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Take me out: De facto limits on strict lockdowns in developing countries

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Take me out: De facto limits on strict lockdowns in developing countries

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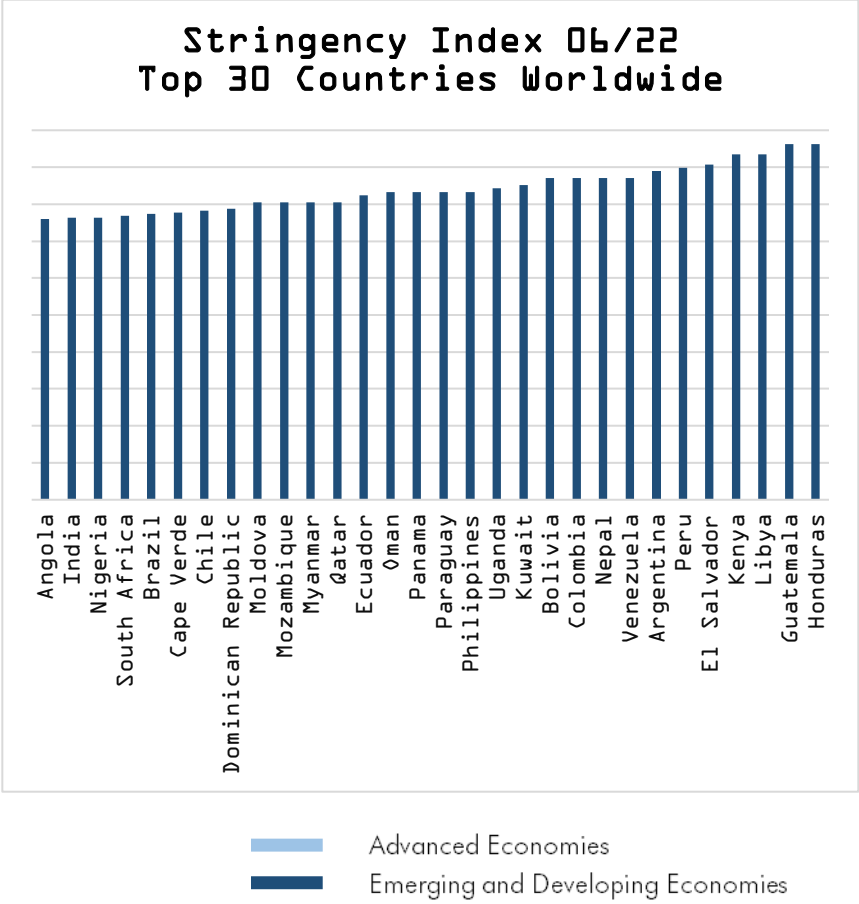
Abstract

In the COVID-19 pandemic, lockdowns and containment measures were a fundamental tool to control the spread of the virus. In this article, we analyze data from 120 countries seeking to assess the stringency of de jure lockdown policies, comparing them with their de facto compliance and empirically analyzing the determinants of social distancing noncompliance. We find that, from a de jure perspective, almost all the strictest and longest lockdowns took place in emerging or developing economies. However, when analyzing its de facto compliance, we document a generalized and increasing non-compliance over time, which is significantly higher in emerging and developing economies. We show that lockdown compliance declines with time, and is lower in countries with stricter quarantines, lower incomes and higher levels of labor precariousness.

Generalized lockdowns have been the first line of defense against the COVID-19 pandemic, but the lengthening of the expected duration of the pandemic and the tax that labor restrictions impose on the economy by strict quarantines have moved the consensus towards a "learning-to-live-with-the-COVID-19" mix of social distancing with widespread testing and tracing and localized suppression.

That said, the rigidity of isolation policies, as measured nationally by the Oxford Stringency Index (OSI) compiled by the University of Oxford, continues to be high in many quarters, particularly in emerging and developing countries, increasing the already high social and economic costs of the pandemic (Figures 1a and 1b)[1].

Figure 1. Oxford Stringency Index (OSI), June 22th

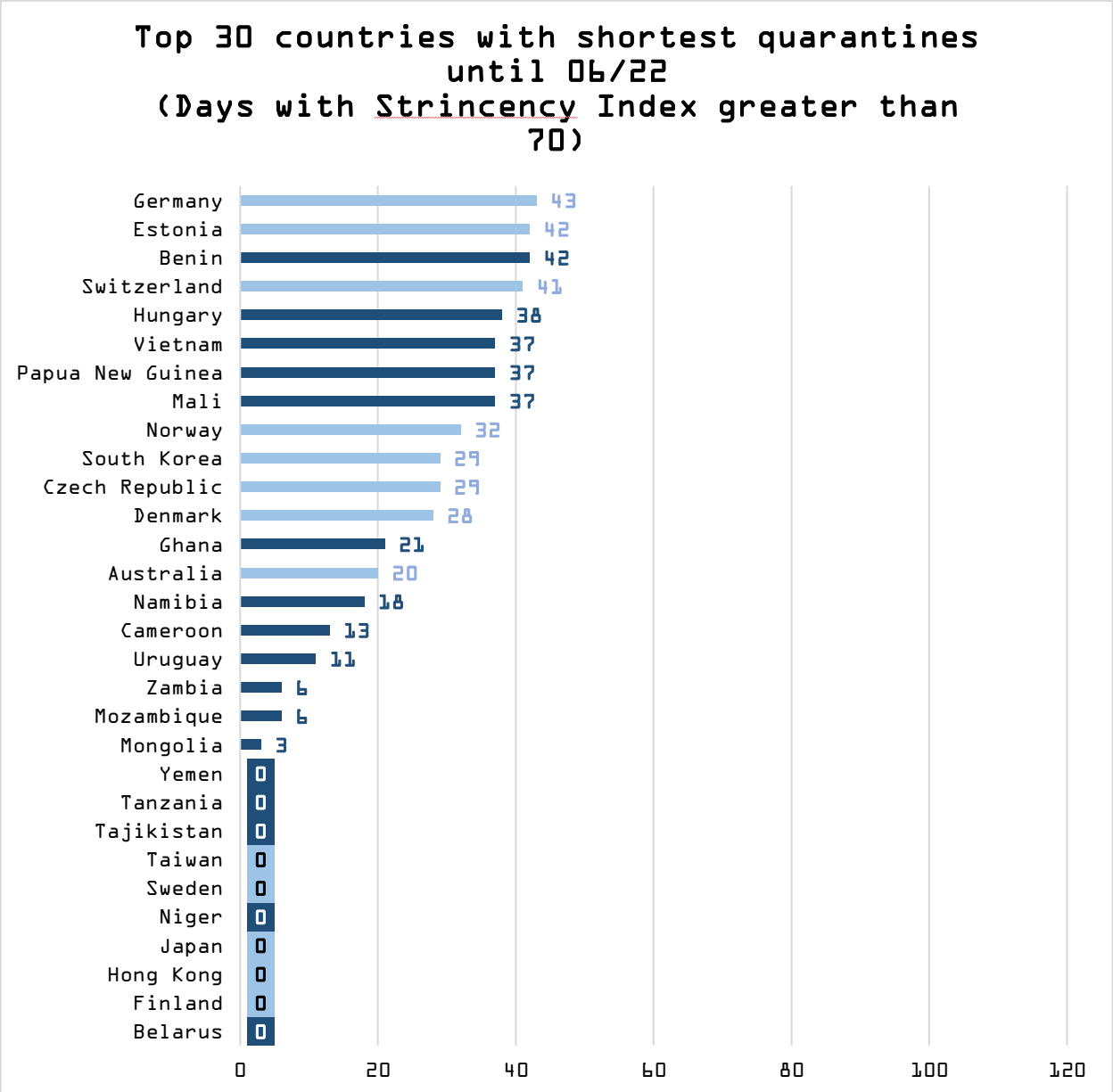


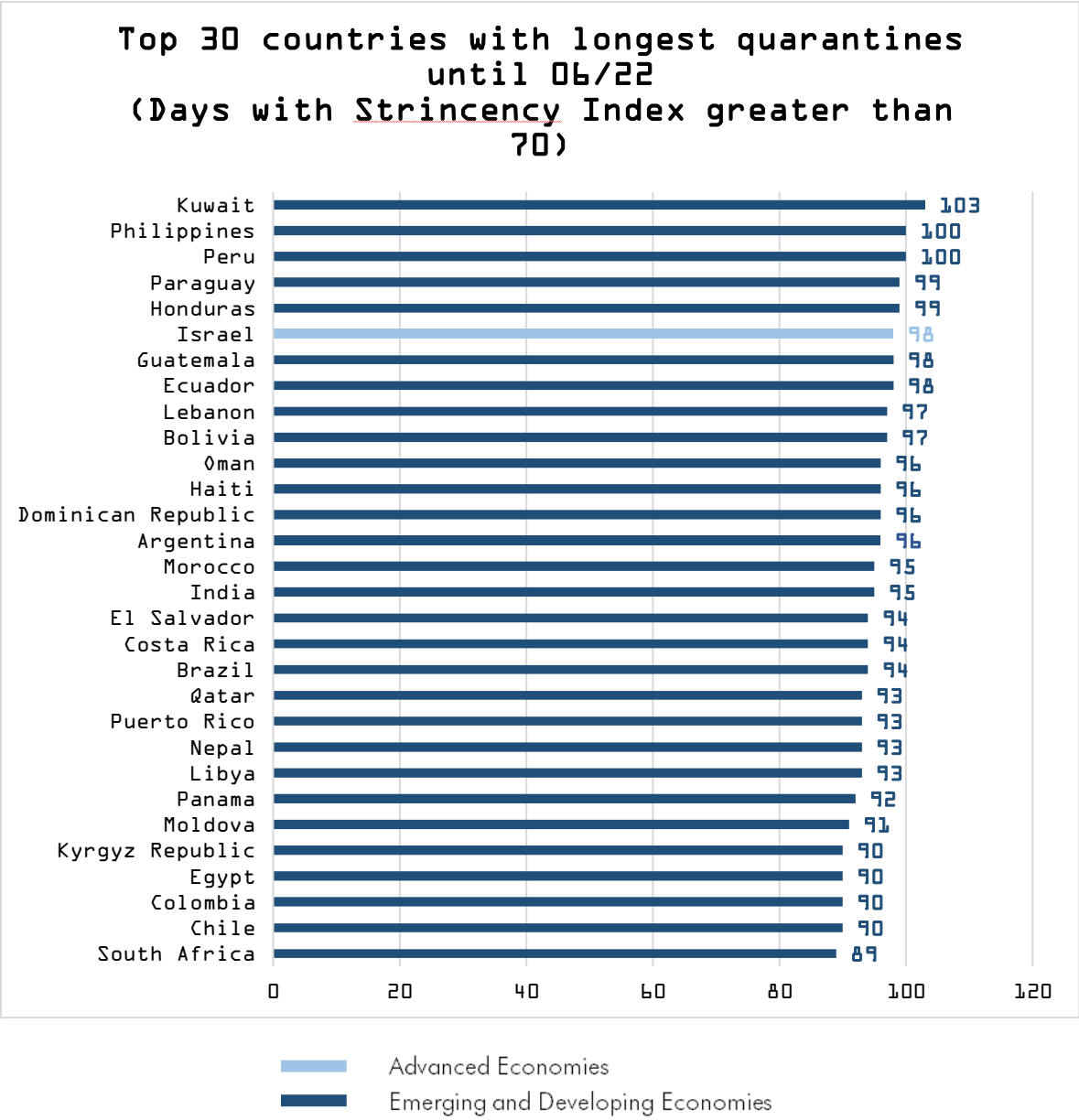
Source: Oxford COVID-19 Government Response Tracker (OxCGRT)

Moreover, many developing economies are not only hit by the stringency of the lockdowns but also by a length that far exceeds that of a traditional quarantine. In fact, Israel is the only advanced ec onomy in the world's 30 longest strict lockdowns (Figures 2a and 2b).

[1] The data of this article is taken from the CEPE-DiTella COVID program database and is available upon request.

Figure 2. Lockdown duration per country: Days accumulated until June 22th with an Oxford Stringency Index (OSI) greater than 70 points.

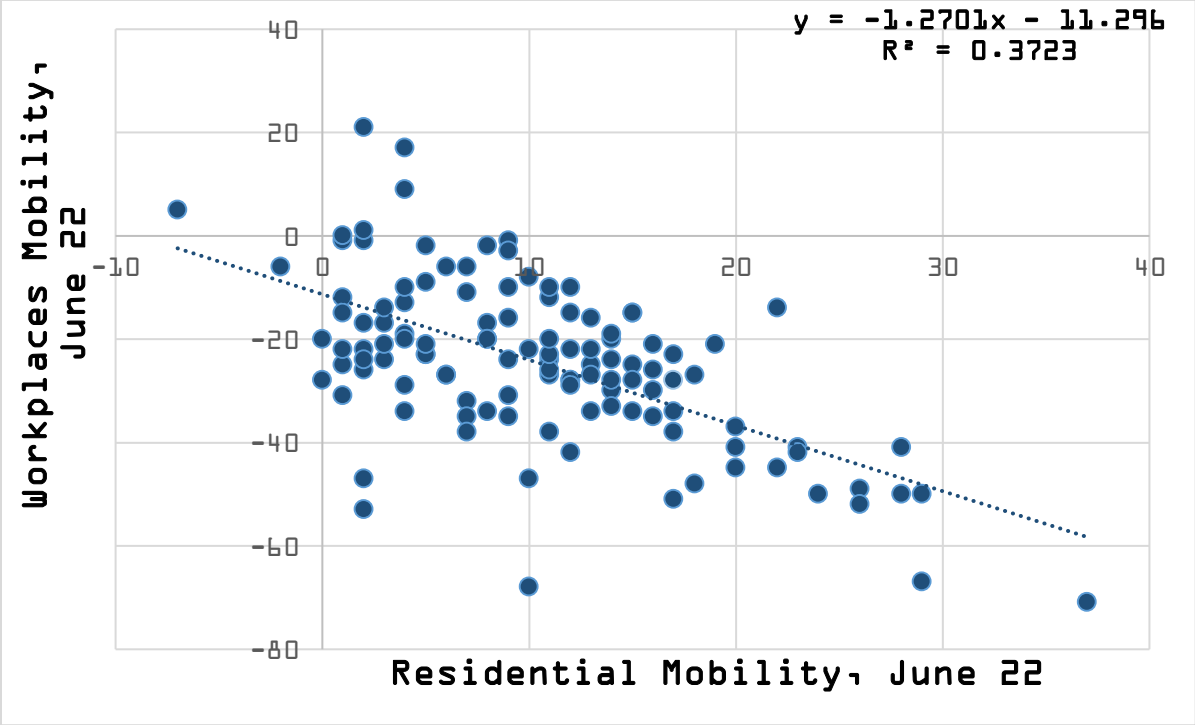




Source: Oxford COVID-19 Government Response Tracker (OxCGRT)

The OSI has been recently used to assess the effectiveness of the lockdown in containing the virus spread (Ostry et al., 2020; Goldstein et al., 2020). However, the ultimate incidence of the lockdown is intimately related to its impact on actual mobility, particularly workplace mobility, which is mostly associated with closed common spaces and public transportation and thus more likely to influence the spread. Indeed, a point to highlight is that residential mobility often correlates negatively with workplace mobility –and in most countries increased with the lockdown– as it works as a compensatory escape valve (Figure 3). This suggests that strict lockdowns on productive activities are partially "diluted" in non-productive activities. Additionally, workplace mobility is likely the one most closely related to the economic costs of the pandemic. As a result, a measure of total mobility, by averaging both types, may underestimate the health and economic impact of the lockdown.

Figure 3. Work Mobility and Residential Mobility, percentage change relative to baseline, June 22th



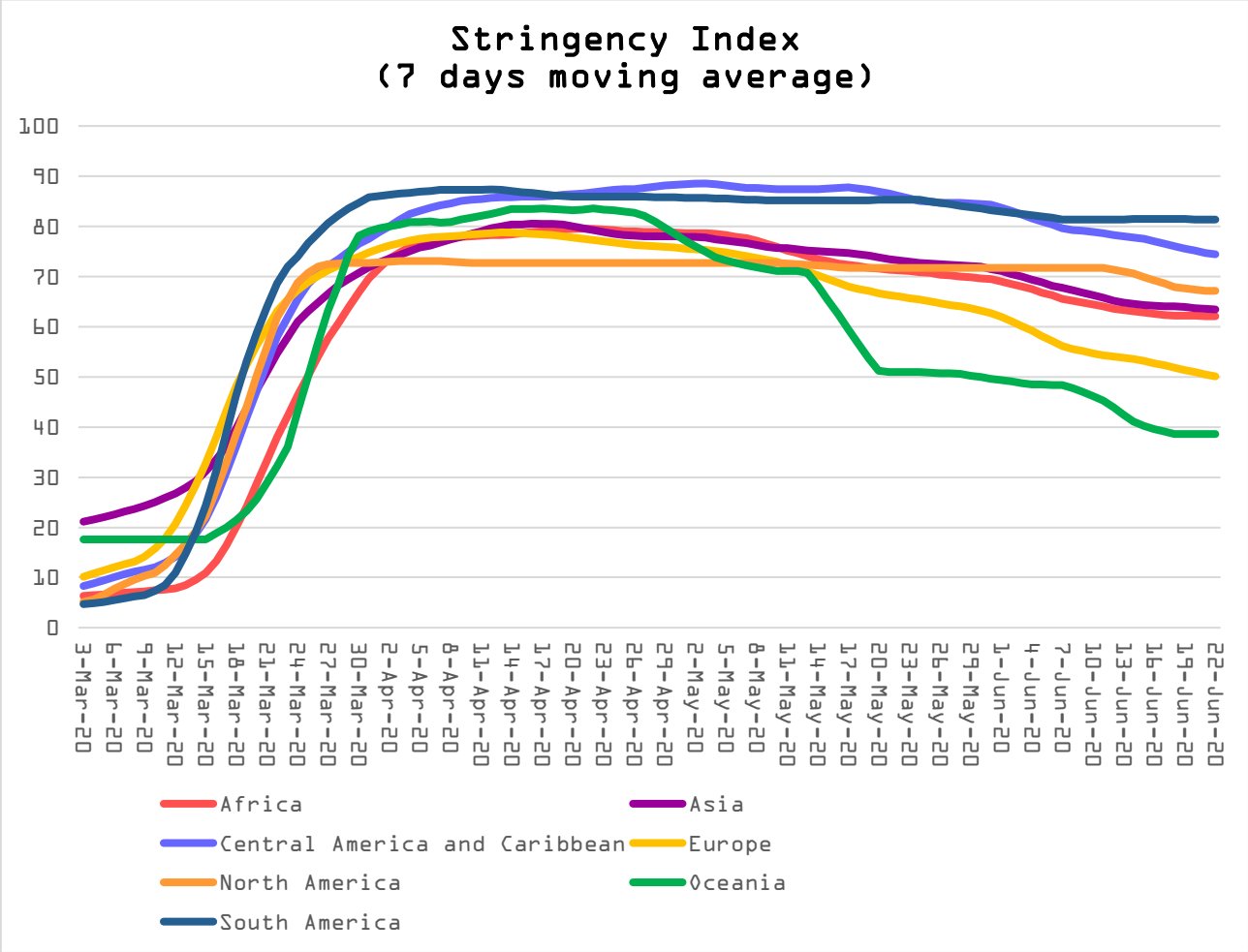
Source: Google COVID-19 Community Mobility Reports

De jure rigidity and de facto noncompliance

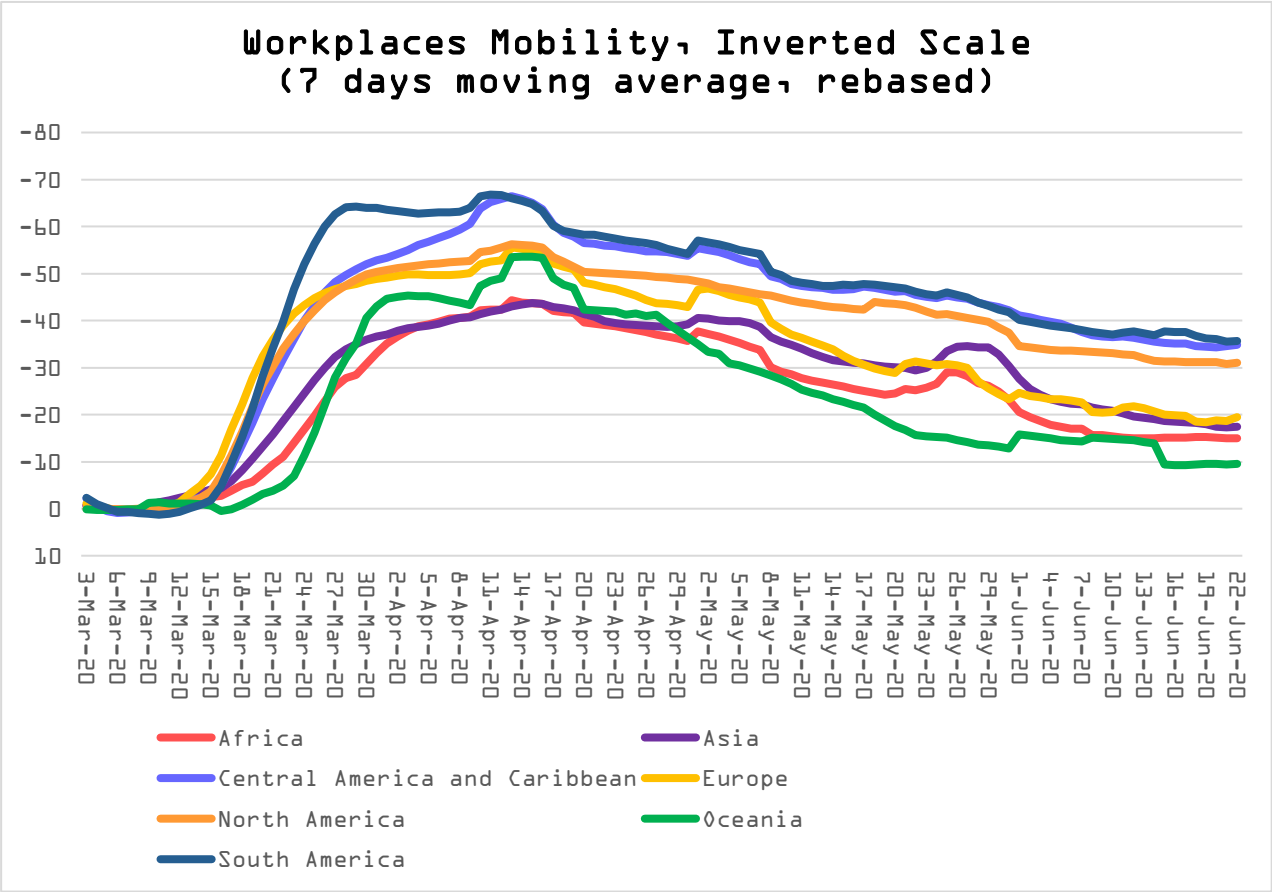
It seems natural to distinguish between the formal (de jure) rigidity of lockdown policies and its de facto compliance, and to explore the determinants of this compliance to evaluate the convenience of either extending or gradually lifting the current restrictions.

It is possible to approximate the distance between these two based on mobility data garnered from the movement of cell phones; in our case, Google´s Mobility Index (GMI), which estimates the variation of mobility relative to a baseline date previous to the pandemic (January 2020), distinguishing (approximately) by mobility types. To compare the evolution of de jure and de facto lockdowns at the national level across countries (Figures 4a and 4b), we normalize the GMI to zero for the week from March 3rd to March 10th to avoid an unnecessary bias in countries in the Southern Hemisphere, where labor mobility falls during the holiday season in January.

Figure 4. De jure rigidity (OSI) and de facto compliance (GMI, percentage change relative to baseline) of lockdown policies



Sources: Oxford COVID-19 Government Response Tracker (OxCGRT) and Google COVID-19 Community Mobility Reports

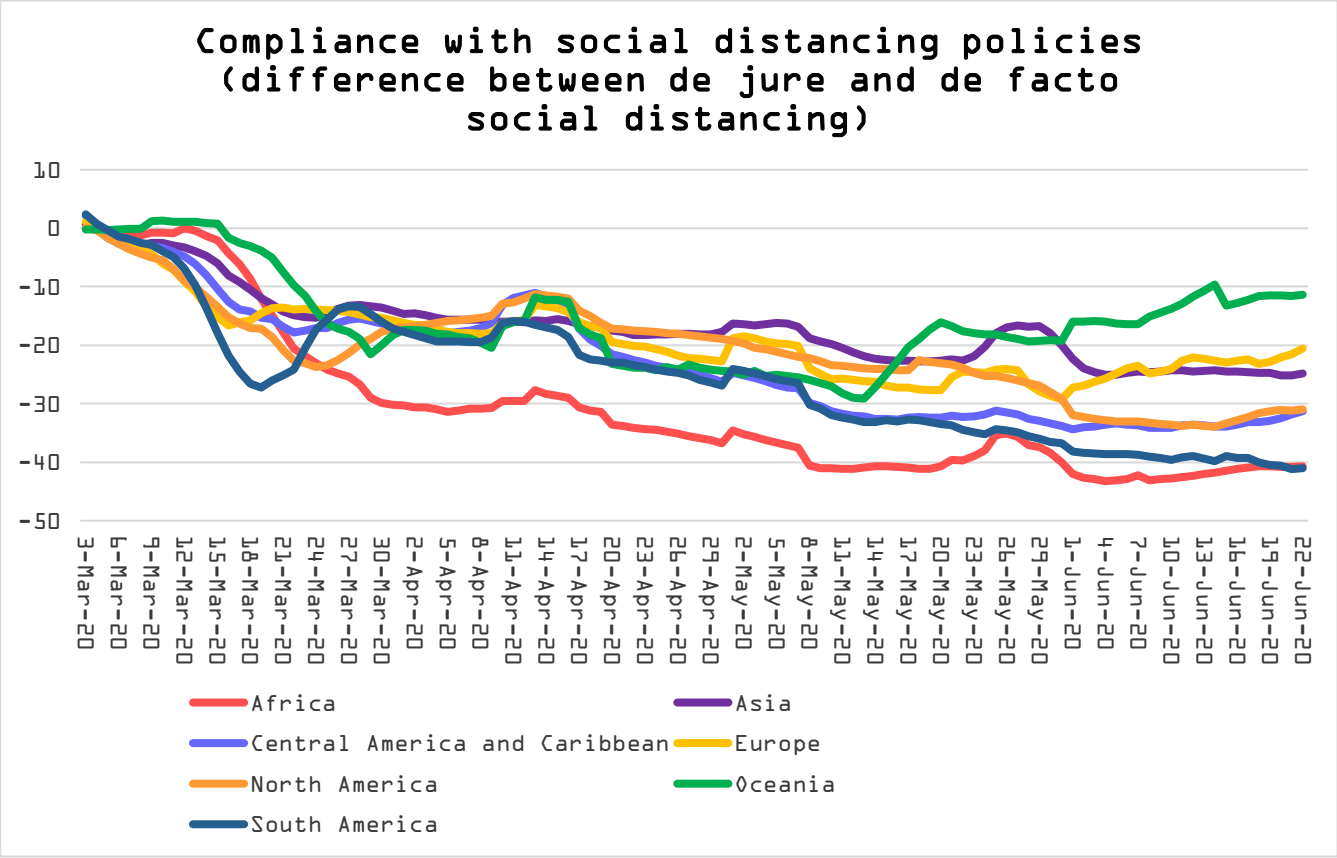


Sources: Oxford COVID-19 Government Response Tracker (OxCGRT) and Google COVID-19 Community Mobility Report

When the restrictions on mobility de jure and de facto are both analyzed, several interesting findings are observed. First, with the exception of North America, government-imposed lockdowns were tighter and more sustained during the course of the epidemic in emerging and developing economies. However, despite the de jure restrictions, de facto labor mobility grew steadily over time: for instance, current activity in work areas in Asia and Africa is even higher than in Europe despite having stricter legal lockdowns.

To estimate the degree and evolution of compliance in each country, we normalize the OSI to zero on March 3rd, 2020 and subtract it from the normalized GMI. As can be seen, non-compliance with lockdown policies increased over time and was higher in developing economies, particularly in Africa and Latin America (Figure 5).

Figure 5. Standardized discrepancy of the Oxford Stringency Index (OSI) with Google's Work Mobility.



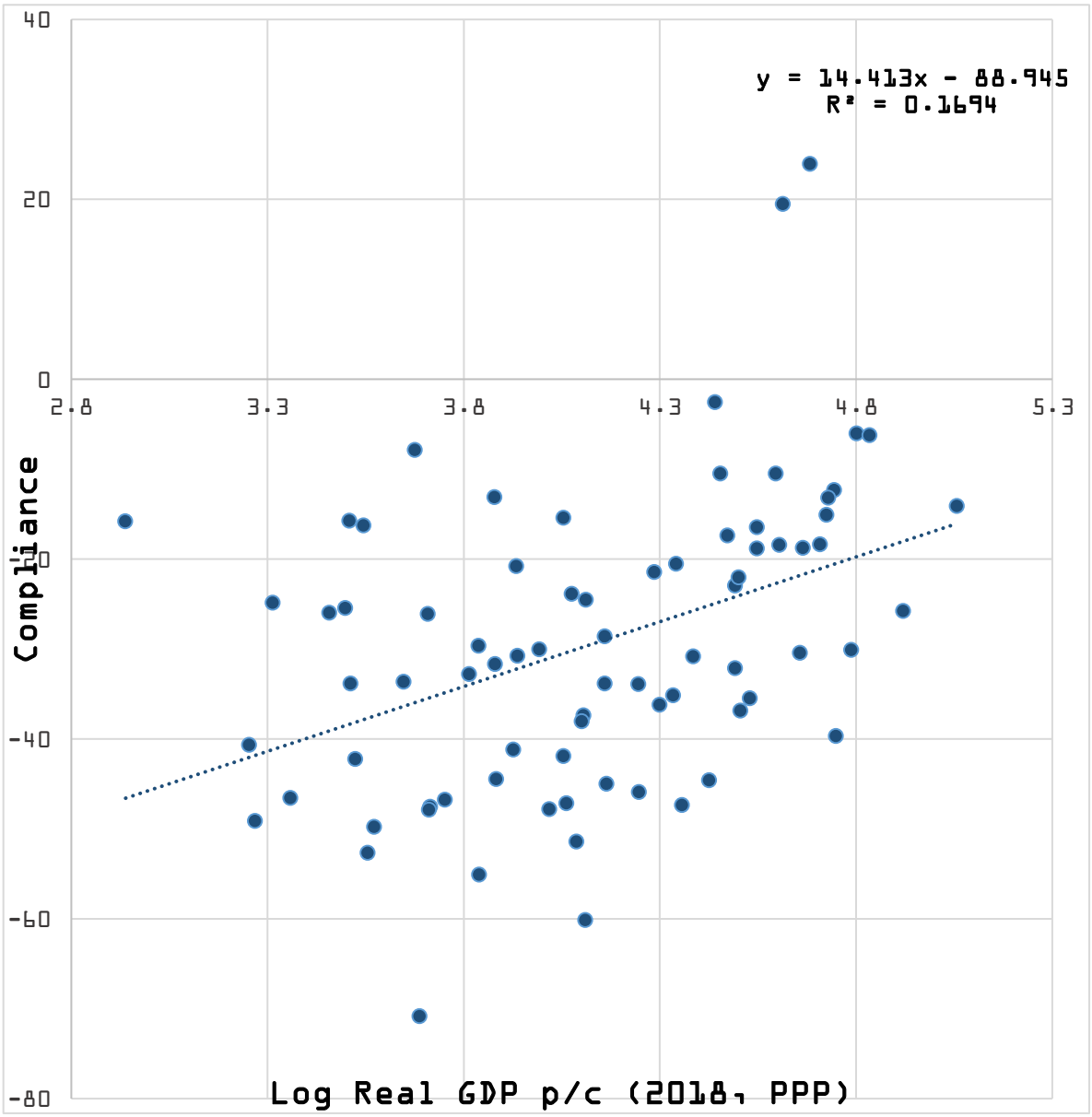
Sources: Oxford COVID-19 Government Response Tracker (OxCGRT) and Google COVID-19 Community Mobility Reports

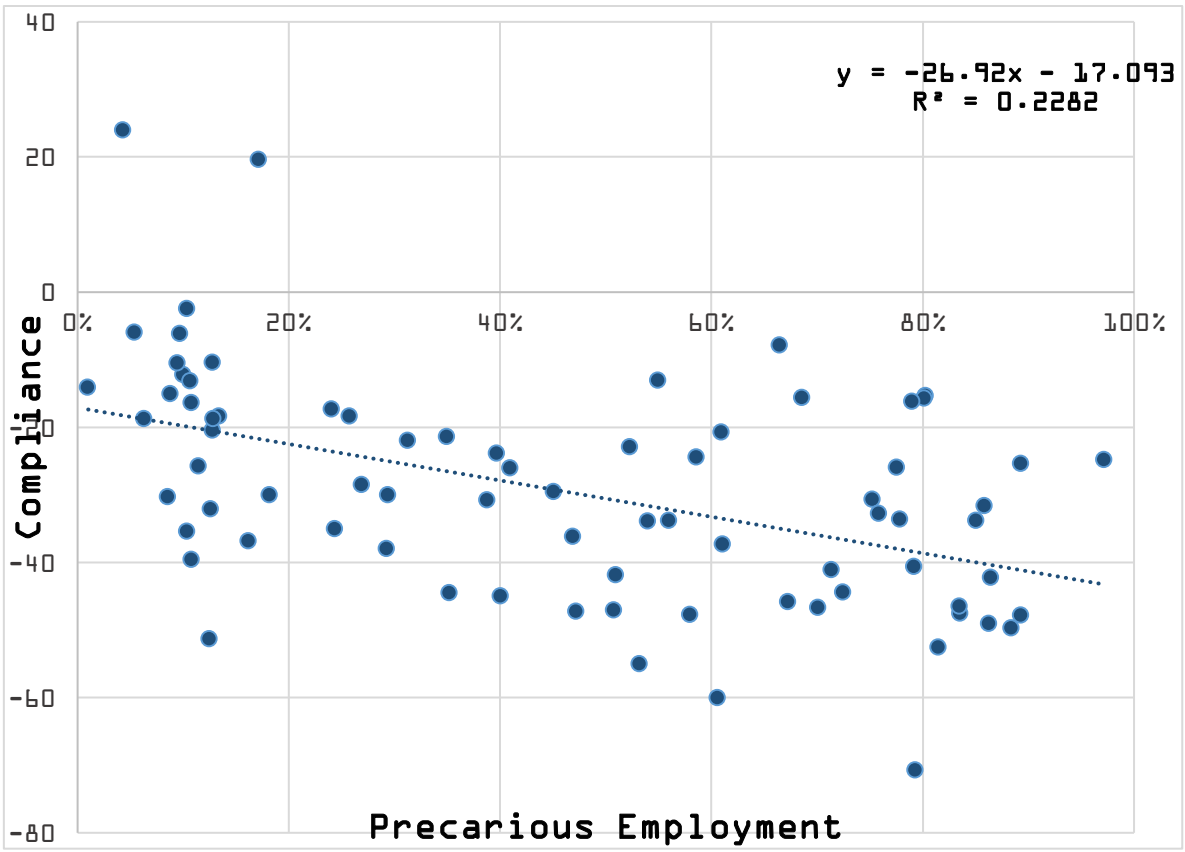
What is behind the lack of compliance?

The previous analysis highlights the policy conundrum faced by many emerging and developing economies: long and strict but increasingly breached lockdowns, a measure of the limits that the socioeconomic reality imposes on social distancing measures.

Is a sustained tightening of the quarantine going forward still viable? The question is doubly relevant to developing countries in the South: 1) the winter season heightens the circulation risk and puts pressure on the capacity of local governments to relax mobility restrictions; 2) precarious labor markets (largely comprised of independent or informal workers) and poor and overcrowded habitats deepen the welfare impact of lockdowns and limit governments´ income support programs and stay-at-home campaigns (Levy Yeyati and Valdés, 2020). Not surprisingly, compliance correlates with per capita income and labor precariousness in urban centers (Figures 6a and 6b).

Figure 6. Correlations between compliance with Real GDP p/c and Urban Precarious Employment,





Sources: Oxford COVID-19 Government Response Tracker (OxCGRT), Google COVID-19 Community Mobility Reports, World Bank and International Labor Organization

To address the question about the determinants of lockdown compliance more rigorously, we ran a simple model of our measure of non-compliance against a number of potential drivers:

1) The stringency of the lockdown, measured by the OSI (we expect that harder lockdowns correlated with lower compliance);[2]
2) GDP per capita, PPP measured in constant 2017 international dollars and expressed in logs using World Bank data (lower incomes should correlate with poorer compliance);[3]
3) Urban labor precariousness, defined as the share of non-agricultural informal employment in non-agriculture, estimated by the International Labour Organization (more precariousness, less compliance)[4]

[2] Data available in https://covidtracker.bsg.ox.ac.uk/
[3] Data available in https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD.
[4] Data available in https://www.wiego.org/sites/default/files/publications/files/Women%20and%20Men%20in%20the%20Informal%20Economy%203rd%20Edition%202018.pdf.

4) The length of the pandemic measured as a simple time trend to capture the lockdown fatigue (non-compliance increases over time);
5) The daily COVID death count reported by Our World in Data (to control for "fear factor": the larger, the stronger the compliance).[5]

The results confirm our priors: stronger and longer lockdowns, in countries with lower incomes and higher levels of labor informality have significantly lower levels of compliance, whereas the rise of the COVID-19 death toll contributes to the effectiveness of the quarantine (Table 1).

Table 1. What is behind the lack of compliance? Pooled regressions of Lockdown Compliance.

VARIABLES	(1) Compliance	(2) Compliance	(3) Compliance
Stringency	-0.164***	-0.166***	-0.172***
	(0.00712)	(0.00716)	(0.00708)
Timetrend	-0.0864***	-0.0939***	-0.0892***
	(0.0111)	(0.0114)	(0.0115)
Stringency * Timetrend	-0.00186***	-0.00174***	-0.00182***
	(0.000179)	(0.000184)	(0.000184)
GDP per capita (Log)	4.340***	3.496***	3.131***
	(0.133)	(0.283)	(0.288)
Urban Informal Employment		-3.567***	-3.447***
		(1.027)	(1.028)
Daily Deaths (per million of people)			0.582***
			(0.0569)
Constant	-40.75***	-31.02***	-27.64***
	(1.279)	(3.136)	(3.183)
Observations	8,736	8,736	8,736
R-squared	0.429	0.430	0.436
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Note: Stringency is measured by the OSI, GDP per capita is measured in logarithms (Source: World Bank), Urban Informal Employment measures the share of informal and self-employed employment over total employment outside rural areas (Source: International Labor Organization) and Daily Deaths per million measures the number of daily deaths from COVID-19 per million people (Source: Our World in Data).

What next? A socially and economically viable transition

The previous findings identify the multiple dimensions behind the lockdown fatigue (time, stringency, precariousness, income) highlighting the practical limits of implementing stringent social distancing policies in developing countries with dual labor markets and a considerable portion of

[5] Data available in https://ourworldindata.org/covid-deaths.

the population living in congested neighborhoods with poor habitats. This suggests that, moving forward, lockdowns will likely be increasingly ineffective –especially in low and middle-income countries from Asia, Africa and Latin America that still have strict restrictions in place. Additionally, this also hints at the difficulty of resorting to new lockdowns in the event of a second wave: none of the 120 countries in our database has so far reestablish equally strong restrictions on labor mobility after they have been lifted.

References

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