



Risk Management in the Public Sector: The Interaction of Social and Economic Risk

Darryl Jarvis, Johannes Loh and Tim Hilger
Lee Kuan Yew School of Public Policy
National University of Singapore

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Contents

Introduction.....	2
Part 1: Mapping the risk.....	4
The case of Singapore.....	6
Relevant contributing factors: Social dynamics	7
Conflicts about interests, values and science.....	8
Singapore was hit hard by the economic crisis	9
Part 2: How was the emerging risk dealt with?.....	10
Reaction to the economic crisis in Singapore	10
(Non-)Reaction of the Tunisian government to growing inequality	10
Reaction to the increased demand for public participation in Singapore	12
Part 3: What are the major lessons learned?.....	14
Monitoring useful indicators	14
Identifying key social dynamics and media channels.....	17
Conclusion	20
Appendix 1: Overcoming bureaucratic obstacles.....	22
Appendix 2: Suggested indicators for economic and social risks.....	25
Bibliography.....	27

Introduction

Natural disasters, terrorist attacks, global pandemics and many other conventional risks keep governments around the world on alert; however they also have to deal with an increasing number of rapidly emerging risks. Governments can be already overwhelmed with traditional risk management; therefore newly emerging risks can impose a serious threat to political stability. Despite the accumulated knowledge in sciences, economics, and politics, it is a challenge for current decision making regimes to cope with the complexity of interdependencies, and to address urgent questions about the future design of national and global structures that are capable of managing emerging risks. Two simple examples:

1. The global financial crisis has affected countries all over the world with domino effects that even the most engaged analysts did not anticipate.
2. Food price hikes in 2008 caused by speculative trading behaviour triggered severe riots in North Africa and the Middle East, illustrating new vulnerabilities caused by deeper integration of global markets.

At the state level, governments are seeking to be pro-active instead of just reacting to rapidly and spontaneously emerging circumstances. National governments are reaching their limits in a globalised economic system and in dealing with transnational public policy problems. At the international level, coordination and implementation remain cumbersome because of different national interests and difficult decision making structures.

As a result of these developments and the weakness of governments, citizens have become much more prone to threats to their own economic and social status. Economic crises expose citizens to job losses and credit defaults, resulting in declining wealth and a growing gap between the rich and the poor. Social immobility and limited access to education lead to the manifestation of social class membership at the upper and lower end. Growing income inequality and simmering perceptions of social injustice are one of the biggest risks at the nexus of the social and economic dimensions of societies in 2012. Citizens increasingly perceive their governments as unable or unwilling to address their situations, which can accumulate to a critical mass actively challenging a government's legitimacy.

In 2011, the world witnessed an unprecedented occurrence of worldwide protests and often riots in countries thousands of kilometres away from each other, however linked to similar issues. The overthrows of governments during the Arab Spring in Tunisia, Egypt, Libya and Yemen (and currently uncertain outcomes in Bahrain and Syria) proved that economic and

social desperation resulting from inequality, unemployment and lack of opportunities for public participation as well as absence of government accountability can lead to extreme results that inspire and fuel others across borders.

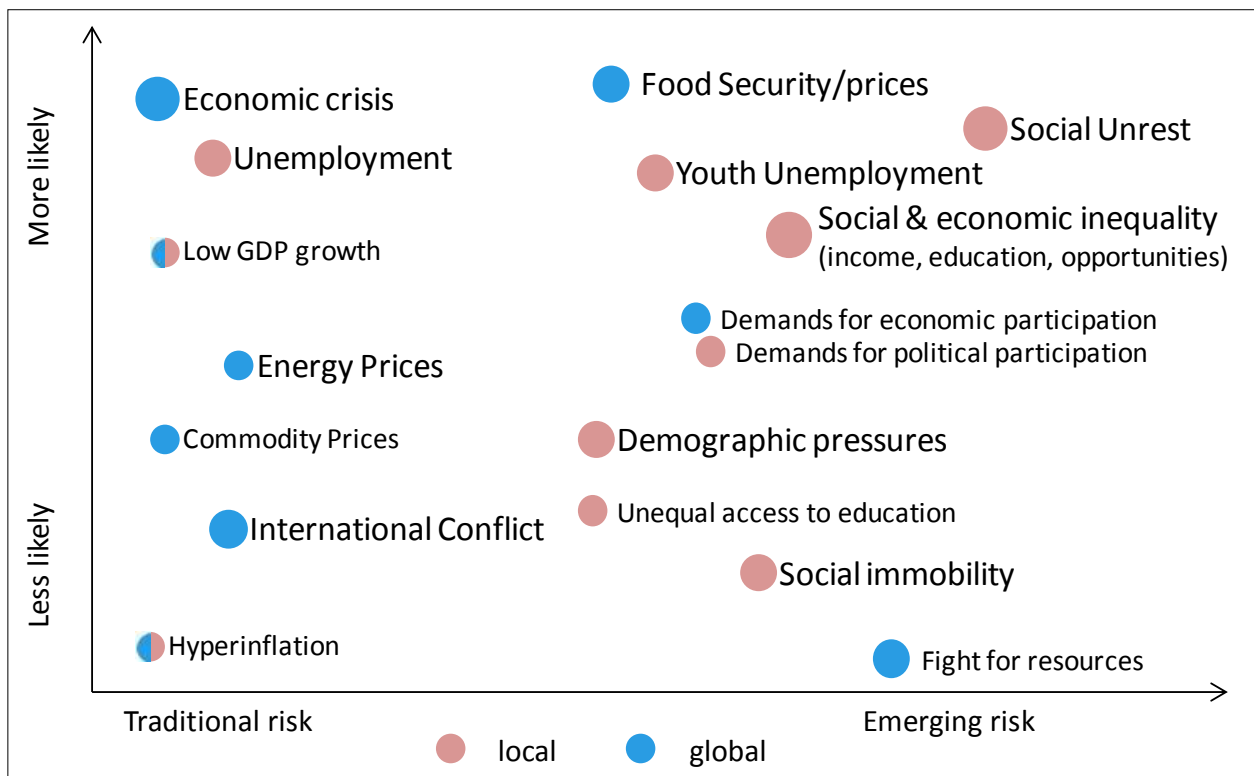
And there is no separation between rich and poor countries: the London riots in August 2011 led to almost 4,000 arrests, with 551 sentences handed out. The intensity and destructive nature of rioters took politicians by surprise and overwhelmed the unprepared security forces. The riots have been interpreted not as politically motivated but as an “intensification of an underlying situation” of social inequality in parts of the British society. (Till 2012, 3) The majority of the young riot suspects came from deprived areas and had low educational achievements. (Berman 2011, vi)

In October 2011, thousands of citizens flooded prominent places in New York City and started the Occupy Wall Street Movement. “We are the 99%” became the protest slogan against the increasing inequality in the USA and inspired similar movements around the world. To summarise the events in 2011, Time Magazine made “The Protester” the Person of the Year 2011. (Time Magazine 2011)

Part 1: Mapping the risk

Governments have traditionally dealt with a great variety of different risks that imposed both operational and reputational threats. Risks from hostile countries, natural disasters, diseases and sickness fall in the category of traditional risks. Economic and social risks such as inflation, youth unemployment or perceptions of social injustice are not recent phenomena; however, a greater variety of triggers, contributing factors as well as scale and pace of emerging risks have caught special attention from governments.

Graph 1: Emerging vs. traditional risks



Graph compiled by authors

A study by the World Economic Forum has identified the most relevant economic and social risks for 2012. (World Economic Forum 2012) The top economic risks are chronic fiscal imbalances, severe income disparity, extreme volatility in energy and agriculture prices, and a major systemic financial system failure. Socially, the most serious risks are water and food crises, mismanagement of aging and unsustainable population growth. The report has further identified economic risks as the key “critical connectors” that define the resilience or vulnerability of the global system as a whole. (World Economic Forum 2012, 36) None of these risks should be seen isolated from each other. The outcomes are often magnified through

complex interaction of different types of risk, which increases the struggle of governments to find adequate responses.

While there are private individual arrangements (e.g. marriage, community support, etc.) and market-based instruments (insurance, financial assets, etc.), to shield individuals from harmful interactions between social and economic risks, this case study concentrates on government policies and instruments. Governments have established a relatively advanced level of dealing with traditional risks; in principal, it is the task of the various ministries to manage the different risks a government is facing. Traditional risks include weak economic growth rates, unemployment, (hyper)inflation, rising commodity and energy prices, diseases and many more. The collection and observation of macro- and micro-level data allows for close monitoring of these risks, subsequent analysis and translation into policy making. Moreover, it is feasible to include these in economic and political scenario planning which can help to design appropriate risk management frameworks. The same cannot be said about the monitoring of emerging social risks. It is much harder to detect weak signals on social dissatisfaction, a political disengagement or harmful resentment within societies due to rising social and economic inequality.

To give an illustration of traditional risks, unemployment rates have always been an important concern for governments. High unemployment transfers into reduced growth rates, low consumption, low tax income, and eventually dissatisfied citizens. In order to prevent such situations, governments will try to get their labour markets in order. Similarly, inflation and rising prices for staples and energy impose burden on people's budgets as well as industries and will ultimately pose a risk to political stability if the government is unable to address the situation. At the individual stage, the level of education, access to technology, and related enabling factors decide on opportunities and chances to become a part of the productive, self-sustained society.

In addition to the expectation towards the government for adequate risk management, citizens generally demand accessible and fair ways to participate in the political process in order to express their voices and hold the government accountable to emerging societal grievances. The absence of such political instruments and processes can have explosive impacts when they interact with sudden changes in the economic situation such as a deep financial crises, mass layoffs and/or hyperinflation.

Hence, if a government ultimately is unable to deal with these challenges it can escalate into a legitimacy crisis which would result in political and economic instability. For this reason, the ability of a government to anticipate emerging risks and finding ways to cope are decisive for a

government's survival. It is important to notice though that social and economic risks like all other risks have two equally important dimensions of understanding: expert-driven scientific understanding of a risk will be different from the psychological perception of a risk. Both dimensions will eventually influence decision making.

In an increasingly globalised world the scope of various risks spreads across borders and thereby the area of influence of the traditional nation state, which is one of the reasons why governments are facing greater challenges today in responding to emerging social and economic risks. The global financial crisis has resulted in serious threats to countries that were hardly responsible for the failures in oversight and regulation that allowed the crisis to happen in the first place.

Since nation states are still struggling with the implementation of multilateral agreements to effectively address economic and social risks beyond their own borders, governments remain vulnerable to external influences. One prominent example for global connectivity can be found in the occurrence of food riots in 2008, where rising commodity prices in one part of the world affected food prices in other parts. Deregulation of the commodity markets magnified effects of speculation and directly worsened the food price spikes on a global scale. One study identified a specific price threshold "above which protests become likely" in North-Africa and the Middle-East. (Bar-Yam, Lagi and Bertrand 2011, 4) The authors concluded that social unrest and protest movements do not only arise out of lasting political shortcomings of governments, but can also result from sudden economic risks to vulnerable populations.

Another study found interesting linkages between social and economic risks when analysing contributing factors to armed conflict. Their results indicated that, together with other factors, income poverty, poor health and nutritional status were much stronger associated with onset of armed conflict than measures of GDP per capita or GDP growth. (Pinstrup-Andersen and Shimokawa 2008) This illustrates the need to look beyond economic deprivation to understand underlying causes of societal frustration and conflict potential. If governments want to be better prepared for future interactions of these emerging risks, they need to complement their existing risk management strategies with new tools beyond well-established economic monitoring.

The case of Singapore

In the short campaign time for the parliamentary elections in 2011, the Government of Singapore was challenged by the opposition on the topic of civic participation and rising inequality among the inhabitants of the small island state in South East Asia.

Singaporean citizens were voicing concerns about increasing social and economic inequality. To the impartial observer, it appeared as if the government was caught off guard and unprepared to provide a confident answer to people’s concerns.

The following part will therefore look into the risk to governments of underestimating the pressures resulting from emerging social and economic risks and their interactions. In particular, it will focus on the interdependencies between social and economic risks and how failures in recognising them can increase the pressure on governments.

Relevant contributing factors: Social dynamics

Social dynamics in Singapore have become more intense in the 21st century. Singaporean citizens have developed a stronger drive to participate in politics, which can be observed in various topics under discussion. For example, the government’s policies to attract foreign labour to Singapore led to increasing frustrations and the development of a “Singaporeans first” attitude, thereby neglecting the demographic challenge of a rapidly ageing society in combination with a low fertility rate (see table 1 below). Without sufficient births to sustain a rapidly growing group of old age pensioners, steeply rising health care costs, and demand for highly skilled workers, Singapore’s economic future depends on a constant influx of foreigners. Politically, this represents a formidable challenge of balancing citizens’ expectations for their own society against economic necessities.

Table 1: Singapore demographics

Year	Population	Total fertility	Population aged 60+		Population aged 80+	
	thousands	(medium variant) Children per woman	(Medium variant) thousands	%	(Medium variant) thousands	%
1990	3017	1.70	254	8.4	28	0.9
1995	3482	1.84	326	9.4	39	1.1
2000	3919	1.58	422	10.8	52	1.3
2005	4266	1.33	522	12.2	63	1.5
2010	5086	1.25	713	14.0	90	1.8
2015	5375	1.37	971	18.1	123	2.3
2020	5597	1.47	1277	22.8	160	2.9

Source: (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat 2010)

Similarly, there is a growing public sentiment that Singaporeans are not benefitting enough from the country’s overall success, e.g. the accumulation of large reserves instead of

investments into social programmes. Despite the vows on meritocracy as one of the key principles of Singapore, children from families at the upper end of the prosperity scale tend to also do better in the highly performance-driven Singapore society. (Bhaskaran, et al. 2012) In consequence, parts of society feel that social immobility and lack of support schemes contribute to a widening economic and social divide.

In addition, the debate on high minister salaries in Singapore has displayed a feeling of disconnection between political elites and citizens. The Government of Singapore has underlined the importance of minister salaries being benchmarked against private sector remuneration, which leads to comparatively high payments. The reasoning is first that high salaries are needed to attract talent who would otherwise chose private sector career paths and second, to prevent government officials from corruption.

However, minister salaries became an intensely debated issue because Singaporean citizens started to question the rates, implying that government salaries have contributed to politicians being too distanced from the population. The intensity in the discussion of the topic, particularly in blogs and social media, illustrated the frustration about social and economic inequality that was simmering under the surface in parts of the society.

Conflicts about interests, values and science

The Government of Singapore is using GDP growth as a key indicator for measuring the success of its politics. There are concerns that a too narrow focus on economic development has neglected aspects of inclusive growth that would have allowed broader parts of society to benefit and reduce economic inequalities (see table 2). Income inequality in Singapore, measured by the Gini coefficient¹, has slowly risen to 0.465 in the past 10 years, and is one of the highest in the world.

A survey from 2011 displays that while a big majority of Singaporean citizens (85 per cent) sees the country on the right track, it is striking that among those dissatisfied the reasons that indicate increasing economic inequality are the most prominent. Among the 15 per cent who believe that Singapore is heading in the wrong direction, there is a concern that overall economic growth is not benefiting everyone in the country equally. 30 per cent of those who believe that Singapore is heading in the wrong direction base their opinion on the high cost of living including housing, health care and the price of goods. Another 30 per cent believe the

¹ Gini index measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution - <http://data.worldbank.org/indicator/SI.POV.GINI>

government does not care enough for people from low income groups. (Merdeka Center for Opinion Research 2011, 5)

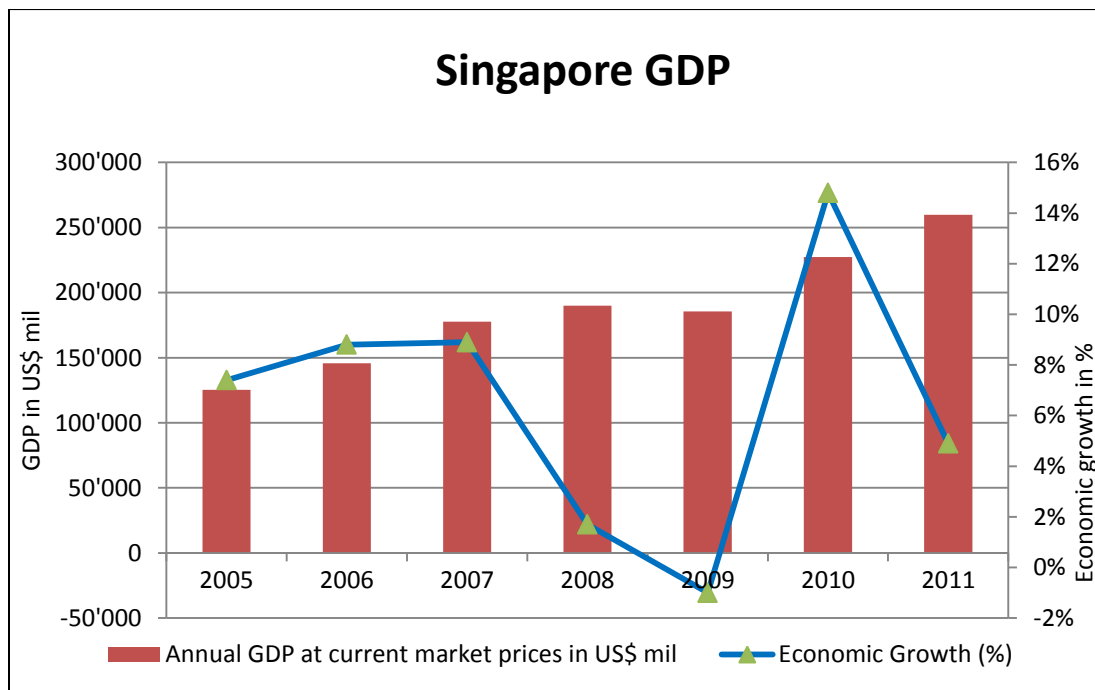
Anticipating social trends at the verge of becoming mainstream, such as growing negative perceptions on social justice and mobility, is crucial to be able to launch policy consultations and formulate adequate policy responses.

Singapore was hit hard by the economic crisis

To illustrate the vulnerability of Singapore to external economic risks, it is worth having a closer look at the impact of the global financial crisis in 2009. In the first quarter of the year, the economy shrank by 9.5 per cent and by 3.3 per cent in the consecutive quarter, due to a reduced global demand for manufacturing exports and services (see graph 2 below). Even though the unemployment rate settled at a comparatively low rate of 3.4 per cent, employers became hesitant about hiring new staff and many jobs could only be secured through a government stimulus. (ASEAN, World Bank 2011, 1-2)

For the first time in the history of the city state, the government requested approval from the President to tap on the national reserves in order to finance measures to protect jobs and enhance worker’s qualifications.

Graph 2: Singapore GDP development



Source: (Department of Statistics Singapore 2012)

Part 2: How was the emerging risk dealt with?

While emerging social and economic risk are clearly interacting, policy responses often tackle isolated aspects of the problem. The following section explains how Singapore has taken specific measures to address the economic crisis and the growing demand for public participation.

Reaction to the economic crisis in Singapore

The Government of Singapore traditionally has taken an approach that emphasises economic growth and limits risk pooling by the public, both for retirement as well as health care. Instead the main tools for individual risk management are compulsory saving schemes. The major scheme is the Central Provident Fund (CPF), which is covering housing, hospitalisation, catastrophic health insurance and retirement.

However, the CPF is increasingly considered to be insufficient to address the challenges of an ageing society; in other words, a potential increase in inequality between wealthy and poorer retirees. One reason for this is that CPF contribution reduction has been used as a short-term policy instrument to improve competitiveness during phases of economic weakness. (Asher and Nandy 2008, 52) Most other social security programmes covering education, health care and employment are on a case-by-case basis with a rigorous comprehensive individual needs assessment.

(Non-)Reaction of the Tunisian government to growing inequality

Tunisia used to be one of the most stable and wealthy nations in North Africa. President Ben Ali, who had been in power since 1987, had opened the country to foreign investments and achieved steady GDP growth throughout his rule. At the same time, his regime has held tight controls over national media, repressed political opposition and silenced any form of protest. Tunisia prides itself with a well-functioning education system and investment into education stood at 6 per cent of GDP in 2006.

However, in recent years abject poverty in marginalized areas, rising rates of youth unemployment as well as frustration about the political repression led to a growing anger and dissatisfaction with the country's ruler. While small scale demonstrations against unemployment and lack of economic development occurred from time to time between 2008 and 2010, these events rarely made it into national and international media. (Ryan 2011) It is likely that President Ben Ali and his government considered those protests exceptions in a country on steady path to greater wealth. While coastal regions were bustling with economic development, the gap to the hinterland and poor rural regions kept widening.

The countries elite lived in complete disconnect from its population and the usual interlocutors to civil society such as independent media were oppressed. The Tunisian government did not carefully monitor the situation of its unemployed, and often highly educated, youth. It missed the opportunity to monitor and respond proactively to the strong warning signals of spreading poverty and youth unemployment. (MacKenzie 2011, 10)

The Government's risk management focused on containment of public protests instead of engaging its frustrated and outraged citizens. The dire situation then caused the 26-year old street vendor Mohamed Bouazizi to immolate himself, an event that subsequently triggered a wave of unprecedented protests leading to the ousting of Ben Ali and his government.

Among the underlying causes that led to the Tunisian revolt and the resulting overthrow of President Ben Ali, unemployment and economic stagnation, shrinking press freedom and graft corruption as main factors are listed. (Andrew-Gee 2011) The government's failure to respond to the combination of social and economic risks affecting a critical mass of its own society had undermined the legitimacy of the entire political system, to the extent that senior members of the security forces refused to follow orders to violently suppress the mass protests.

With a more anticipatory approach to governance, proper risk management, and appropriate reforms the government could have avoided the violent riots and maybe initiated a peaceful transition. The Tunisian case also offers valuable lessons to countries at similar developmental stages with regard to managing social and economic risk when faced with substantial changes to their societal and institutional structures.

Additional protection is delivered by community-based programmes and volunteer organisations, which are recipients of government grants and individual donations. Finally, temporary government schemes with small target groups are intended to add to the existing tools in case of special need. All programmes are only available for citizens that are part of the electorate. Since almost 2 million inhabitants of the island state do not have citizenship or resident status, they remain vulnerable to economic and social risks, especially those with low remuneration such as domestic helpers or construction workers.

During the economic crisis, the Government of Singapore established additional temporary schemes to address the emerging economic and social vulnerability. These included the increase of allowances to low-income retirees, additional public transport vouchers, various support measures for charitable institutions (tax rebates, grants, trainings), as well as rental and surcharge rebates for public housing. Furthermore, job creation measures were intensified, e.g.

business received support to save jobs during tough economic times and additional training and qualification programmes were offered. (ASEAN, World Bank 2011, 9-10)

In terms of the macroeconomic development of Singapore, the measures taken by the Government can be considered a success. GDP recovered relatively quickly from the impact of the crisis and unemployment figures remained on a low level. However, the policies could not spare the government from challenges regarding increased structural inequalities in terms of income, health and education, particularly articulated during the election campaigns in 2011.

Reaction to the increased demand for public participation in Singapore

The Government of Singapore is trying to react to the criticism for a lack of public participation in decision making. Politics in Singapore is frequently perceived as being dominated by the ruling party PAP, which for long has not been subjected to checks from any substantial opposition in parliament.

After the election in 2011, a new approach by the government for more participation became visible. The government has established a broad range of feedback mechanisms and tools on certain topics, such as the establishment of casinos, the development of the Rail Corridor which was returned by Malaysia in 2011, public transport breakdown, and even for the trapping of stray dogs and wild boar. This includes the utilisation of social media, which was highlighted by the newly elected President Tony Tan in his address to the Parliament: “The internet is a tremendous tool to empower individuals, links us up with one another, and mobilise people for social causes. [...] We must find ways to use the new media constructively, to connect with the digital generation and sustain fruitful conversations on issues concerning us all”. (Tan Keng Yam 2011)

The debate about meaning and implication of participation in Singapore is far from conclusion. Issues remain with government decisions where the population feels excluded from the decision making process (e.g. the demolition of an old cemetery for a highway project). Furthermore, the government refers to the potential threat of a growing number of populist decisions, with the government in a difficult situation that require short-term oriented answers to public demands. However, overall there are no signs of serious escalation of the debate in Singapore. While there are early signals about a growing demand for more open political discourse at the nexus of social and economic issues, Singapore remains without a doubt a country with high political stability and functional institutions.

Working conditions trigger social unrest in China:

The Government of China consistently emphasises the need for an ordered and peaceful transition from a communist country to a market economy. Manufacturing has been the backbone of the Chinese growth miracle; supplying the world with cheap electronics and other consumer goods. However, the government in its struggle for political stability is continuously challenged with the consolidation of its increasingly demanding work force and the need to keep the Chinese economic growth rates above a critical threshold.

These struggles became visible in the beginning of 2009, when the number of labour protests went up by 30 per cent compared to the previous year and forced the government to intervene in the precarious situation of factory workers. (The Economist 2010) Contributing factors to workers' protests were frozen minimum wages, better trained workers, job insecurity and unfavourable working conditions, as well as regional imbalances in labour markets which are aggravated through the household registration policies. The resulting social insecurity among the labour force cumulated in a level of frustration that ultimately triggered social unrest.

To prevent escalation of critical social unrest situations, policy interventions need to tackle pressing issues such as wages, working conditions and social security. While some of these measures in the short run might be considered as a disadvantage for the Chinese economy (e.g. in comparison to other neighbouring countries, such as Vietnam, with even lower wage and social security levels), they also provide enormous potential: rising wages would be an important stimulus to increase domestic consumption, a crucial aspect of Chinese economic development.

Part 2 has shown that the reaction to emerging economic and social risk requires addressing a number of different yet interacting factors. Policy responses are usually very specific and adjusted to the respective local context, for example targeting labour markets or addressing participation constraints. Coherence of policies is important because of the implications policy measures might have beyond their narrow target. For this reason, it is essential to keep the big picture, i.e. the interaction between different types of risk in mind.

Part 3: What are the major lessons learned?

Detecting early warning signs and translating an overflow of contradictory information into a successful risk management framework are the two aspects that turn effective management of emerging social and economic risks into a big challenge. Analysing economic data, demographics, labour markets, public opinion, etc., requires governments to have a sophisticated approach to filter relevant information and understand potential developments. However, no matter what level of sophistication in data collection and analysis would be reached, ultimately no trendline or current data will foresee every emerging event. But systematic and inclusive approaches can reduce the threat to governments to be caught unprepared by emerging risks.

The case of Singapore shows how an emerging economic risk (e.g. income inequality) can contribute to the scale of a social risk (e.g. social unrest/dissatisfaction leading to political shifts). The trend became visible when the government of Singapore received the lowest share of votes in the history of Singapore. Governments need to understand how risks can be identified at an early stage to prevent them from escalating into a broader social movement with the potential to turn violent. The practices distilled from the Singaporean case study clearly emphasise the role of the government and its institutions in the management of social and economic risk. Singapore is not a welfare state and prioritises private individual risk management over public measures. The government nevertheless plays a strong role when it comes to potential risks to the state and society as a whole.

Monitoring useful indicators

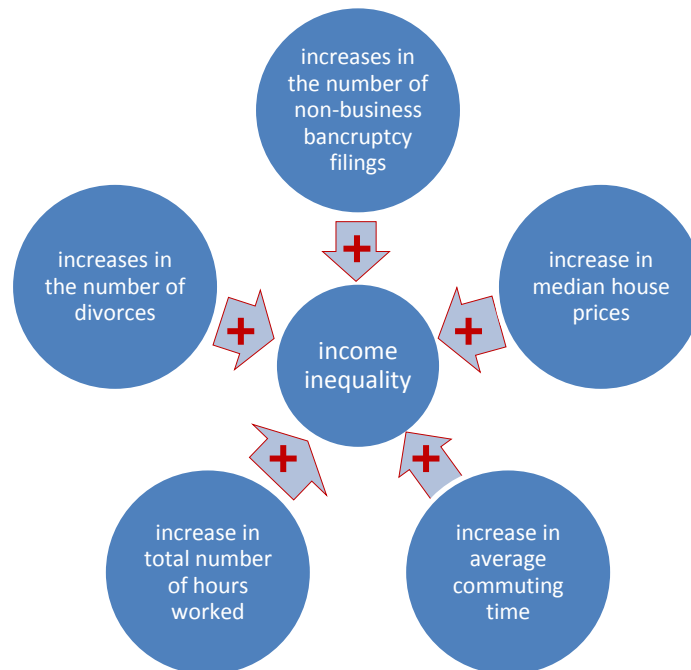
In addition to widely known indicators and measurements of economic inequality such as the Gini coefficient and wage level statistics, it is important to be able to detect rapid changes that indicate amplification of risks within one or several of these indicators. A significant negative shift, for example stark increases in youth unemployment combined with limited social security and simultaneous increases in the cost of living could trigger a spiral of events leading to violent protests, such as witnessed in Tunisia. While each situation has to be evaluated in its specific cultural context, especially with regard to “critical” thresholds or shifts, precautionary monitoring of aforementioned sets of indicators and their interaction can help to inform anticipatory policy making.

A study by Frank et al. identified other indicators of increasing income inequality that can be included into governments’ early warning systems. For example, changes in income inequality are positively connected with changes in the number of non-business bankruptcy filings. A similar positive correlation was found between increasing number of divorces and increasing

inequality. Another indicator is an increase in average commuting time. In times of financial stress, which is pointing to economic inequalities, people tend to shift to cheaper but less conveniently located locations. Other studies have shown positive associations between inequality and the total number of hours worked as well as higher median house prices in districts with higher inequality. (Frank, Levine and Dijk 2010, 25)

A systematic monitoring of these indicators could help to detect weak signals which otherwise would have gone unnoticed. A team of experienced strategic planners could formulate critical thresholds for a combination of these non-traditional indicators above which decision makers should consider policy action. Specific critical thresholds depend on the respective cultural and societal context, as well as the government’s relative risk aversion.

Graph 3: New indicators of increasing income inequality



The focus on early intervention should be seen in context of the traditional and new risk indicators as described above. If it is possible to develop a set of thresholds for various indicators, they can be utilised to determine early intervention points. Similarly to the identification of risks, decisions about the type of intervention should be made in an inter-ministerial framework that foster collaboration. For example, increasing number of divorces could be approached by labour ministries who regulate working hours but also by family ministries who oversee a range of policies for married couples.

It is generally assumed that prevention of harmful events is more cost-effective than adaptation and mitigation. Due to the huge variety of different mechanisms, it is a challenge to estimate the cost and benefits of early interventions. However, estimates for the UK government amount the annual cost of non-intervention to as much as 40 million USD for tackling the challenges of social breakdown and its underlying causes. (Wintour 2012)

While any shift in a single indicator might not represent an emerging risk in itself, it is the co-occurrence and often their interaction that can trigger a spiral of events such as initial protest or even national movements for a change in government such as witnessed in Tunisia or Libya last year. The challenge is which set of indicators to monitor and where to set critical thresholds before any action is taken. Here, in-depth knowledge about the respective cultural and institutional context is essential and need to be considered in the design of any early-warning frameworks for emerging social and economic risks.

The need for a South Korean response to emerging social risks

The Government of South Korea reacted to the economic crisis in 1997-98 with a set of social policies. It expanded the coverage and benefits under the existing public social insurance scheme significantly (protection against unemployment, health insurance and pensions). It also implemented a fundamental reform of the public assistance programme to secure a minimum standard of living, independent from age or work ability. (Yang 2011)

Nevertheless, South Korea is still facing enormous future challenges. The country is at the beginning of a severe demographic transition from one of the youngest societies today to the second oldest among OECD countries by 2050. With the economic growth of the last decades, inequality has also risen dramatically. It has a highly segmented labour market between regular and non-regular workers, a malfunctioning tax system in terms of income redistribution and despite the reforms mentioned above, the social spending rate is among the lowest of OECD countries. (OECD 2011, 3)

This is because the introduction of social security measures happened in the context of liberal reforms of the South Korean economy that aim to open markets for foreign investments and minimise interference by the state. The social system therefore creates strong incentives to remain a part of the labour force and promotes self-support. As a result, some parts of the population, namely the poor, remain with very limited access to social protection.

While the political situation in Korea is currently stable, the government needs to introduce policies that will mitigate the economic and social risks that could otherwise emerge in the future. To address the risk of an economic decline, labour productivity especially in the service sector needs to improve drastically to close the income gap. It is further important to reduce the share of non-regular workers who are less trained and protected. Regarding the demographic situation, Korea has to promote the role of women and older people in the labour force. (OECD 2011, 6)

Identifying key social dynamics and media channels

There is no doubt about the importance of social media as a means that allows for quick distribution of information and the exchange between protestors under the radar of official censorship. However, the role of social media during the escalation of social conflict needs to be examined in much more detail. During the Arab Spring, members of the revolutionary movements have acknowledged the role of social media while simultaneously pointing out the role of traditional media. The number of followers of social media channels is still relatively small and dominated by young people.

Social media content creation during the Arab Spring was mainly executed by a small network of trained activists located in different countries who would process and forward information. While social media contributes to the rapid distribution of information, it is often still traditional media that provides the information to the masses. Governments of Arab countries had “failed to adjust to this new information reality...where it is no longer possible for a country to go off the grid”. (Center for International Media Assistance 2011, 16-17) Continuing penetration of ICTs will shift the balance further towards social media, requiring governments to keep pace with these emerging forms of communication and mobilisation.

As the case studies of Tunisia and other countries affected by the Arab Spring have shown, it is crucial for governments to process information at an early stage and act with adequate measures. This is because even with very advanced methods, it is extremely difficult to project what specific event would accelerate a conflict escalation. Governments should thus aim to prevent situations where any additional stimulus (such as rising food prices, lack of critical staples and resources, violence from government forces) will trigger an escalation.

In this context, Governments need to pay special attention to positive feedback structures in which changes are amplified instead of returning to the equilibrium. The case of the Arab spring is a perfect case in point where positive feedback had a destabilising impact in other countries. When social protests began in Tunisia in 2011, citizens in other Arab countries quickly emulated and adapted their own forms of protest to vent their existing anger against their unresponsive and unaccountable governments. After decades of strong authoritarian leadership, governments in Egypt, Yemen or Syria failed in decoupling their populations from the feedback and protestors in the different countries incited each other with their actions and impacts.

Measuring of indicators like food availability and prices, employment rates or public health standards at a basic level does not require such advanced tools that would overwhelm countries with limited capacities. The same is true for the monitoring of social tensions and their causes in other countries in order to avoid positive feedback. The systemic integration via social media brought the world closer together and allows interest groups to communicate and publish information in real time. Due to this tear of communication barriers, messages that become viral online can become the trigger for conflict escalation – no matter whether the information is correct or not.

For these reasons, governments need to strengthen their information absorbing and processing tools and emphasise inter-department exchange of information to adequately respond to the interdependencies of issues (e.g. the impact of energy prices on water and food supply and prices).

In 2011, Singapore started experimenting with sentiment analysis on twitter to improve its understanding of what topics elicit both positive and negative feedback from the Singaporean electorate. By feeding its self-developed software with tweets mentioning key words such as the prime minister's name or a key policy initiative, the software is able to categorise individual tweets as negative or positive depending on the words used.

Subsequently, the results can be visualized by size and sentiment to identify which themes triggered most feedback as well as the amount of approval it received from the online community. While still in a developmental stage this sentiment analysis capacity can help to improve the governments' understanding of its netizens' concerns. Moreover, it opens up a new feedback channel to inform decision makers and allow them to address previously unknown conflict points. Globally speaking, this, or similar forms of semantic analysis, can be implemented to help detect weak signals indicative of the formation of (political and/or social) movements with a potential for social protest or even unrest.

Picture 1: A critical Tweet from an account impersonating the Singaporean PM Lee



Source: (Twitter 2012)

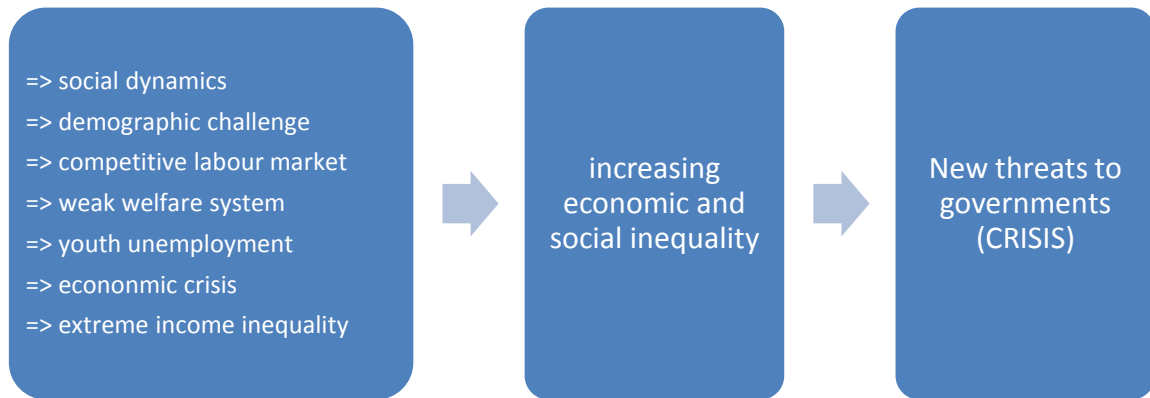
Conclusion

While governments have developed their tools to deal with traditional risks, recent years have led to the emergence of new risks on the map such as discussed in part one of this article. Conventional tools have proven to be inadequate to both measure and address these risks, which is why governments concerned with risk management are aiming to improve and expand their tool box. This includes new methods e.g. monitoring social media to understand public sentiments and follow the shifts of debates to the online world. In fact, governments should intensify their efforts to develop mechanisms that allow for adjustment of their risk management frameworks to capture these emerging risks. The volatile and unpredictable nature of emerging risk makes monitoring, modelling and scenario planning even more challenging.

Experiments with quantitative models can be useful and should be continued by governments who are willing to do so to get a better understanding of complex issues, support scenario building and improve the consideration of a broad array of influencing factors. As the Centre for Strategic Futures in Singapore demonstrates (see Appendix 1), innovative organisational designs with cross-cutting function along various ministries and the utilisation of advanced models can make a positive contribution to long-term policy making. In addition, it is recommended that governments devise their own tools to capture shifts in semantics including but not limited to analysing twitter, blogs and Facebook activities (while avoiding a big brother scenario).

Countries should evaluate and reform their risk management to enable them to deal with today's world's complexity. This refers particularly to the communication and exchange between different ministries and agencies. While these organisations traditionally acted as gatekeepers to their respective expertise, it is crucial to evolve to a state that includes regular exchange of data and consider information beyond the narrow borders of individual agency's special areas.

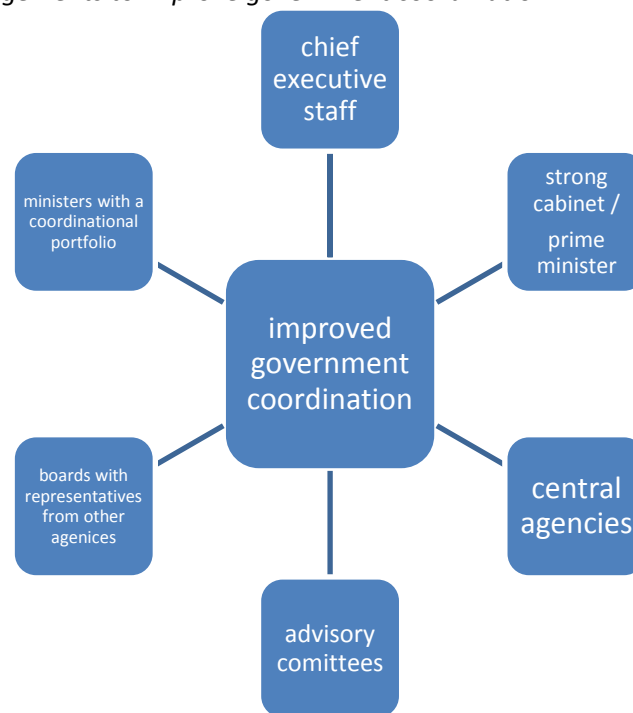
Graphic:



Appendix 1: Overcoming bureaucratic obstacles

In terms of government organisation, executive offices with a coordinating role above other ministries and equipped with a clear mandate to promote interagency government coordination are vital to overcome the typical bureaucratic obstacles standing in the way to a more efficient risk management. They usually only report to the chief executive and are free from the need to defend any sectoral demands. Particularly in small and centralised countries, they can make an important contribution to better coordination of risk management practices.

Graph 4: Institutional arrangements to improve government coordination



The Singapore government after a number of shocks such as the SARS outbreak 2003, the 2004 Tsunami, thwarted terrorist attacks and the increasing awareness of climate change realised the need for an agency that could consolidate and analyse data gathered by the respective ministries. It established the programme “Risk Assessment and Horizon Scanning” (RAHS) in 2004, including an operational hub, a technical research and development unit and a policy coordination office. (National Security Coordination Secretariat 2010, 5)

In 2010, the Singapore government created the Centre for Strategic Futures (CSF) within its Public Service Division to develop strategic and long-term planning scenarios and develop capacity in dealing with “strategic surprises”. (Channel News Asia 2010) The centre assists

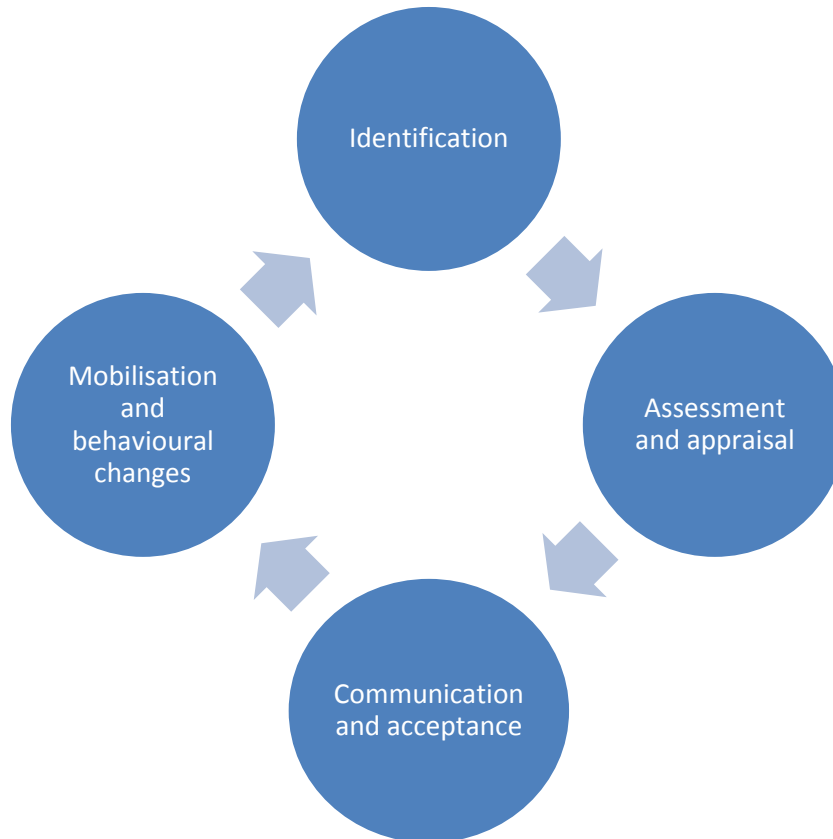
government agencies with analysing their long-term policies and decision-making. Among its tool box are systems thinking and dynamic modelling, scenario planning, and sentiment analysis.

To be able to better cope with the occurrence of so-called Black Swan, or highly unlikely but extreme, events the centre develops different national scenarios to test Singapore's preparedness for crisis situations including severe recessions, resource scarcity such as water or food shortages, or natural disasters. It also assists different ministries with building their own forecasting capacity and helps them develop more specific scenarios tailored to the ministries' agenda. The ultimate goal is to build a Whole-of-Government culture where policy decisions are calibrated based on costs and benefits beyond a single ministry's sphere of influence.

The establishment of RAHS and CSF demonstrate the rationale of the Government of Singapore to consolidate various actors as well as tools of risk identification like horizon scanning and scenario planning in a whole-of-government approach. On this aggregated level, additional tools to address risks can be developed and coordinated across various agencies. It also allows for faster exchange of information and promoting a culture of sharing relevant data.

Graph 5 visualises the Singaporean whole-of-government conceptual approach for the understanding of emerging risks. The first step is to recognise risks and organise inputs from government agencies to get a better understanding of their scope. Step 2 is the sorting of emerging issues with the recognition of shifting needs, priorities and resources among different stakeholders. Step 3 refers to creating awareness of risks through communication and increase acceptance levels. Step 4 includes decision and policy making to reach critical actors and initiate necessary changes.

Graph 5: Whole-of-government approach for understanding emerging issues



Source: (Centre for Strategic Futures n.d.)

One of the main challenges of monitoring emerging risks through a Whole-of-Government approach is to establish constructive conversations on emerging risks across agencies. First, in the process of policy calibration an agency usually weighs benefits against costs affecting its own mandate and target population. However, it might overlook policy impact over time and costs outside of its purview. Hence, there is need for cross-cutting review committees or feedback channels to ensure better policy outcomes for the government as a whole. Second, it is essential to identify one agency/department to take ownership for monitoring a new risk. And third, emerging risks often fall outside the standard indicators captured through structural data. A systematic approach to collecting, measuring and interpreting unstructured data such as tweets, blogs, or news reports can help to facilitate inter-agency communication.

Appendix 2: Suggested indicators for economic and social risks

Suggested general indicators:	Criteria for application and suspected interactions with other indicators <i>(for further discussion)</i>
Income inequality (measured by Gini coefficient)	<ul style="list-style-type: none"> • Change over time (Traditional risk) • Can act as an amplifier for other economic and social risks
Income quintile share ration (S80/S20 ratio)	<ul style="list-style-type: none"> • Change over time could signal growing divide between the bottom quintile and top quintile of the population • Interacts with price trends and social security measures as well as access to other public services
(Youth) unemployment rates	<ul style="list-style-type: none"> • Change over time & critical thresholds to be set • Interacts with social security net, cost of living and other social risks, • Has been contributing factor to Arab Spring
Workers' rights and working conditions	<ul style="list-style-type: none"> • When working conditions are the motive for work & social conflicts (e.g. China) • Interacts with economic hardship such as mass layoffs or rising inequality
Price increase in critical sectors <ul style="list-style-type: none"> • Food, • Energy • Water • Housing 	<ul style="list-style-type: none"> • Requires analysis of specific cultural and political context to set critical “quantitative thresholds” • Measuring change over time is recommended rather than absolute values • Interacts with social security net as well as key economic trends such as overall inflation, unemployment and inequality, but also social risks such as corruption or arbitrary administrative hassles
Access to public health services <ul style="list-style-type: none"> • Availability (eligibility) • Cost (affordability) • Standards (quality) 	<ul style="list-style-type: none"> • Could be critical if large parts of society remain excluded or prevented from access due to corruption • Interacts with social (dis)satisfaction and could amplify protest potential
Extent of Social Security System/Net <ul style="list-style-type: none"> • Access to health care, • Pension plans, insurance 	<ul style="list-style-type: none"> • Low or limited social security can lead to disengagement of certain groups (unemployed, elderly, poor & marginalized) which then could

<ul style="list-style-type: none"> • Unemployment benefits 	fuel social unrest potential (e.g. Arab Spring)
<p>Extreme administrative hassle for citizens or disconnect between administrative regulation and economic/work reality</p> <ul style="list-style-type: none"> • No. of media stories, blogs, tweets • No. of complaints made 	<ul style="list-style-type: none"> • A minor indicator, but can inform qualitative analysis of emerging social risks in a society • Will fuel already existing anger & frustration about societal grievances • Arbitrariness, misconduct, corruption by public officials can trigger disruptive events (e.g. Tunisia)
<p>Bureaucratic burden</p> <ul style="list-style-type: none"> • Doing Business Index (e.g.) 	<ul style="list-style-type: none"> • Ease of doing business and absence of corruption are important for the self-employed, often in the informal sector • Interacts with other social risks such as unemployment rate, cost of living and access to public services
<p>Exclusion from participatory processes</p> <ul style="list-style-type: none"> • Minority representation in parliament • Existence of civic participation platforms 	<ul style="list-style-type: none"> • Can channel citizens into more radical groupings instead of expressing their opinions and demands through official institutions • Interacts with emerging economic risks and has a potential to fuel social protests and unrest when combined with economic hardship & injustice
<p>Social media amplification</p> <ul style="list-style-type: none"> • Hashtag frequency / trending topics 	<ul style="list-style-type: none"> • Simple measure which can inform deeper analysis of other qualitative sources such as blogs, activities of political movements etc.
<p>Social media text mining / sentiment analysis</p> <ul style="list-style-type: none"> • Software-based keyword analysis • +/- rating of tweets / blog posts 	<ul style="list-style-type: none"> • Can help to detect social trends before they become mainstream and contribute to anticipatory policy making • Application as exploratory early-warning tool • Requires advanced technological capacity
<p>Frequency and intensity of protests</p> <ul style="list-style-type: none"> • Police reports • Media reports • Speech analysis 	<ul style="list-style-type: none"> • Crude measure for social and economic risk, but useful when detected early • Network analysis can establish links between seemingly unrelated locations/cities/social groupings
<p>More specific indicators</p>	<p><i>Can be tracked to pick up weak signals, to start digging deeper and uncover underlying social risks</i></p>
Non-business bankruptcy filings	Positively related to rise in income inequality
Rate of divorce	<ul style="list-style-type: none"> • Positively related to rise in income inequality
Average commuting times	<ul style="list-style-type: none"> • Positively related to rise in income inequality
Total number of hours worked	<ul style="list-style-type: none"> • Positively related to rise in income inequality
Median house prices	<ul style="list-style-type: none"> • Positively related to rise in income inequality

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