countries, based on empirical measures of solidarity (S), agency (A), material gain (G) and environmental stewardship (E) that are consistent through time and across countries. On this foundation, policy recommendations are considered that are meant to run alongside the standard prescriptions to make the resulting package socially and environmentally acceptable.

Introduction

Escaping the middle-income trap has become a central, often overriding, goal of middle-income countries around the world. This goal is commonly considered self-evident; its achievement is viewed as unquestioned success.

The purpose of this article is to call this approach into question. Why should policymakers in middle-income countries aim for high-income status? The ultimate objective of policy should be the promotion of wellbeing or, more broadly, human flourishing. Flourishing may be conceived as a state in which all aspects of people’s lives, including their contexts, are good (VanderWeele, 2017, 2019). So, if the aim of escaping the middle-income trap is to make sense, we must assume that economic prosperity is an enabler of human flourishing in the social and environmental domains. Is this assumption empirically valid? Is it even conceptually plausible?

These questions are important since the purpose of economies is to serve societies and the environment. If economic prosperity becomes decoupled from social and environmental

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prosperity, escaping the middle-income trap – in isolation from well-defined social and environmental goals – is no longer a self-evident policy objective. People do not live by bread alone and thus economic systems designed primarily to deliver “bread” (i.e., material things) may turn out to be incomplete or misguided.

The literature on the economics of wellbeing is too vast to be summarized here. The intrinsic desirability of well-functioning, free markets - ensuring that consumer wants are met efficiently - has a central role in mainstream economic theory and underlies economists’ common predilection for policies promoting competition, correcting information asymmetries and internalizing externalities.

Under highly restrictive conditions, it can be shown that the perfectly competitive general equilibrium of an economy is Pareto efficient, so that no one can be made better off without making someone else worse off. In fact, however, the conditions for this to happen are so restrictive that one is left with the impression that the efficient satisfaction of consumer wants is conceptually unrealistic. Even if Pareto efficiency were attainable, it is well-known that free market activity does not ensure that goods and services are distributed equitably across consumers. Beyond this, there is much more to wellbeing than the satisfaction of consumer wants: social relationships, living meaningfully and purposefully, living in accord with one’s moral values, exercising one’s capacity to shape one’s life through one’s efforts, living in harmony with nature, and so on. Free markets influence the availability of these things, but there is no “invisible hand” ensuring that basic material needs are met inclusively, agentically and sustainably. In short, there is no conceptual reason for believing that economic prosperity automatically leads to flourishing.

Empirically, it is useful to recognize that human flourishing—thriving across mental, physical, social, and economic dimensions—is fostered by a combination of social *solidarity*, personal and collective *agency*, material *gain*, and *environmental stewardship*. These four elements – summarized by the acronym SAGE – may be understood as core *drivers* of flourishing (see Snower, 2018, 2024, as well as Lima de Miranda and Snower, 2020, 2022). These elements work in concert to create societies where individuals feel connected, empowered, secure, and capable of achieving well-being.

For our purposes, the elements of SAGE may be defined as follows:

- *Solidarity*: The set of psycho-social mechanisms that creates and maintains pro-social group-level functional organization
- *Agency*: The exercise of one’s ability to individually or collectively make and enact decisions through one’s effort that are beneficial for life
- *Gain*: GDP per capita⁴
- *Environmental stewardship*: The responsible use, protection, and regeneration of the natural environment, aimed at promoting and preserving the health and stability of ecosystems

It is inconceivable that humans could flourish without these drivers. *Solidarity* is crucial for generating the collaboration on which humans have always relied to address their collective challenges. Solidarity is essential for physical health (Holt-Lunstad, et al., 2010) and mental health (Holt-Lunstad et al., 2015), emotional wellbeing (Baumeister and Leary, 1995) along with a sense of meaning and worth (Jetten et al, 2014).

⁴ A definition of Gain that is more aligned with human flourishing is “Goods and services that sustain a person in a healthy and secure life in dignity without reducing the gain to others”. This definition is not used here, since our aim in this article is to examine whether the standard measure of economic prosperity – namely, GDP per capita – can become decoupled from social and environmental prosperity.

Agency is crucial in enabling humans to adapt to their ever-changing environment. It promotes a sense of self-efficacy that is essential for mental health (Bandura, 1997; Deci and Ryan, 2000), self-esteem (Baumeister et al., 2003; Judge and Bono, 2001), motivation to achieve desired outcomes (e.g., Latham and Locke, 2007) and psychological resilience (Masten, 2001; Bonanno, 2004).

Gain, in the form of the consumption of goods and services that satisfy basic human material needs—physiological and psychological—clearly promotes flourishing.

Environmental sustainability promotes mental health (Bratman et al., 2019), cognitive functioning (Hartig et al., 2003; Berto, 2005), internal harmony (Shiota et al., 2007; Rudd et al., 2012) and a sense of meaning and purpose derived from environmental stewardship (Kals et al., 1999).

This article examines the link between economic prosperity and human flourishing through the lens of SAGE. We consider the experience of three Asian countries that have escaped the middle-income trap – Japan, Singapore and South Korea – and inquire whether doing so has also improved solidarity, agency and environmental stewardship.

Based on an empirical analysis of SAGE for these three countries, we conclude that escaping the middle-income trap (i.e., success in G) did not imply success in S, A and E. From the perspective of conventional economic analysis, one would expect that a rise in material living standards would permit people to “purchase” not just economic prosperity, but also social and environmental prosperity. After all, when people become more affluent, they can be expected to “demand” not only more goods and services, but also more solidarity, agency and environmental health.

But our data indicates that this did not happen. We find that for the three countries, a rise in G generally does not lead to a concurrent rise in S, A and E. However, the cross-country rankings with respect to the levels of S, A and G are largely the same. In other words, a country with relatively high Gain also tends to have relatively high Solidarity and Agency.

How is this to be interpreted? An overview of the relevant literature suggests that high levels of Solidarity and Agency both tend to promote high levels of Gain, but high levels of Gain do not necessarily lead to high levels of Solidarity and Agency. This means that economic prosperity does not reliably “purchase” social prosperity (in terms of Solidarity and Agency), but social prosperity tends to promote economic prosperity.

This literature is no more than suggestive, however. After all, the three countries each escaped the middle-income trap at different times (Japan in the early 1960s, Singapore in the 1980s and South Korea in the mid-1990s) and thus these countries experienced quite different economic, social and environmental circumstances. Our sample period, over which there is consistent data from the Gallup World Poll for the elements of SAGE, extends from 2010 to 2023, which is too short to cover the three countries’ trajectories out of their respective middle-income traps. Furthermore, the Gallup measures of the elements of SAGE are illustrative rather than definitive. There are other data sets that could be adduced though, to the best of our knowledge, they are not available annually and consistently across the three countries. Finally, various exogenous factors may have exerted independent influences on the elements of SAGE and a comprehensive econometric analysis of SAGE dynamics is clearly beyond the scope of this paper.

Though our empirical evidence leaves room for a variety of possible explanations, our analysis shows how important it is to gather consistent data on Solidarity, Agency and Environmental stewardship alongside the commonplace data on Gain. GDP per capita is at best a very incomplete measure of human flourishing. Solidarity, Agency and Environmental stewardship

are easily as important as drivers of flourishing, and these elements move quite differently from GDP per capita.

This finding has far-reaching implications for economic development policies. The standard prescriptions for making the transition to the high-income club are at best insufficient. In fact, we argue that these prescriptions have often contributed to a loss of solidarity, agency and environmental stewardship. Success in in the latter spheres is required to avoid a longer-term descent into social conflict, political instability.

In Section 2, we next consider the empirical evidence on the social and environmental implications of escaping the middle-income trap in Japan, Singapore and South Korea. In Section 3, we offer some interpretation of the evidence. Thereafter, in Sections 4-6 we explore the features of the social fragmentation trap, disempowerment trap and environmental degradation trap that has accompanied the escape from the middle-income trap in these three countries. Finally, Section 7 concludes.

The Evidence

The success of several Asian economies in escaping the middle-income trap has garnered global admiration due to their sustained economic growth, remarkable industrialization, improvements in standards of living, and advancements in technological and educational sectors. These countries have transformed from developing economies to high-income, highly industrialized societies, often within a single generation. Their achievements serve as case studies in development economics, illustrating how strategic policies and reforms can lift economies to higher levels of prosperity.

Advantages of Escaping the Middle-Income Trap

Escaping the middle-income trap enabled Asian economies to achieve sustained economic growth and increased national wealth, lifting millions out of poverty. Economic growth in countries like South Korea, Singapore, and Japan has been widely lauded as they managed to transition from primarily agrarian or low-value manufacturing economies to high-tech, high-income societies (Amsden, 2001; Chang, 2006).

Beyond doubt, this Great Escape has brought substantial improvements in standards of living, including better healthcare, education, infrastructure, and social welfare systems. Citizens in countries like Japan, South Korea, and Singapore enjoy access to world-class healthcare and education, contributing to higher life expectancy and increased human capital (OECD, 2020; World Bank, 2018). On this account, their escape from the middle-income trap has received international recognition and admiration.

Transitioning from labor-intensive industries to high-tech, high-value sectors allowed these economies to increase their export competitiveness. Japan's automotive and electronics industries, and South Korea's electronics and shipbuilding industries, are prime examples of how innovation fuelled economic growth (Wade, 1990; World Bank 1993).

As these economies developed, they gained greater influence on the world stage. Their economic success stories are frequently cited in discussions on effective development strategies, enabling these nations to project soft power and shape global economic policies. For example, Japan's and South Korea's prominence in global markets has allowed them to participate actively in organizations like the G20 and the World Trade Organization (WTO). The economic success of countries like South Korea has fostered global interest in Korean culture, seen in the rise of "Hallyu" or the Korean Wave. This cultural export has enhanced South Korea's soft power, promoting its influence and attractiveness worldwide (Chua, 2012; Nye, 2004).

Figure 1 tells the story of the Great Escape from the middle-income trap in Japan, Singapore and South Korea for the period from 1960 to the present, which has been studied extensively (e.g., Bulman, Eden and Nguyen, 2017; Paus, 2017; Tho (2013).

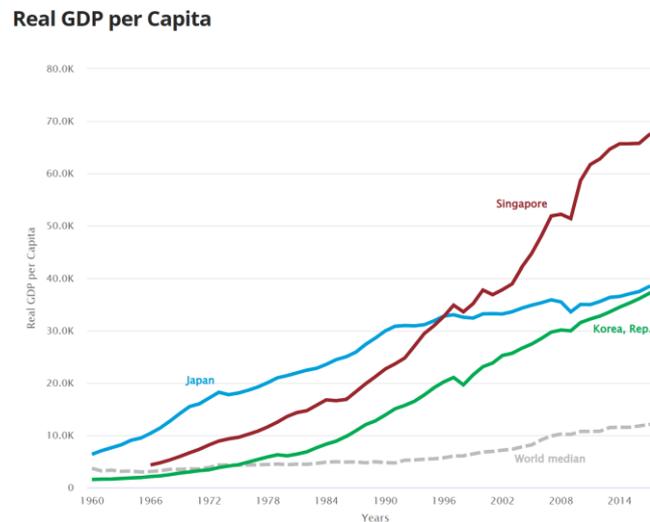


Figure 1: Escape from the Middle-Income Trap
(Source: Our World in Data)

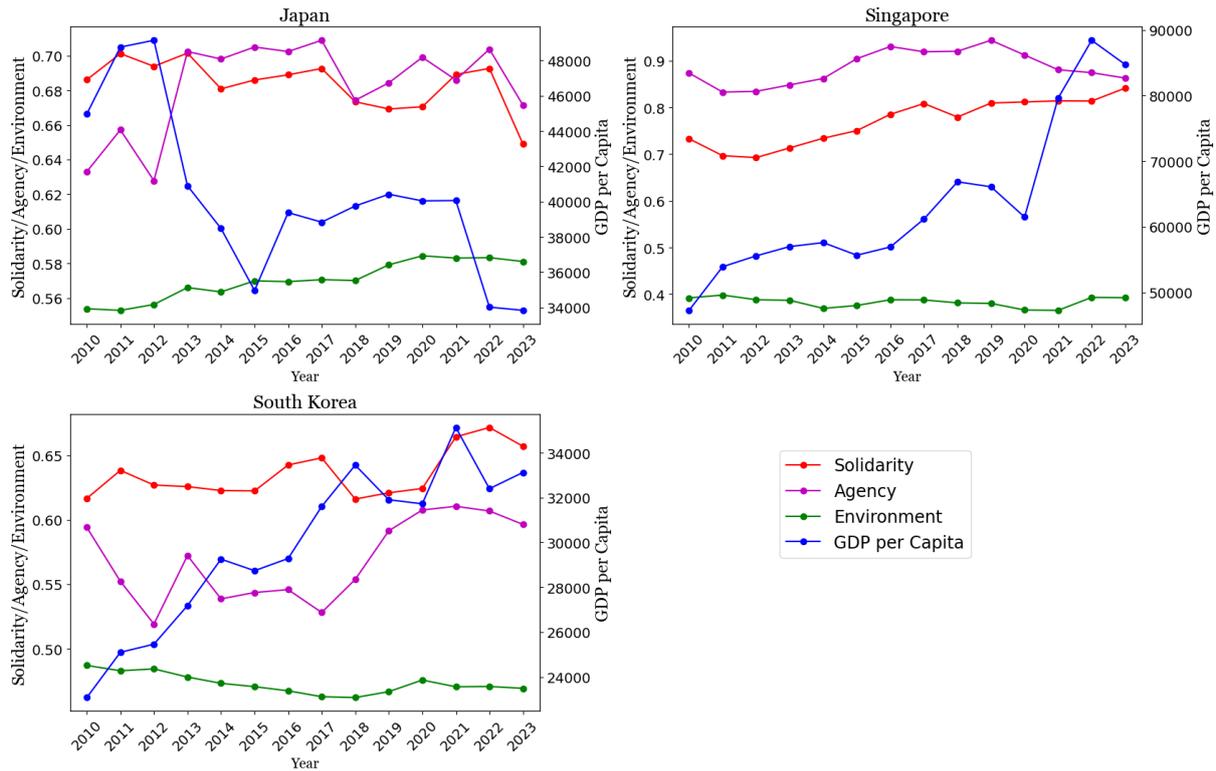
Social and Environmental Correlates of Escaping the Middle-Income Trap

Data on the social and environmental repercussions of this Great Escape is patchier and often lacks consistency across countries and through time.

To fill this gap, we have gathered data that is consistent across the three countries and through time for S, A and E and compared it with time series on GDP per capita. The description of the data is given in the Appendix 1.

Figures 2 shows the time series, from 2010 to 2023, for each element of SAGE in each of the three countries. Comparing the time path of GDP per capita with each of the other SAGE elements, there appears to be no obvious concurrent or lagged (G-S, G-A and G-E) across all three countries over the sample period. In other words, economic success (in terms of GDP per capita) does not consistently imply success in the social domain (in terms of solidarity and agency) and the environmental domain (in terms of environmental stewardship).

Figure 2: The Evolution of SAGE by Country



To gain more insight into what the data means, it is useful to examine the intertemporal correlation coefficient between GDP per capita and the other components of SAGE for each of the three countries over the period 2010–2023. In other words, we measure the average correlation coefficients of G and S, G and A, and G and E over the sample period.

Table 1 reports the Pearson correlation coefficient (r), the p-value, and the 95% confidence interval (CI) for Japan.

Variable	r	p-value	95 % CI
Solidarity	0.4676	0.0918	(-0.0837, 0.8000)
Agency	-0.7256	0.0033	(-0.9070, -0.3171)
Environment	-0.7348	0.0028	(-0.9104, -0.3346)

Table 1: Correlations between GDP per capita and (i) solidarity, (ii) agency and (iii) environmental stewardship for Japan during 2010-2023

The main message of the table can be summarized as follows: For Japan, there is

- a strongly negative, significant relation between GDP per capita and agency;
- a strongly negative, significant relation between GDP per capita and environmental stewardship;
- no significant relation between GDP per capita and solidarity.

Table 2 provides the correlations and diagnostic statistics for Singapore.

Variable	r	p-value	95 % CI
Solidarity	0.7401	0.0025	(0.3449, 0.9124)
Agency	0.0590	0.8413	(-0.4868, 0.5717)
Environment	-0.0439	0.8815	(-0.5614, 0.4983)

Table 2: Correlations between GDP per capita and (i) solidarity, (ii) agency and (iii) environmental stewardship for Singapore during 2010-2023

This indicates that, for Singapore, there is

- *a strongly positive, significant relation between GDP per capita and solidarity;*
- *no significant relation between GDP per capita and agency and between GDP per capita and environmental stewardship.*

Table 3 the correlations and diagnostic statistics for South Korea.

Variable	r	p-value	95 % CI
Solidarity	0.4836	0.0798	(-0.0632, 0.8071)
Agency	0.3879	0.1705	(-0.1796, 0.7617)
Environment	-0.8221	0.0003	(-0.9419, -0.5171)

Table 3: Correlations between GDP per capita and (i) solidarity, (ii) agency and (iii) environmental stewardship for South Korea during 2010-2023

This means that, for South Korea, there is

- *a strongly negative, significant relation between GDP per capita and environmental stewardship;*
- *no significant relation between GDP per capita and solidarity and between GDP per capita and agency.*

Table 4 provides a bird's eye view of these results: "+" is a significantly positive association, "-" is a significantly negative association and "0" represents no significant association.

	Solidarity	Agency	Environment
Japan	0	-	-
Singapore	+	0	0
South Korea	0	0	-

Table 4: Social and Environmental Correlates of Escaping the Middle-Income Trap

The Spearman correlation coefficients, given in Appendix 2, confirms the qualitative conclusions above.

Conventional economic analysis suggests that Table 4 should tend to be filled with “+” signs. If people value not only G, but also S, A and E – so the argument goes – why don’t they reallocate their time to acquire more of all elements of SAGE, in the proportions that they desire? In other words, why is economic success not the “great enabler” regarding other drivers of human wellbeing?

This is the puzzle to which we now turn.

The Great Escape and Its Discontents

We argue that economic success is not the “great enabler” because solidarity, agency and environmental sustainability cannot be fully, or even largely, commodified. Solidarity is not a “service” that can be “purchased” by devoting time and income to it. Instead, it is a relationship that connects people into social groups. People derive wellbeing not just in their capacity as individuals, but also as participants in these groups. Whereas standard economic analysis ascribes all wellbeing to individuals, in practice people also participate in the wellbeing of their social groups (such as families, religious communities, neighborhoods, sports clubs and so on), as well as their political groups (such as political parties) and economic groups (such as workforce teams). Solidarity concerns such participation. Deriving wellbeing from the networks in which one is embedded is fundamentally different from deriving wellbeing from goods and services. It is impossible to “supply” goods and services, or the underlying income and, in return, “demand” solidarity. There are no production technologies or markets for transforming one into the other.

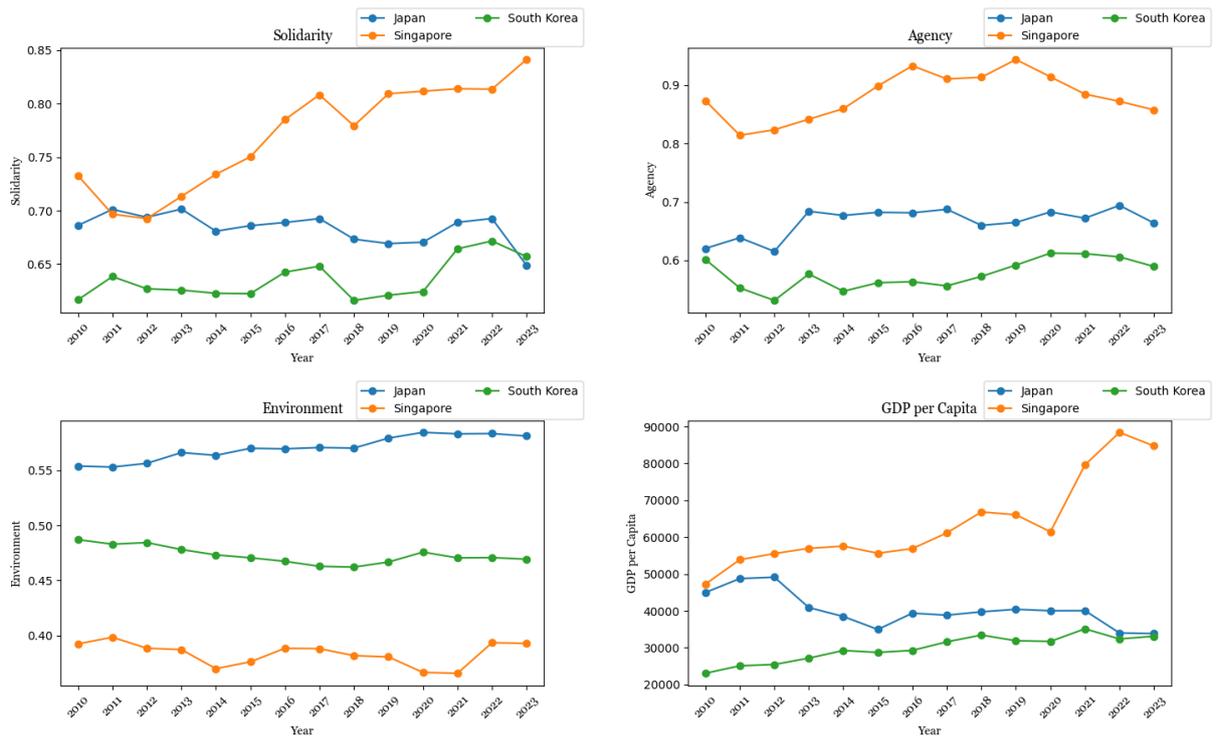
Similarly, agency is not something that can be obtained through income. Agency is not a commodity. Rather, it is the ability to effect beneficial change in one’s life. Though this ability may be influenced through education and training, which may be obtainable through income, much of one’s latitude to make decisions in one’s favor depend on the social, political and economic networks and institutions in which one is embedded. This, too, cannot be acquired simply by spending one’s income. Agency does not reside just in individuals. Through their participation in social, political and economics groups, people contribute to collective agency.

Along analogous lines, the natural world is the stage on which all human life is embedded. Its physical realities provide the context in which all our activities are conducted. Thus, reducing environmental sustainability to the preservation of “environmental services” is an impoverished understanding of environmental sustainability. Environmental stewardship involves not just the maintenance of environmental services, but the maintenance the web of the natural networks – the ecosystems – connecting all living things. These natural networks play an analogous role to the social ones. Just as we can participate in the wellbeing of our groups, so we can participate in the thriving of the natural world.

Economic, Social and Environmental Prosperity: Long-Run Considerations

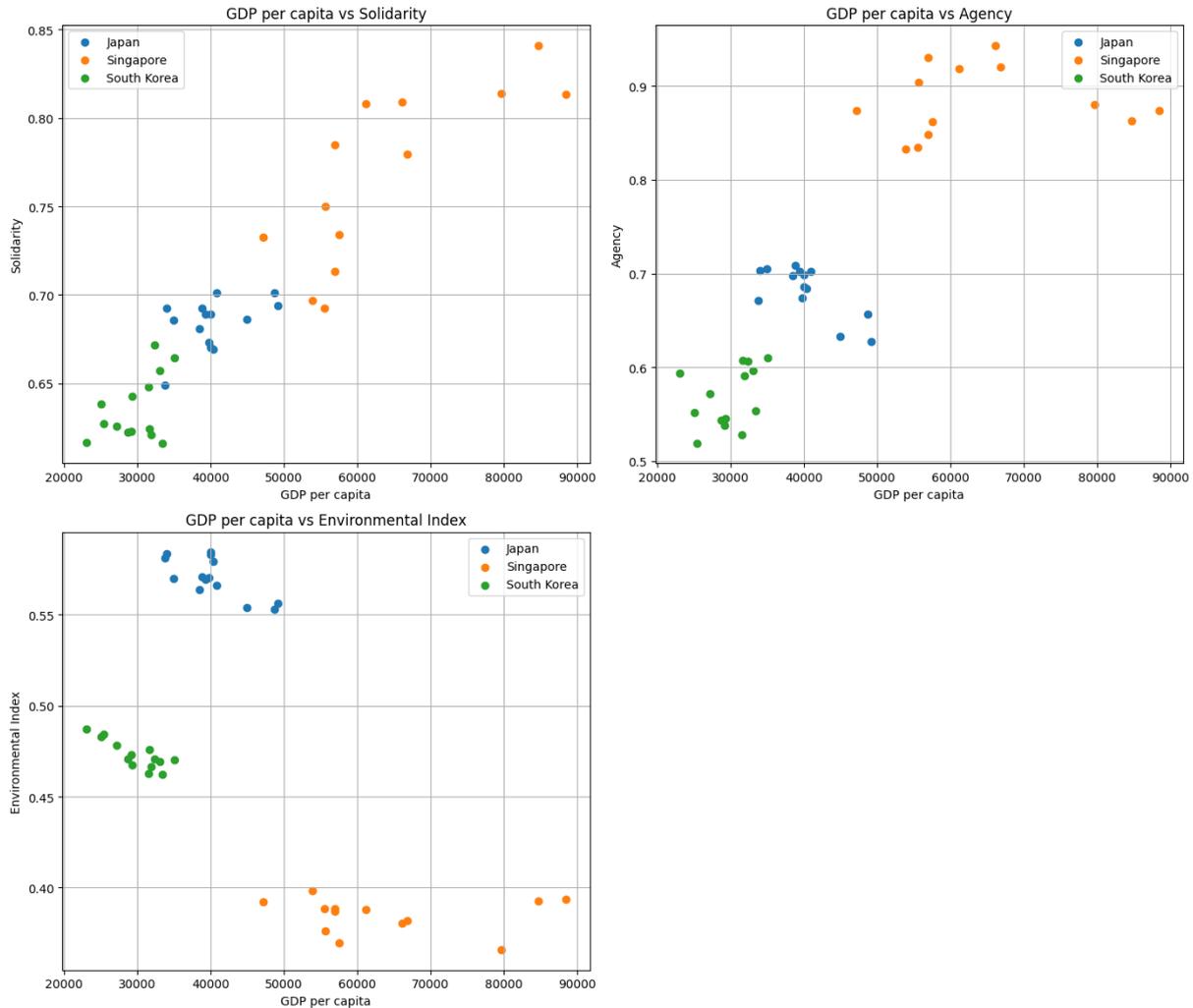
This does not mean that economic performance has no bearing on social and environmental performance – it does – but rather that, in general, we cannot expect economic success to lead to social and environmental success in the short run (covered by concurrent correlations), the medium run (covered by our sample period), or even the long run (beyond our sample period).

Insights into possible longer-run relationships between economic success and socio-environmental success might be inferred from cross-country comparisons. Figures 3 organize the time series above by the economic (G), social (S and A) and environmental (E) domains.



Figures 3: Evolution of SAGE across Countries

Furthermore, to highlight how social and environmental prosperity each are related to economic prosperity, Figure 4 provides the relevant scatterplots:



Figures 4: Scatterplots of Socio-environmental Prosperity versus Economic Prosperity

Regarding environmental performance, these Figures 3 show that the country rankings are

Japan > South Korea > Singapore.

Could this observation be rationalized by an environmental Kuznets curve, i.e. environmental degradation rises in the early stage of economic development starts and falls in the late stage of development? For example, it could be hypothesized that Singapore is on the upward-sloping portion of its Kuznets curve (accounting for its high economic and low environmental performance) while Japan and South Korea are on the downward-sloping portion (accounting for their relative economic and environmental performance). However, the E-G scatterplot in Figure 4 indicates that the three countries do *not* appear to lie on an identifiable (inverted) Kuznets curve.

Regarding solidarity and agency, Figures 3 and 4 show that the country rankings are

Singapore > Japan > South Korea.

How is this to be interpreted?

Over the long run, there is ample evidence that solidarity and agency promote economic gain. Various scholars, prominently including Robert Putnam (1995) and Francis Fukuyama (1995), have argued that societies with relatively high levels of social capital experience better

economic outcomes due to increased cooperation, lower transaction costs, and more effective collective action. Social capital – commonly referring to the norms, networks, and trust that facilitate coordination and cooperation among people – may be understood as the stock of accumulated solidarity flows. Further studies have shown that social capital can create an environment conducive to entrepreneurship, efficient institutions, and collaborative efforts, thereby enhancing trust, lowering transaction costs, and facilitating innovation (Knack and Keefer, 1997; Guiso, Sapienza and Zingales, 2004; Tabellini, 2010). In the political domain, solidarity generates social cohesion, which promotes economic prosperity by promoting stability, reducing conflict, and fostering inclusive growth (Easterly, Ritzen and Woolcock, 2006; Helliwell and Putnam, 1995). This suggests that, over the long run, higher S leads to higher G.

However, there is also evidence that high rates of economic growth can crowd out solidarity. In particular, high growth rates can lead to increased income inequality, especially when growth disproportionately benefits certain groups or regions. Inequality often undermines trust and weakens social cohesion as disparities in wealth create social divides (Alessina and Ferrara, 2002). High economic growth often correlates with cultural changes emphasizing individualism and consumerism over community and solidarity (Inglehart, 1997).

Over the long run, personal agency – manifested in the ability of individuals to make decisions and pursue opportunities – leads to enhanced innovation, skills development, and overall economic growth (Alkire and Foster, 2011; Sen, 1999). Societies that empower marginalized groups have been shown to witness more widespread economic participation, reduced poverty, and greater productivity (Narayan, 2002; Duflo, 2012). Collective agency, in the form of collective action and community engagement, fosters economic growth by creating networks of cooperation, increasing trust, and improving institutional performance (Putnam, 1993; Ostrom, 1990). Empowering individuals and groups through strong institutions, access to justice, and legal rights improves economic outcomes (Acemoglu and Robinson, 2012). Empowering people through educational attainment generally leads to greater productivity and innovation (Barro and Lee 2013; Hanushek and Woessmann, 2008). Anecdotal evidence that variations in agency lead to co-movements in economic prosperity are provided in Hoshi and Lipsy (2021).

What about economic success leading to social success in the longer run? Here the evidence is not clear-cut. On the one hand, it has been argued that higher levels of income and wealth provide individuals with the means to invest time and resources into building and maintaining relationships, participating in volunteer activities, and engaging with civic institutions (Inglehart and Baker, 2000; Knack and Keefer, 1997). Moreover, economic prosperity can enhance social solidarity by providing more resources for social safety nets, public goods, and welfare programs to promote social unity (Helliwell and Putnam, 2004).

There is good reason to believe that these forces were at work during the first three decades of the postwar period.

But the 1980s and 1990s saw a technological shift favoring skilled labor in Japan (Tachibanaki, 2005; Kambayashi, Kawaguchi and Yokoyama, 2008) and South Korea (Lee and Han, 2006), due to advancements in automation, robotics, and IT. This widened the wage gap between skilled and unskilled workers. Starting in the 1990s, Singapore's government-led push toward a knowledge-based economy and high-tech industries led to skill-biased technological change (SBTC), reflected in wage and skill polarization (Tan, 2012; Low and Toh, 1992).

SBTC is a significant driver of economic inequality, with cascading social consequences. While SBTC rewards those who can complement these technologies with higher wages, routine jobs often held by lower-skilled workers can become automated or outsourced,

leading to stagnant or declining wages for these groups. Furthermore, the automation of certain job categories can displace less-skilled workers, leading to unemployment or pushing them into lower-paying jobs, which can exacerbate income inequality (Acemoglu and Autor, 2011; Autor, Katz and Kearney, 2008).

Moreover, automation and AI can replace jobs that involve routine and predictable tasks, reducing the agency of affected individuals by stripping them of economic independence and weakening their bargaining power in the labor market. Even jobs that remain can become less meaningful, reducing workers' sense of contribution, autonomy, and promoting social biases (Acemoglu and Restrepo, 2018; Brynjolfsson and McAfee, 2014; Frey and Osborne, 2017; Noble, 2018).

In sum, though social success promotes economic success in the long run, economic success does not automatically lead to social or environmental success either in the short run or the long run. On the contrary, for the three Asian countries under consideration, the empirical evidence above suggests that the three countries' escape from the middle-income trap has, on average, led to environmental deterioration, a loss of agency, and no significant influence on solidarity. In what follows, we will examine how the Great Escape was accompanied by (1) a social fragmentation trap, (2) a disempowerment trap and (3) an environmental degradation trap.

The Social Fragmentation Trap

It is well known that the rapid economic growth in Japan, Singapore and South Korea has resulted in significant disparities of income and job security. What has received less consistently empirical attention is the influence of rapid industrialization and automation on the social networks responsible for solidarity.

In Japan, the post-bubble "lost decades" intensified feelings of alienation, particularly among younger workers trapped in non-regular employment (freeters), contributing to high levels of anxiety and social isolation (Kingston, 2019). The rise of the hikikomori phenomenon—where individuals withdraw from social life, often staying in their homes for extended periods—reflects the profound alienation felt by those unable to integrate into Japan's rigid labor market and social expectations. Japan's aging population and declining birthrate have also exacerbated this sense of societal decline and disconnection (Teo, 2010; Saito, 2013; Kato, Kanba and Teo, 2018).

In Singapore, the meritocratic system has deepened social stratification, where those who succeed academically and economically are viewed as deserving, while those who do not are often marginalized. The intense focus on economic success has weakened the traditional values of community and family, contributing to a sense of alienation among lower-income Singaporeans, who may feel excluded from the country's success. Singapore's *Gini coefficient* remains one of the highest among developed nations after taxes and transfers. The social housing system, while effective, has also been criticized for segregating communities along class lines (Huat, 2003; OECD, 2019).

South Korea's escape from the middle-income trap involved moving from labor-intensive industries (textiles, steel) to advanced industries (semiconductors, electronics, automobiles) and created economic winners and losers, particularly in terms of regional inequalities and generational divides. Younger South Koreans, known as the "Sampo Generation," face precarious employment and high housing costs, contributing to feelings of alienation and disillusionment with the promises of economic growth (Lee and Shin, 2021).

As South Korea rapidly transformed into a high-income economy, traditional social structures—such as Confucian hierarchies based on seniority, family obligations, and

educational achievement—began to erode. The intense pressure on young people to succeed academically, combined with the scarcity of stable jobs, has led to a mental health crisis, with South Korea recording some of the highest suicide rates in the OECD (Lee, 2018; Park and Chung, 2015; Kang and Lee, 2016).

The Disempowerment Trap

The high levels of stress and overwork accompanying the Great Escape of Japan, Singapore, and South Korea have undermined personal empowerment. The phenomenon of "karoshi" (death from overwork) in Japan and similar problems in South Korea (such as the high suicide rates among the youth) are indicators of the social costs of these growth models. Furthermore, job insecurity among Japanese youth has contributed to feelings of disempowerment (Takahashi, 2019).

As high-income Asian countries escaped the middle-income trap by industrializing and urbanizing, fertility rates began to decline significantly. There are several important factors at play, all related to escape from the middle-income trap. First, the focus on economic success in these countries often demands long working hours and high levels of educational attainment, which leaves limited time for family life. Many young people, especially women, delay marriage and childbirth to focus on education and careers, leading to low fertility rates. Second, urbanization has raised living costs, making it increasingly expensive to raise children. In cities like Seoul, Tokyo, and Taipei, housing prices, education costs, and childcare expenses have become significant barriers to family formation. Consequently, more young people are choosing to remain single or have fewer children. Third, the Great Escape was accompanied by a shift towards individualism, independence, and personal achievement, reshaping traditional family structures. Younger generations in these societies often prioritize personal and professional growth over family obligations, which contrasts with previous generations' values and has led to declining birth rates (Jones, 2019; Doepke, Hazan and Maoz, 2015). In Japan, the demographic change has been accompanied by political disempowerment of the elderly (Nakamura, 2020).

The trend of low birth rates and smaller family sizes means fewer children are available to support elderly parents, leaving the latter often to face loneliness and isolation, which contributes to their sense of disempowerment (Kawakami and Kawabata, 2016). In Japan and South Korea, the Great Escape was accompanied by a shift from multi-generational households to nuclear or even single-person households, which reduces social interaction and support for the elderly. In Japan, where over 28% of the population is above 65, the problem of elderly loneliness has become so severe that some older individuals engage in "kakushoku" (solitary death) without any family or community members aware of their passing. Similarly, in South Korea, social isolation among the elderly has led to increased rates of depression and loneliness. In South Korea, elderly poverty remains high due to limited social welfare provisions, leaving older adults isolated and financially dependent on sparse government assistance or charitable organizations (Murata, Kondo and Hirai, 2019; Lee and Kim, 2021).

Singapore's rapid rise to high-income status was driven by a state-led, technocratic approach that prioritized economic growth over political freedom. The People's Action Party (PAP) has maintained strict control over political discourse, limiting civil society, press freedoms, and dissent. While this has ensured stability and economic progress, it has also led to disempowerment in terms of political participation and civic engagement (Chua, 2017; Koh and Lee, 2015), especially among lower-income groups (Chong, 2016)

South Korea escaped the middle-income trap through chaebol-led growth (conglomerates like Samsung and Hyundai), which came at the cost of labor rights and personal freedoms, especially during the period of authoritarian rule (1960s–1980s). Even after democratization

in the late 1980s, labor precarity has become a significant issue, with a large proportion of the workforce now in non-regular or contract jobs, which limits personal agency (Kang, 2020; Lee, 2016).

The Environmental Degradation Trap

It is well-known that the escape from the middle-income trap, in Asia as elsewhere, has frequently entailed environmental degradation. This is not surprising, since rapid industrialization, urbanization, and economic growth were prioritized over sustainable development. Heavy reliance on resource-intensive industries, fossil fuel consumption, and large-scale infrastructure development has generated air pollution, water contamination, loss of biodiversity, solid waste, increased carbon emissions, deforestation and overfishing. These challenges remain despite significant advances in green technologies, waste management systems and sustainable practices.

Since the environmental impacts of rapid economic growth has received extensive attention in the economic and environmental literature, we can be brief here. Pollution in Japan's high-growth period (1950s-1970s) and its health costs (Tsuru, 1999; George, 2002), the transition to Japan's environmental regulation (1970s-1980s) and environmental institutions (McKean, 1981; Broadbent, 1998), its management of consumer and industrial waste (Takao, 2007; Kawai and Tasaki, 2016), the environmental implications of its energy use (Samuels and Jaffe, 2016; Shibata and Yamamoto, 2015), the biodiversity loss linked to urbanization (Knight, 2010; McDonald and Mulvaney, 2016) have been studied extensively. Japan's global leadership in green technology and eco-innovation is widely recognized (Jänicke, 2000; Hook and Gilson, 2002), while environmental challenges remain (ADB, 2020; OECD, 2018).

Singapore's environmental issues have also received much investigation, waste management (Foo, 1997), water scarcity (Tortajada et al., 2013; Lee and Kim, 2016), energy consumption and greenhouse gas emissions (Tan and Sia, 2017), urban development and biodiversity loss (Turner and Corlett, 1996), and green technology and sustainable urban planning (Wong and Yu, 2010).

South Korea's environmental challenges have also arisen from its extensive industrialization and urbanization, generating a literature on its greenhouse gas emissions (Lee and Choi, 2015), air pollution (Kim and Park, 2014; Choi and Yoo, 2016), waste management and recycling (Kim and Kim, 2010; Jeong and Lee, 2017), its dependence on imported fossil fuels (Kim and Hwang, 2017), its biodiversity loss related to urbanization (Lim, 2010; Cho, 2012), as well as its green growth policies (Park and Sohn, 2013; Kim and Lee, 2014).

Policy Implications

Though Japan, Singapore and South Korea each followed distinctive paths towards high-income status, they shared a broad strategic combination of policies across sectors, including industrial policy, education reform, infrastructure investment, trade liberalization, and innovation support. In this section, we briefly consider how these policies were also responsible for problems regarding social cohesion, empowerment and environmental stewardship.

Policies prioritizing **industrialization**, such as Japan's MITI-directed growth, South Korea's support for chaebols, and Singapore's focus on high-value industries, contributed to income inequality and social stratification. This approach led to an elite workforce highly skilled in specialized industries, while lower-income and rural populations were often left behind. Over time, this inequality eroded social cohesion and created gaps in empowerment and economic agency (Johnson, 1982; Amsden, 1989). Additionally, the emphasis on industrial output often

came at the expense of environmental standards. Both South Korea and Japan saw significant air and water pollution in industrial areas, primarily due to lenient environmental regulations in the early stages of development (Kim, 1997; McNeill, 2000).

While **investment in education** increased skills and productivity, it also created pressures contributing to mental health issues and reduced agency in Japan and South Korea. In particular, South Korea's intense academic competition led to stress and mental health issues among students, with a heavy focus on STEM and test-based achievement seen as stifling personal agency and creativity (Seth, 2002). Furthermore, this emphasis on education for high-skilled industries often came at the expense of vocational training and support for lower-skilled sectors, which fostered divisions within society between high-status professionals and those in low-wage or unstable jobs, eroding solidarity (Park, 2006).

Investment in infrastructure, while beneficial economically, often ignored environmental and social costs. Japan's rapid construction of highways and Shinkansen networks, along with South Korea's extensive road and port infrastructure, often disrupted communities, displaced populations, and had significant ecological impacts. These projects prioritized industrial zones and urban centers, frequently leaving rural areas underserved, thereby contributing to rural-urban divides and impacting social cohesion (Calder, 1988; Park and Lee, 2001). Infrastructure growth was also associated with deforestation, habitat destruction, and pollution, with transportation and energy infrastructure (especially coal-fired plants in South Korea and Japan) contributing heavily to carbon emissions (Okada, 1995).

Trade liberalization and export-oriented growth were key factors in high-income transitions for countries like Singapore, Japan, and South Korea. However, these policies also created vulnerabilities, including job insecurity and reliance on volatile global markets. In South Korea and Japan, increased competition led to precarious employment and weakened labor rights, contributing to a sense of economic insecurity and reduced agency among workers. This trend has been observed in South Korea's "irregular workers" phenomenon, where short-term contracts and job instability became widespread (Kim and Kim, 2013). Socially, this also created challenges as export-led economies shifted from traditional community-oriented work to individual, performance-based systems. These changes, driven by economic demands, often diminished solidarity and fostered an environment of competition rather than community (Huff, 1994).

Policies aimed at attracting FDI helped to develop high-value industries in Japan, South Korea, and Singapore. However, these policies also heightened income disparities and reduced domestic agency, as local firms often struggled to compete with multinational corporations for talent and market share. This trend has contributed to economic centralization, concentrating wealth and power in urban centers and corporate hubs, which diminished both community agency and local control over economic activities (Blomqvist, 2001; Chen and Wong, 1997). Environmental issues associated with FDI-driven industrialization also emerged as a result of relaxed regulations to attract foreign capital. Singapore, for instance, has faced challenges in balancing industrial pollution control with the demands of heavy industries and multinational companies operating in the city-state (Wong, 2008).

While **R&D investments** helped Japan, South Korea, and Singapore maintain their technological competitiveness, the focus on high-tech and capital-intensive sectors created a dual economy. Highly skilled professionals benefited from high wages and job security, while lower-skilled workers faced stagnant wages, limited advancement opportunities, and job insecurity. This gap exacerbated social stratification and weakened community ties, as seen in Japan and South Korea, where a focus on advanced technologies has contributed to issues of isolation and social dislocation (Freeman, 1987; Lee, 2013). R&D often favored energy-

intensive industries, including chemicals and electronics manufacturing, leading to pollution and waste issues. Both Japan and South Korea have struggled to offset the environmental costs associated with their R&D-driven growth, despite later efforts in green technology (Jänicke, 2000).

In short, what was good for the economies in these Asian countries was not necessarily good for their societies and environment.

The policy implications of this analysis for middle-income countries are far-reaching. High-income Asian countries can prioritize policies that promote social solidarity, empowerment, and environmental stewardship without sacrificing economic prosperity by adopting a multifaceted approach that integrates social, economic, and environmental objectives. These may be briefly summarized as follows (recognizing that a detailed set of recommendations lies well beyond the scope of this paper):

- Encourage **inclusive economic growth** through targeted social policies that reduce inequality and provide support for marginalized groups. This includes progressive taxation, social safety nets, and access to education and healthcare (e.g., Stiglitz, Sen and Fitoussi, 2010).
- Promote **community development programs** that foster social solidarity, including initiatives that support local businesses, cultural preservation, and community engagement.
- Foster **participatory governance structures** that involve citizens in decision-making processes. This enhances transparency, accountability, and social cohesion while empowering communities (Fung and Wright, 2003).
- Invest in **education and workforce development programs** that equip individuals with the skills needed for the future economy, focusing on sustainability and innovation. This includes vocational training and lifelong learning initiatives.
- Establish and enforce strict **environmental regulations and standards** that hold industries accountable for their impact on the environment. This encourages sustainable practices without hindering economic growth (e.g., Porter and van der Linde, 1995).

These strategies may help foster social solidarity, empower communities, and ensure an inclusive, sustainable future without sacrificing economic growth.

Appendix 1: Description of the Data

The data for the Solidarity Index and Agency Index is sourced from the Gallup World Poll, which surveys a minimum of 1,000 residents aged 15 and above in each country, with larger samples in more populous nations to ensure greater precision in estimates. Macroeconomic data, specifically GDP per capita (constant 2015 US dollars), is obtained from the World Bank. Environmental performance data is derived from the SDG Index, which utilizes a combination of official and non-official data sources. Official data refers to information reported by national governments to international organizations and undergoes rigorous standardization processes to ensure comparability across concepts, data collection methods, and outcomes. Non-official data is provided by non-governmental entities, such as research institutions, universities, non-governmental organizations (NGOs), and private sector actors, collected through a variety of techniques including estimates, satellite imagery, expert surveys, and other methodologies. In total, the SDG Index comprises 65% official data and 35% non-official data.

Components of SAGE

Solidarity Index:

The Solidarity Index is derived by calculating the arithmetic mean of Inward Solidarity and Outward Solidarity.

Inward Solidarity is measured by social support, which reflects the percentage of people who report having friends or relatives to rely on in times of need. This is based on the survey question WP27: "If you were in trouble, do you have relatives or friends you can count on for help?" [yes/no]

Outward Solidarity is quantified by calculating the arithmetic mean of the following components (all of which are measured on a uniform scale ranging from 0 to 1):

- WP108: In the past month, have you donated money to a charity? [yes/no]
- WP109: In the past month, have you volunteered your time to an organization? [yes/no]
- WP110: In the past month, have you helped a stranger or someone you didn't know who needed help? [yes/no]
- WP103: Is the city or area where you live a good place or not a good place to live for racial and ethnic minorities? [yes/no]
- WP105: Is the city or area where you live a good place or not a good place to live for gay or lesbian people? [yes/no]
- WP106: Is the city or area where you live a good place or not a good place to live for immigrants from other countries? [yes/no]
- WP61: Were you treated with respect all day yesterday? [yes/no]
- WP129: Do you believe that children in (Country) are treated with respect and dignity, or not? [yes/no]

Agency Index:

The Agency Index is calculated as the arithmetic mean of three categories, each measured on a uniform scale from 0 to 1: Personal Agency, Public Services and Infrastructure, and Institutional Trust. Each category is based on the mean of specific components, as outlined below:

Personal Agency:

- WP134: In this country, are you satisfied or dissatisfied with your freedom to choose what you do with your life? [satisfied/dissatisfied]

Public Services and Infrastructure:

- WP93: In the city or area where you live, are you satisfied or dissatisfied with the educational system or the schools? [satisfied/dissatisfied]
- WP97: In the city or area where you live, are you satisfied or dissatisfied with the availability of quality healthcare? [satisfied/dissatisfied]
- WP98: In your city or area where you live, are you satisfied or dissatisfied with the availability of good, affordable housing? [satisfied/dissatisfied]
- WP92: In the city or area where you live, are you satisfied or dissatisfied with the roads and highways? [satisfied/dissatisfied]
- WP91: In the city or area where you live, are you satisfied or dissatisfied with the public transportation systems? [satisfied/dissatisfied]

Institutional Trust:

- WP138: In this country, do you have confidence in each of the following, or not? How about judicial system and courts? [yes/no]
- WP139: In this country, do you have confidence in each of the following, or not? How about national government? [yes/no]
- WP146: Is corruption widespread throughout the government in this country, or not? [yes/no]

Material Gains

Material gains is represented as GDP per capita in constant 2015 US dollars.

Environment

To ensure comparability across different indicators, the SDG Index uses a normalization process that rescales each variable to a range from 0 to 100, where 0 represents the worst performance (at the 2.5th percentile) and 100 represents the technical optimum.

The Sustainable Environment score for SAGE was derived by calculating the arithmetic mean of the following SDG sub-indicators:

- Sustainable Nitrogen Management Index
- Freshwater withdrawal
- Anthropogenic wastewater that receives treatment
- Share of renewable energy in total primary energy supply
- Municipal solid waste (kg/capita/day)
- Electronic waste (kg/capita/day)
- Production-based SO_2 emission (kg/capita/day)
- CO_2 emissions from fossil fuel combustion and cement production (tCO_2 /capita)
- CO_2 emissions embodied in imports (tCO_2 /capita)
- Mean area that is protected in marine sites important to biodiversity
- Ocean Health Index
- Mean area that is protected in terrestrial sites important to biodiversity
- Red List Index of species survival
- Permanent deforestation (% of forest area, 3-year average)

Missing data

A subset of variables in the analysis exhibits missing data within the Agency and Solidarity Indexes. To ensure continuity and comparability of the composite scores over time, it was necessary to estimate these missing values by linear interpolation for specific years.

- Japan: In 2012, linear interpolation was applied to WP91, WP97, WP98, WP110, WP108, WP109, WP103, WP105, and WP106.
- South Korea: In 2012, the same method was used for WP91, WP97, WP98, WP110, WP108, WP109, WP103, WP105, and WP106.
- Singapore: Linear interpolation was applied in 2012 for WP110, in 2013 and 2020 for all variables composing the Solidarity and Agency Indexes, and in 2022 for WP91, WP92, WP93, WP98, and WP146.

Appendix 2: Spearman Correlation Coefficients

For Japan, the Spearman correlation coefficients confirm that GDP per capita is negatively associated agency and environmental sustainability and is not significantly correlated with solidarity:

Variable	rho	p-value
Solidarity	0.4373626	0.1197839
Agency	-0.5736264	0.0349735
Environment	-0.5384615	0.0499891

Table 5: Correlations between GDP per capita and (i) solidarity, (ii) agency and (iii) environmental stewardship for Japan during 2010-2023

For Singapore, the Spearman correlation coefficients confirm that GDP per capita is positively associated with solidarity and is not significantly correlated with agency and environmental sustainability:

Variable	rho	p-value
Solidarity	0.8549451	0.0000983
Agency	0.3626374	0.2030809
Environment	-0.2043956	0.4826912

Table 6: Correlations between GDP per capita and (i) solidarity, (ii) agency and (iii) environmental stewardship for Singapore during 2010-2023

For South Korea, the Spearman correlation coefficients confirm that GDP per capita is negatively correlated with environmental sustainability and is not significantly correlated with solidarity and agency:

Variable	rho	p-value
Solidarity	0.3054945	0.2877382
Agency	0.5120879	0.0640824
Environment	-0.7406593	0.0035266

Table 7: Correlations between GDP per capita and (i) solidarity, (ii) agency and (iii) environmental stewardship for Singapore during 2010-2023

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