Containing the epidemic and its impact on jobs and incomes in Ethiopia

Rapid assessment and response plan [1]

Overview

The global shock on economies caused by the COVID19 epidemic is unprecedented. As this note is written close to 4 billion people are asked or required to stay home. The international trade of everything but food and household necessities has collapsed; global supply chains, from mining to manufacturing and transportation, are coming to a grind, with demand gaps of 80% or more. Tourism has come to a standstill. It is anyone's guess how long such a slump may last; three months, with a gradually recovery, thereafter, would seem a mildly optimistic bet.

Domestically, social distancing and containment efforts have required the closure of large swathes of the global economy. As much as the public health response is critical to containing the human cost of the epidemic, State intervention during the crisis will be decisive in mitigating short-term pain and in preventing longer-term economic damage.

The structure of the Ethiopian economy and labour market bring about specific features of resilience and of vulnerability. On the one hand, Ethiopia still has a large share of its workforce in agriculture, which is foreseen to be amongst the less impacted sectors (unless major disruptions in fertilizer and other input supply-chains occur, and considering limitations to inter-regional mobility). Even in countries with most extensive lockdowns, agricultural and food production have been considered "essential" and spared from limitations and an increase in the demand for foods and beverages has been observed in European countries. On the other hand, the largely export-oriented manufacturing sector or tourism will suffer major revenue losses. Furthermore, in the largely informal urban economy the ability to withstand, periods of inactivity are extremely limited; lockdowns would have potential devastating effects on welfare and productive assets. The ability of the State to lend a hand is more limited in the informal economy, but targeted measures can be taken to prevent deflationary spirals and lasting output gaps.

In Ethiopia the number of detected cases has remained limited and the pace of progression has not picked up this far. Some social distancing measures have been applied preventatively, including: the closure of schools; the suspension of all public events and gatherings (sportive, cultural, entertainment, weddings); limitations to mobility between regions and the invitation to all workers who can to work from home.

---

[1] Developed jointly by Ethiopia Jobs Creation Commission and International Labour Organisation, Ethiopia, April 2020

In a "low epidemic" scenario, where current measures prove sufficient to maintaining low prevalence levels, public support will be need to focus on businesses and workers in sectors directly affected by social distancing requirements, the suspension of international travel and the slump in international

demand for manufactured goods. We estimate that under this scenario that without decisive economic measures Ethiopia will face a loss of 1,53% of GDP per month, and a loss 1.34 M jobs[2]. Fiscal measures of 1.5% of GDP per month would be required in addition to monetary and financial policy easing, including tax holidays, grants and other targeted measures.

Two other scenarios are explored: an epidemic of intermediate virulence, requiring the shutdown of additional sectors and more stringent limitations to personal mobility; and a high-prevalence epidemic, requiring all economic activity outside bare necessities to be suspended. In the intermediate, partial lock-down scenario, we estimate job losses to reach 3.7M, with the economy losing 2.59% of GDP for every month of lock-down. To prevent a devastating wave of bankruptcies and layoffs, a public budget expansion of 2.5% of GDP per month would need to be injected (rapidly) in the economy to avoid these losses. In the worst scenario, equivalent to a full lock-down, job losses would amount to 6 million. In this scenario that corresponds to the situation faced by western European countries and the U.S. at present the public deficit will need to be jolted up by 3% of GDP for each month of economic closure[3].

This note suggests a possible distribution of this fiscal spending across key policy objectives as relevant to each scenario. It then lists some key policy measures, drawing from policy practices worldwide and ILO and other international organisation's guidance. The policy response to be defined needs to address *comprehensively* the demand and supply shortfalls that are the immediate effect of the crisis, to stave off potential lasting effects on the economy and welfare. The fluidity of the situation both in international markets and domestically defies the analysis of likely effects and therefore fiscal policy is aiming at a blurry, moving target. The nature of the crisis will require close monitoring of domestic and international circumstances and a regular updating of the plan. It is anyone's guess how deep and long this crisis will be for Ethiopia. Fiscal spending is required first and foremost during the crisis but post-epidemic stimulus will also be instrumental to a faster and fuller recovery.

---

[2] The mild scenario in this analysis is the closest to the previous analysis that the JCC has undertaken. However, the method used for both analyses is different. In the first analysis, we focused only on the most affected 4 activities in urban services (wholesale and retail, transport and storage, hotels and restaurants, and personal services), construction and manufacturing, whether in this exercise, we included all the economic sectors in the economy. Also, the hypotheses of the drop in demand and outputs, and job lay-offs have been updated. Therefore, the results of these two exercises should not be compared, but rather seen as complementary.

[3] Industrialised countries are putting in place fiscal stimulus programmes of unprecedented size to bridge demand gaps as the crisis unfolds. The US has lined up a spending plan of about 10% of its GDP, while European countries are lining up programmes worth around 5% of their GDP.

Principles and objectives of the response

In all cases, some general principles need to guide public policy, as can be derived from policy practice across the world.

- **Income support** is instrumental to both containment efforts and to addressing socio-economic challenges. As gradual economic shutdowns are imposed with the progression of the epidemic, epidemic containment is conditional on the ability of people to access means of sustenance.
- **Fiscal policies should be commensurate to the demand gap** witnessed nationally and to support exporters. Fiscal "bridge funding" is required and warranted even at the cost of substantial increases in public debt: in the medium-long term, fiscal spending will pay for itself by preserving productive capacities and preventing deflationary spirals.
- **Monetary and financial policies** also need to rapidly shift to the expansionary side, to prevent a credit crunch and other most damaging financial disruptions;
- **The protection of productive assets and of jobs can best be designed and implemented in collaboration with** the private sector, through **social dialogue** with workers and employers organisations;
- The response to the crisis can also allow to meet second-order (yet important) objectives, particularly promoting **formalisation**.
- **Avoid migration back to rural areas**, which would make containing the contagion more difficult and induce wider and more extended lockdowns and economic shutdowns**.**
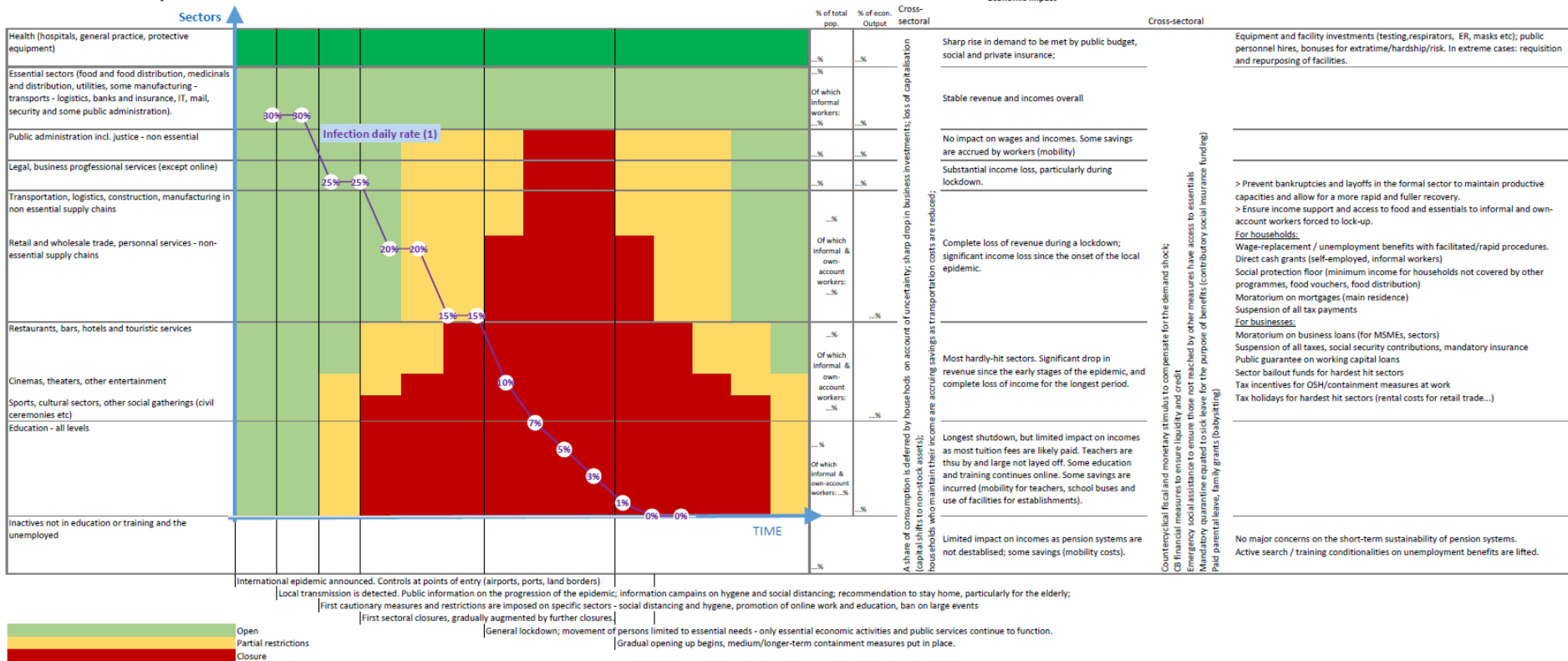
Key overall objectives of social and economic response

- ➢ **Increase debt-funded fiscal spending to prevent lasting deflationary spirals and damage to the country's productive potential,** and thus cushion the shock from the domestic and international demand slump, and thus; fast, targeted relief to most affected businesses and workers is critical during the crisis; stimulus funding to boost recovery once the lockdowns are (progressively) lifted will also be required;
- ➢ **Ease monetary and financial policies** to prevent damaging financial sector disruptions
- ➢ **Address critical social/humanitarian needs.**

Scenario setting, assumptions and estimates

Three scenarios are contemplated in this note. A baseline epidemic scenario foresees that the limited measures taken so far will allow to contain the epidemic within levels manageable by health services. A middle-intensity epidemic scenario will require additional limitations to the mobility of persons and additional segments of the economy to be locked-down. Thirdly, a high-intensity epidemic will require the lockdown of all but "essential" economic activities. Domestic containment measures have distinctive impacts on sectors of activity. We schematise below the sectoral pattern of containment measures and their socio-economic effects, as may be observed internationally to date. This schema informs our scenario setting in determining how sectors are affected at which point in time over the lockdown and then the roll-back period.

Jobs Creation Commission ETHIOPIA

International Labour Organization

Lockdown stairway

Sectors

	% of total pop.	% of econ. Output	Cross-sectoral	Economic impact	Cross-sectoral	Policy measures

Health (hospitals, general practice, protective equipment) — ...% | ...%
Sharp rise in demand to be met by public budget, social and private insurance;
Equipment and facility investments (testing, respirators, ER, masks etc); public personnel hires, bonuses for extra time/hardship/risk. In extreme cases: requisition and repurposing of facilities.

Essential sectors (food and food distribution, medicinals and distribution, utilities, some manufacturing - transports - logistics, banks and insurance, IT, mail, security and some public administration). — ...% / Of which informal workers: ...% | ...%
Stable revenue and incomes overall

30% — 30%

Public administration incl. justice - non essential — ...% | ...%
No impact on wages and incomes. Some savings are accrued by workers (mobility)

Infection daily rate (1)

Legal, business progfessional services (except online) — ...% | ...%
Substantial income loss, particularly during lockdown.

25% — 25%

Transportation, logistics, construction, manufacturing in non essential supply chains — ...% / Of which informal & own-account workers: ...% | ...%

> Prevent bankruptcies and layoffs in the formal sector to maintain productive capacities and allow for a more rapid and fuller recovery.
> Ensure income support and access to food and essentials to informal and own-account workers forced to lock-up.
For households:
Wage-replacement / unemployment benefits with facilitated/rapid procedures.
Direct cash grants (self-employed, informal workers)
Social protection floor (minimum income for households not covered by other programmes, food vouchers, food distribution)
Moratorium on mortgages (main residence)
Suspension of all tax payments
For businesses:
Moratorium on business loans (for MSMEs, sectors)
Suspension of all taxes, social security contributions, mandatory insurance
Public guarantee on working capital loans
Sector bailout funds for hardest hit sectors
Tax incentives for OSH/containment measures at work
Tax holidays for hardest hit sectors (rental costs for retail trade...)

Retail and wholesale trade, personnal services - non-essential supply chains

20% — 20%
Complete loss of revenue during a lockdown; significant income loss since the onset of the local epidemic.

15% — 15%

Restaurants, bars, hotels and touristic services — ...% / Of which informal & own-account workers: ...% | ...%

Cinemas, theaters, other entertainment

10%
Most hardly-hit sectors. Significant drop in revenue since the early stages of the epidemic, and complete loss of income for the longest period.

Sports, cultural sectors, other social gatherings (civil ceremonies etc)

7%

Education - all levels — ... % / Of which informal & own-account workers: ...% | ...%

5%
Longest shutdown, but limited impact on incomes as most tuition fees are likely paid. Teachers are thsu by and large not layed off. Some education and training continues online. Some savings are incurred (mobility for teachers, school buses and use of facilities for establishments).

3%

1%

0% — 0%

TIME

Inactives not in education or training and the unemployed — ...%
Limited impact on incomes as pension systems are not destablised; some savings (mobility costs).
No major concerns on the short-term sustainability of pension systems.
Active search / training conditionalities on unemployment benefits are lifted.

Cross-sectoral column (vertical text): A share of consumption is deferred by households on account of uncertainty; sharp drop in business investments; loss of capitalisation (capital shifts to non-stock assets); households who maintain their income are accruing savings as transportation costs are reduced;

Cross-sectoral column (vertical text): Countercyclical fiscal and monetary stimulus to compensate for the demand shock; CB financial measures to ensure liquidity and credit; Emergency social assistance to ensure those not reached by other measures have access to essentials; Mandatory quarantine equated to sick leave for the purpose of benefits (contributory social insurance funding) Paid parental leave, family grants (babysitting)

International epidemic announced. Controls at points of entry (airports, ports, land borders)
Local transmission is detected. Public information on the progression of the epidemic; information campains on hygene and social distancing; recommendation to stay home, particularly for the elderly;
First cautionary measures and restrictions are imposed on specific sectors - social distancing and hygene, promotion of online work and education, ban on large events
First sectoral closures, gradually augmented by further closures.
General lockdown; movement of persons limited to essential needs - only essential economic activities and public services continue to function.
Gradual opening up begins, medium/longer-term containment measures put in place.

Open
Partial restrictions
Closure

(1) Infection rates (number of new cases on previous total cases) tend to reduce in steps as gradually stringent measures are taken, and until (quasi)complete shutdown of social and economic activities, after which infection rates tend to decrease more continuously.

For each one of our scenarios we unpack assumptions on GDP impact by considering likely impact for each sector of economic activity. We factor in a massive slump in global demand in all but a few sectors (food, health, IT, utilities), as well as some supply chain disruptions. International tourism is considered to have come entirely to a halt. We draw from a) observed impact on economic activity in countries at advanced epidemic stages (particularly Italy, Spain and France); b) modelled economic estimates of sectoral impact, prepared in these countries and by the OECD (27Mar/15April estimates); and c) modelled macro estimates of the IMF (April WEO)[4].

We then apply sectoral GDP impact estimates to sectoral employment data. In doing so we differentiate between wage employment and self-employment, and between informal and formal employment. We also consider three skills levels and use a "job retention ratio" posits that those with low skills are more likely to be laid-off than those with middle range skills and high skills.

We index the level of debt-funded fiscal expansion on the estimated global GDP loss, which is at the level required to absorb the demand shock; we provide indications as to the distribution of the budgetary expansion across the identified key policy objectives. Key policy measures to achieve each objective are then suggested, drawing from international practices and from global guidance by the ILO and other international organisations. Feasibility and costing analyses for each measure to be contemplated will be necessary.

---

[4] The recent IMF World Economic Outlook has sharply revised downwards global growth estimates for 2020 to -3% for 2020, and to 4.3% in 2021 for Ethiopia. The report underlines the uncertainty of the estimates and the possibility for even worse economic impacts. The OECD has estimated that every month of full lockdown costs 2 percentage points of in annualised GDP growth; if the shutdown continues for three months, with no offsetting factors, annual GDP growth could be between 4-6 percentage points lower.

Scenario 1.Low-intensity epidemic with limited economic lockdown (baseline).

Epidemic and containment scenario: Testing, contact tracing and isolation of positive or suspicious prove sufficient to containing the epidemic with only minimal social distancing measures. The following economic and social activities are suspended: education at all levels; all events and gatherings (culture, sports, entertainment, weddings); personal services.	

Main socio-economic effects:
  a) Significant revenue loss in sectors affected by social-distancing measures: *culture, sports, entertainment (except online), events; bars; transportation of persons, and personal services;*
  b) Collapse of international mobility: *international transportation of persons, tourism*.
  c) Collapse of exports outside agricultural produce and food: *export-oriented manufacturing, international transportation of goods;*
  d) Some deferment of consumption and investment by households and businesses weighing on overall demand.

Policy objectives	Employment/GDP effects	Policy measures	Required budgetary spending
1. **Economy-wide:** prevent a credit crunch and sustain overall demand	Monthly GDP loss of 1.53% at current lockdown measures Wage employment: 479K jobs lost	Overall budgetary (stimulus) spending to commensurate to the estimated GDP slump. The stimulus is spent in accordance with the below policy objectives. i) Relax further interest rates / prudential requirements ii) Child-care benefits	1.5% of GDP per month of lockdown (break-down below)
2. **Most affected sectors – formal economy:** Prevent bankruptcies, support job retention and incomes of the unemployed	Formal self-employment: 304K jobs lost Informal self-employment: 1M jobs lost Total: 1.8M jobs	iii) Suspend all taxes and social security contributions for businesses and workers (temporary tax holidays) iv) Postpone/suspend utility bills for businesses v) Suspend all financial dues for businesses and workers (moratorium on mortgages, business lending, consumption credit) vi) Promote job retention programmes [5] vii) Expand unemployment benefits and establish emergency disbursement measures[6]	0.7 % of GDP, including, 0.35% for workers and 0.35% for businesses.

---

[5] Even in the US or the UK, countries that have been historically defiant of public intervention in labour markets, policies have been put in place to promote worker retention and prevent massive lay-offs. Worker retention programmes should be negotiated with workers and employers representatives. They typically entail that: a) businesses retain workers, who agree to temporary wage/benefit reductions (eg 50 – 80% of their wage); the public budget pays part of the cost. b) Workers are "furloughed", keeping at least their medical insurance coverage or other applicable benefits.

[6] Ensuring rapid deployment; benefits should not be conditioned to active search or other activation requirements during the epidemic; there is added value in delivering these programmes through public employment services where they exist and/or can be scaled up, including for ex-post verification of eligibility, and to transition the aid into more active measures (e.g. job search subsidy, training vouchers, labour intensive programmes) after the epidemic.

		viii) Provide direct grants to the formal self-employed ix) (Sectoral) liquidity funding for businesses x) Fund enterprise-specific bailout programmes for large, national companies deemed strategic	
3. **Most affected sectors – informal economy:** prevent the fire-sale of productive assets and address critical social/humanitarian needs;		xi) Cash transfers programmes for informal economy businesses and their workers7 xii) Emergency microfinance programmes, with subsidised/ 0 interest rates + low eligibility requirements;	0.2% -0.5% GDP
4. **Last resort social assistance programmes** for the poorest not accessing other assistance	Rise in poverty	xiii) Minimum-income cash transfers; xiv) Food/medicine vouchers; Food/medicine distribution xv) Social shelters	0.1% - 0.2% GDP

---

7 To be targetable, informal businesses would need to declare themselves as operating in the affected sectors and commit to future registration (formalisation). This should not be conceived or perceived as a trap. The state should commit to a transition period before the full weight of formal compliance is imposed / and or to the establishment of a business regime with lighter fiscal and administrative compliance burdens (eg. "microenterprises").

Scenario 2. Intermediate-intensity epidemic with partial economic lockdown

Epidemic and containment scenario: The epidemic escalates, requiring the closure of additional economic sectors, including retail and wholesale trade - outside basic necessities, personal services (esthetics, gyms etc). Manufacturing, logistics and transportations outside of essential necessities are severely affected. The lockdown is prolonged in previously closed sectors.	

Main socio-economic effects:
   a) Total or near total revenue loss in locked-down sectors (1 month): *restaurants and bars; retail and wholesale trade outside basic necessities, personal services (esthetics, gyms etc)*. Additional month of closure for: *Culture, sports, entertainment (except online), events;*
   b) Severe loss of revenue in domestic manufacturing, logistics and transportation outside of essential necessities
   c) Continued collapse of exports outside agricultural produce and food: *export-oriented manufacturing, international transportation of goods*
   d) Continued collapse of international mobility: *international transportation of persons, tourism.*
   e) Significant deferment of consumption and investment by households and businesses.

Policy objectives	Employment/GDP effects	Policy measures	Spending required

1. Economy-wide: prevent a credit crunch and sustain overall demand	A monthly GDP loss of 2.59%
	
	Wage employment losses: 895K
	
	Formal self-employment losses: 505K
	
	Informal self-employment losses: 1.67M
	
	Total: 3M jobs
		Overall budgetary spending is commensurate to the estimated GDP gap. The stimulus is spent in accordance with the below policy objectives and focuses largely on support to most affected sectors.
		  I. Relax further interest rates / prudential requirements
		  II. Effect some budgetary reallocation of funding, eg. public infrastructure work programmes, savings in public education to be reallocated;
		  III. Allocate childcare benefits
			2.5 % of GDP per month of lockdown (break-down below)

2. Mot affected sectors – formal economy: Prevent bankrupties, support job retention and incomes of the unemployed		Prolong prior measures and extend to newly locked-up sectors:
		  IV. Suspend all taxes and social security contributions for businesses and workers (temporary tax holidays)
		  V. Postpone/suspend utility bills for businesses
		  VI. Suspend all financial dues for businesses and workers (moratorium on mortgages, business lending, consumption credit)
		  VII. Promote job retention programmes [8]
		  VIII. Expand unemployment benefits and establish emergency disbursement measures[9]
			1.5 % of GDP, including 0.75% for workers and 0.75% for businesses.

---

[8] Negotiated with workers and employers representatives: a) businesses retain workers, who agree to temporary wage/benefit reductions (e.g. 50 – 80% of their wage); the public budget pays part of the cost. b) Workers are "furloughed", keeping at least medical insurance coverage or other applicable benefits.

[9] Ensuring rapid deployment; benefits should not be conditioned to active search or other activation requirements during the epidemic; there is added value in delivering these programmes through public

		IX. (Sectoral) liquidity funding for businesses X. Provide direct grants to the formal self-employed XI. Fund enterprise-specific bailout programmes for large, national companies deemed strategic	
3. **Moat affected sectors – informal economy:** prevent the fire-sale of productive assets and address critical social/humanitarian needs;	Informal wage and own-account employment:	XII. Cash transfers programmes for informal economy businesses and their workers[10] XIII. Emergency microfinance programmes, with subsidised/ 0 interest rates + low eligibility requirements;	0.8% GDP
4. **Increase last resort social assistance programmes** for the poorest not accessing further assistance	Rise in poverty	XIV. Minimum-income cash transfers; XV. Food/medicine vouchers; Food/medicine distribution XVI. Social shelters	0.2% GDP

---

employment services where they exist and/or can be scaled up, including for ex-post verification of eligibility, and to transition the aid into more active measures (e.g. job search subsidy, training vouchers, labour intensive programmes) after the epidemic.

[10] To be targetable, informal businesses would need to declare themselves as operating in the affected sectors and commit to future registration (formalisation) this should not be conceived or perceived as a trap. The state should commit to a transition period before the full weight of formal compliance is imposed / and or to the establishment of a business regime with lighter fiscal and administrative compliance burdens (e.g. "microenterprises").

Scenario 3. High-intensity epidemic with large lockdown

Epidemic and containment scenario: Further escalation of the epidemic requiring the closure of all "non-essential" economic activities (eg. agriculture and food, pharmacies, household basics, IT, utilities and a few others). The lockdown is prolonged in previously closed sectors.	

Main socio-economic effects:
a) Total or near total revenue loss in sectors outside those considered "essential", and prolongation of lock down in previously closed sectors (*restaurants and bars; retail and wholesale trade outside basic necessities, personal services ; Culture, sports, entertainment (except online), events).*
b) Continued collapse of exports outside agricultural produce and food: *export-oriented manufacturing, international transportation of goods*
c) Continued collapse of international mobility: *international transportation of persons, tourism.*
d) Major deferment of consumption and investment by households and businesses.

Policy objectives	Employment/GDP effects	Policy measures	Spending required
1. **Economy-wide:** prevent credit crunch and sustain overall demand	A monthly GDP loss of 3.41% Wage employment loss: 2.6M Formal self-employment loss: 763K Informal self-employment loss: 4.14M	In addition to the above: I. Relax further interest rates / prudential requirements II. Effect some budgetary reallocation of funding, eg. public infrastructure work programmes, savings in public education to be reallocated; III. Negotiate temporary wage/benefit reduction in some segments of the public sector on account of social solidarity needs and reduced workloads; IV. Emergency, time-bound taxation of household property	3.5 to 4% of GDP per month (break-down below)
2. **Most affected sectors – formal economy:** Prevent bankruptcies, support job retention and incomes of the unemployed	Total: 6.2M jobs	Prolong prior measures and extend to newly locked-up sectors: V. Suspend all taxes and social security contributions for businesses and workers (temporary tax holidays) VI. Postpone/suspend utility bills for businesses VII. Suspend all financial dues for businesses and workers (moratorium on mortgages, business lending, consumption credit) VIII. Promote job retention programmes [11] IX. Expand unemployment benefits and establish emergency disbursement measures[12]	2.5 % of GDP, including 1.25% for workers and 1.25% for businesses.

---

[11] Negotiated with workers and employers representatives: a) businesses retain workers, who agree to temporary wage/benefit reductions (e.g. 50 − 80% of their wage); the public budget pays part of the cost. b) Workers are "furloughed", keeping at least medical insurance coverage or other applicable benefits.

[12] Ensuring rapid deployment; benefits should not be conditioned to active search or other activation requirements; verification by the public service may be deferred (ex-post rather than ex-ante eligibility checks)

		xvi) (Sectoral) liquidity funding for businesses X. Provide direct grants to the formal self-employed XI. Fund enterprise-specific bailout programmes for national companies deemed strategic	
3. All sectors –formal economy		XII. Promote job retention programmes[13] XIII. Expand unemployment benefits and establish emergency disbursement measures[14]	0.5% of GDP
4. **Informal economy, all sectors:** prevent the fire-sale of productive assets and address critical social/humanitarian needs;		XIV. Pursue cash transfers programmes for most affected sectors[15] XV. Emergency microfinance programmes expanded and opened to all sectors, with subsidised/ 0 interest rates + low eligibility requirements;	0.5% GDP
5. **Increase last resort social assistance programmes** for the poorest, including cash transfers, access to food and medical care (in addition to COVID19 treatment)	Rise in poverty	XVI. Minimum-income cash transfers; XVII. Food/medicine vouchers; Food/medicine distribution XVIII. Social shelters	0.5% GDP

---

[13] Designed with workers and employers representatives, in sectors: workers agree to temporary wage reductions (e.g. 50 – 80% of their wage), to be covered in part by businesses and in part by the public budget.

[14] Ensuring rapid deployment; benefits should not be conditioned to active search or other activation requirements during the epidemic; there is added value in delivering these programmes through public employment services where they exist and/or can be scaled up, including for ex-post verification of eligibility, and to transition the aid into more active measures (e.g. job search subsidy, training vouchers, labour intensive programmes) after the epidemic.

[15] To be targetable, informal businesses would need to declare themselves as operating in the affected sectors and commit to future registration (formalisation) this should not be conceived or perceived as a trap. The state should commit to a transition period before the full weight of formal compliance is imposed / and or to the establishment of a business regime with lighter fiscal and administrative compliance burdens (e.g. "microenterprises").

Annexes

Table 1: Sectoral output shock estimates

Decline in monthly outputs	Scenario 1	Scenario 2	Scenario 3
Agriculture, forestry and fishing	0%	0%	-20%
Mining and utilities	0%	-20%	-40%
Manufacturing	-30%	-60%	-80%
Construction	-40%	-50%	-70%
Wholesale and retail trade; repair of motor vehicles and motorcycles	-40%	-60%	-70%
Accommodation and food service activities	-40%	-80%	-95%
Information and communication	0%	-10%	-20%
Transportation and storage	-30%	-50%	-70%
Public administration and defence; compulsory social security	0%	0%	0%
Financial and insurance activities	0%	-30%	-40%
Real estate activities	-40%	-50%	-70%
Professional scientific and technical activities	0%	-30%	-50%
Administrative and support service activities	0%	-30%	-50%
Education	0%	0%	0%
Health	0%	0%	0%
Arts, entertainment and recreation	-40%	-80%	-95%
Other service activities	-40%	-80%	-95%
Activities of households as employers; undifferentiated goods- and services-producing	-20%	-40%	-70%
Activities of extraterritorial organizations and bodies	0%	0%	0%

We included 3 options of lock-down duration under each scenario: 1, 2, and 3 months:

Table 2: Estimation of GDP loss for each scenario

	Scenario 1			Scenario 2			Scenario 3		
Duration	1 month	2 months	3 months	1 month	2 months	3 months	1 month	2 months	3 months
GDP loss	1.53%	3.06%	4.59%	2.59%	5.19%	7.78%	3.41%	6.82%	10.23%

Employment estimates

We first estimate **employment by sector** by applying employment elasticity to growth (1999-2013) to the last available data from the National Labour Force Survey (2013).

For **wage employment**, we differentiate the jobs impact across the three skills levels (low, mid, and high). We apply linearly the estimated GDP impact to compute job losses among the low-skilled workers. In other words, a 40% drop in economic activity will result in 40% drop in the share of low-

skilled jobs. We consider that businesses will be more inclined to retain mid-skill and high-skill workers; we consider that 2 point of GDP loss are equitable to 1 point of employment among mid-skilled workers and 5 points of GDP to 1 point of high-skill employment.

For the **self-employed,** we differentiate the calculation of potential job-loss for formal and informal, using the same assumptions than wage-employment (differentiation of job lay-offs assumptions based on the level of skills). The share of informality is drawn from the NSO's Urban employment and unemployment survey, by taking bookkeeping as the defining (proxy) variable.

Table 3: Synthesis – jobs threatened in wage-employment and self-employment

	Scenario 1	Scenario 2	Scenario 3
Wage-employment threatened	479,087	894,926	1,345,056
Equivalent job-loss for formal self-employed	304,133	505,271	763,044
Equivalent job-loss for informal self-employed	1,017,598	1,668,647	4,138,624
Total jobs threatened	**1,800,818**	**3,068,844**	**6,246,725**

For the **self-employed**, another approach we used the estimation of **income loss**, using the three scenarios, and considering a length of the crisis for 1, 2, or 3 months. To estimate the income shock, we compute the monthly sectoral output shock estimates to the estimate level of incomes for self-employment for each sector. These estimates are also a proxy of how much expenditure would be required to compensate the shock.

Table 4: Estimation of the income loss for self-employed in the economy

	Scenario 1			Scenario 2			Scenario 3		
	1 month	2 months	3 months	1 month	2 months	3 months	1 month	2 months	3 months
Income-loss for self-employed (in M $)	135.6	271.3	406.9	219.6	439.1	878.3	420.9	841.9	1,262.8
Impact income loss for self-employed as a share of GDP	0.2%	0.3%	0.5%	0.3%	0.5%	1.0%	0.5%	1.0%	1.4%