

NEREUS

Núcleo de Economia Regional e Urbana
da Universidade de São Paulo
The University of São Paulo
Regional and Urban Economics Lab



Assessing the Economic Impacts of Lockdown Measures in Morocco

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Objective

What are the daily economic costs of the control measures adopted in the country to prevent the spread of Covid-19?

The objective of the study is to calculate the regional and sectoral economic impacts of preventive measures related to the coronavirus pandemic in Morocco

Different scenarios of preventive isolation of the labor force:

- Scenario 0: Isolation of workers older than 60 years
- Alternative scenarios: preventive isolation of a growing percentage of workers, starting with 10% up to 70%, including all 60 years and older

Methodology

Technical Report

Full-text available

Input-Output Analysis of COVID-19: Methodology for Assessing the Impacts of Lockdown Measures

April 2020

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<https://www.researchgate.net/publication/340491646> Input-Output Analysis of COVID-19 Methodology for Assessing the Impacts of Lockdown Measures

[http://www.usp.br/nereus/wp-content/uploads/TD Nereus 01 2020.pdf](http://www.usp.br/nereus/wp-content/uploads/TD_Nereus_01_2020.pdf)

Interregional input-output model for Morocco

Sectoral and regional interdependence in Morocco

Production function continuous in time

Workers in each sector classified by age group

Segmentation of the labor market (formal and informal)

Effects of isolation on supply and demand (partial “hypothetical extraction”)

Effects on consumption proportional to the direct loss of income in each region

Additional effects on exports on the demand side

Losses in terms of GDP generation

Methodology (simulator)

Calculate the output of the economy in a hypothetical scenario of isolation through the partial extraction of the sectorial flows in the input-output matrix

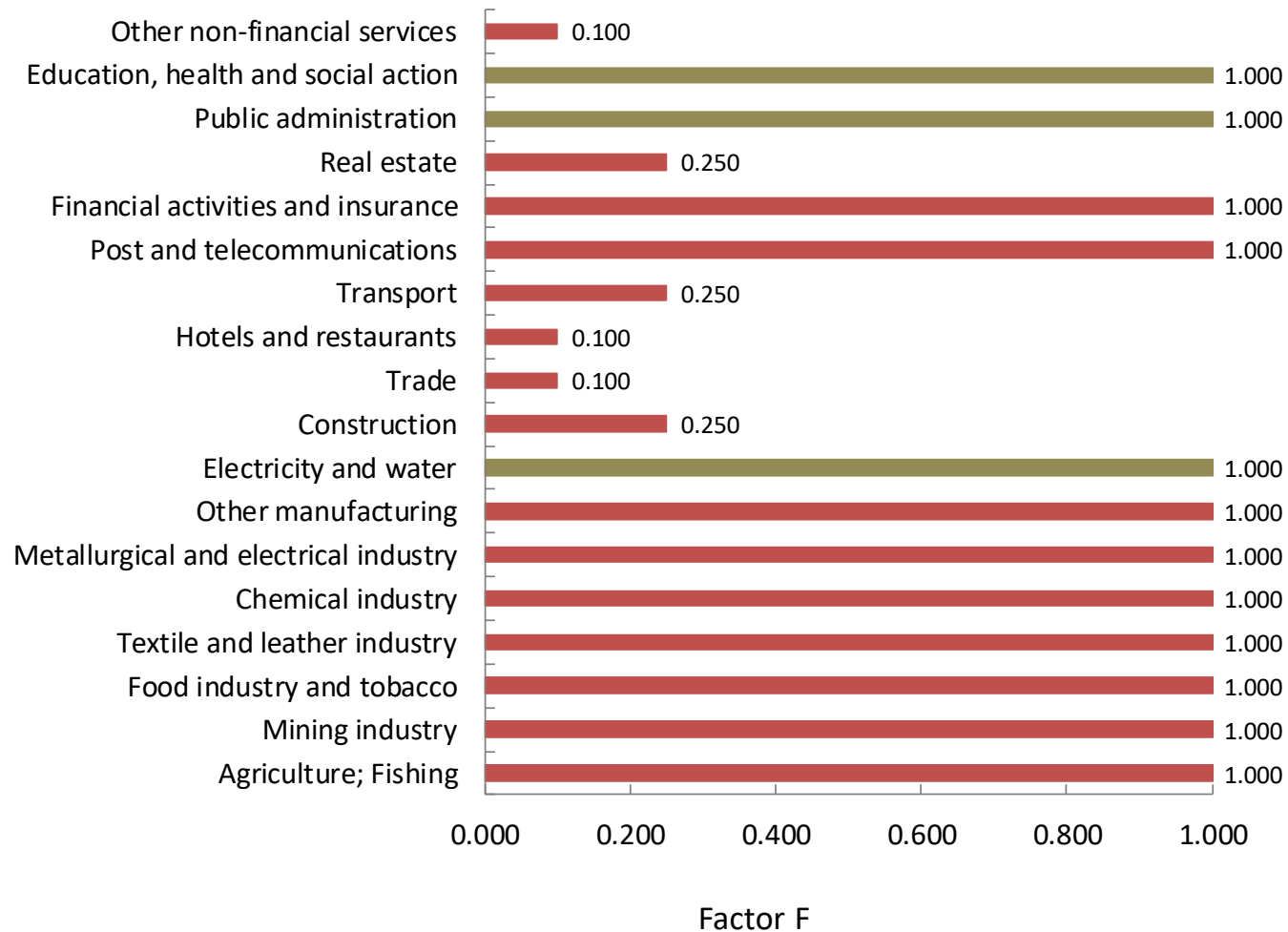
Define, for each sector, an adjustment factor \mathbf{F} , which measures the degree of exposure of the sector considering those sectors that must continue in operation ($\mathbf{F}=1$) up to those that may stop operating ($\mathbf{F}=0$)

Extract from the labor force a hypothetical percentage in similar proportions of formal and informal workers in each sector and in each region

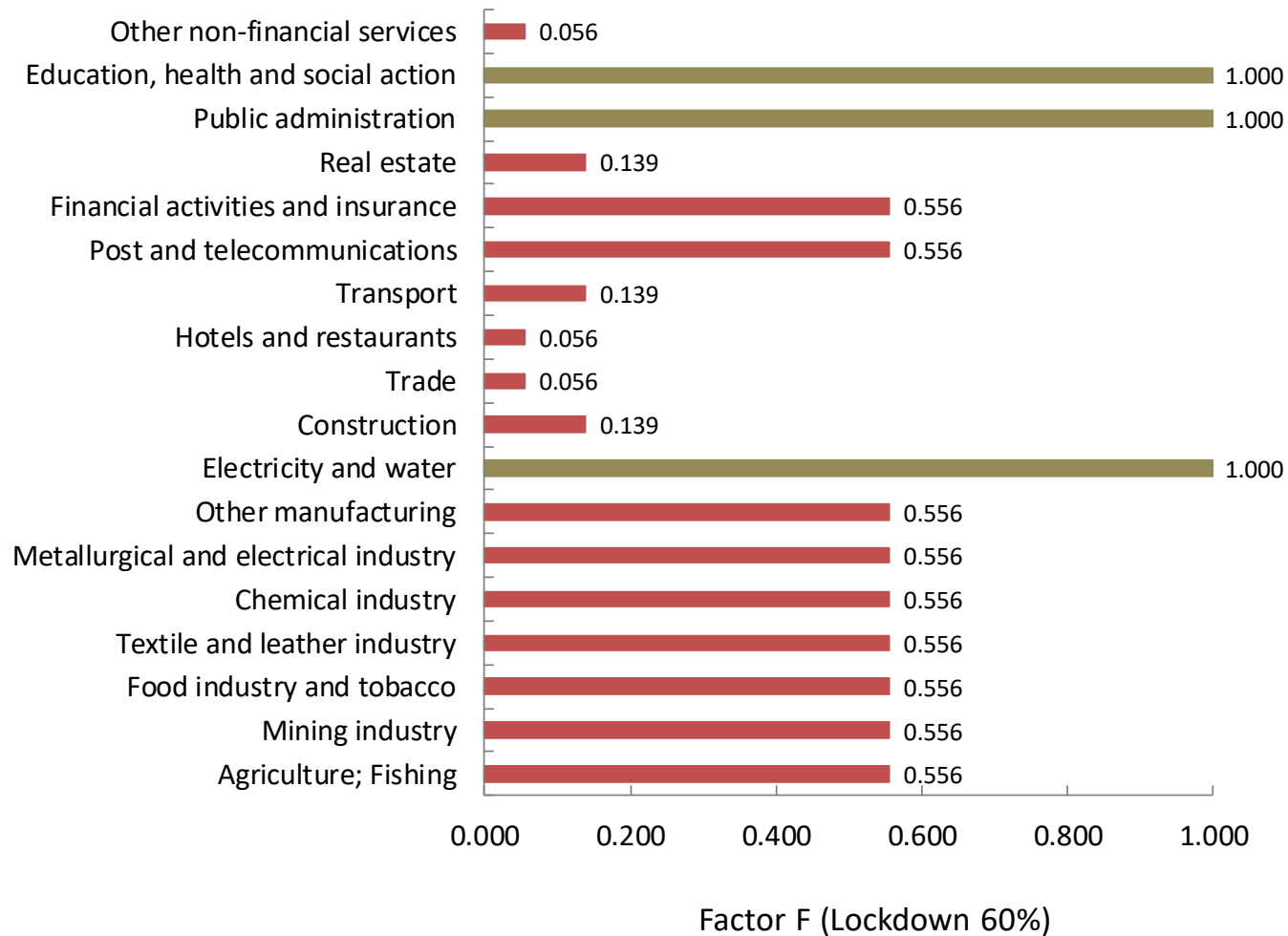
Define, for each group of workers, the fraction of income maintained during the isolation period

Estimate economic loss by comparing the base scenario with the hypothetical scenario

Factor F



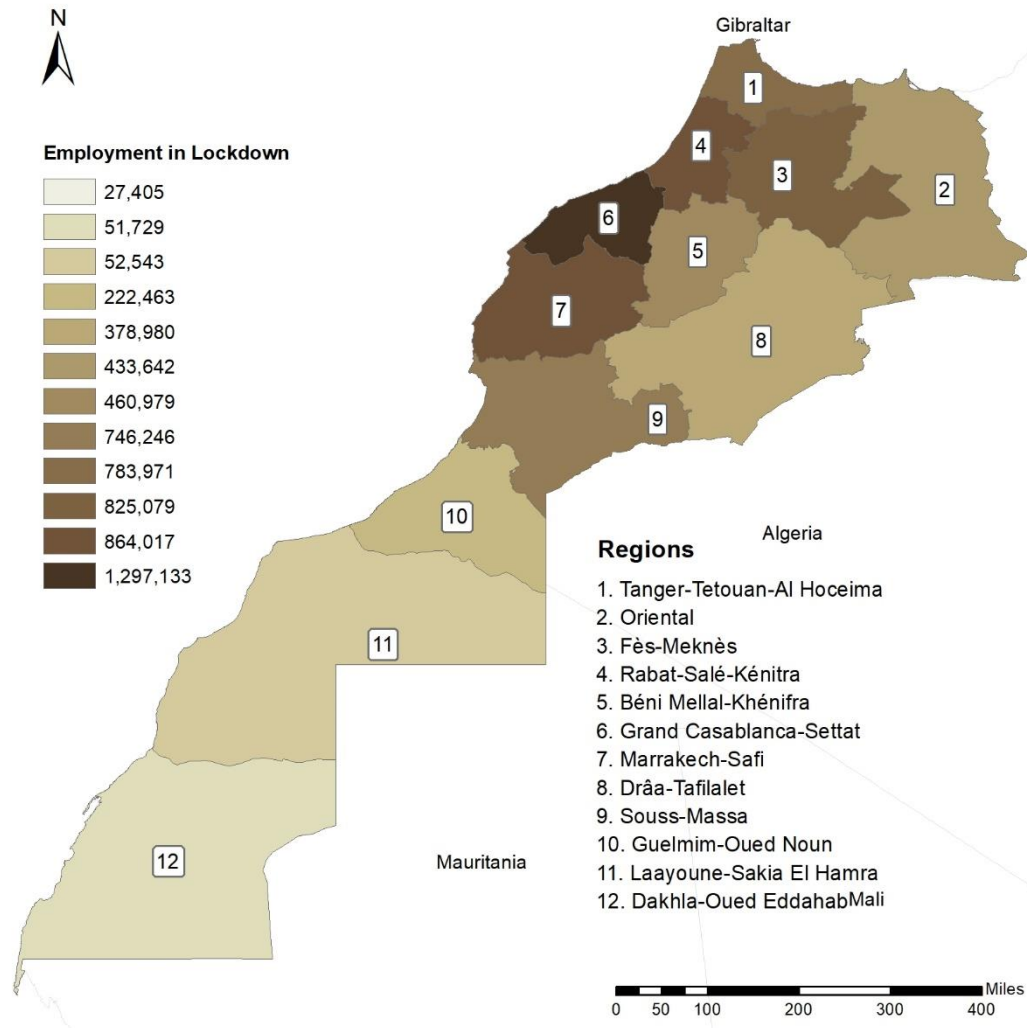
Factor F (60% lockdown)



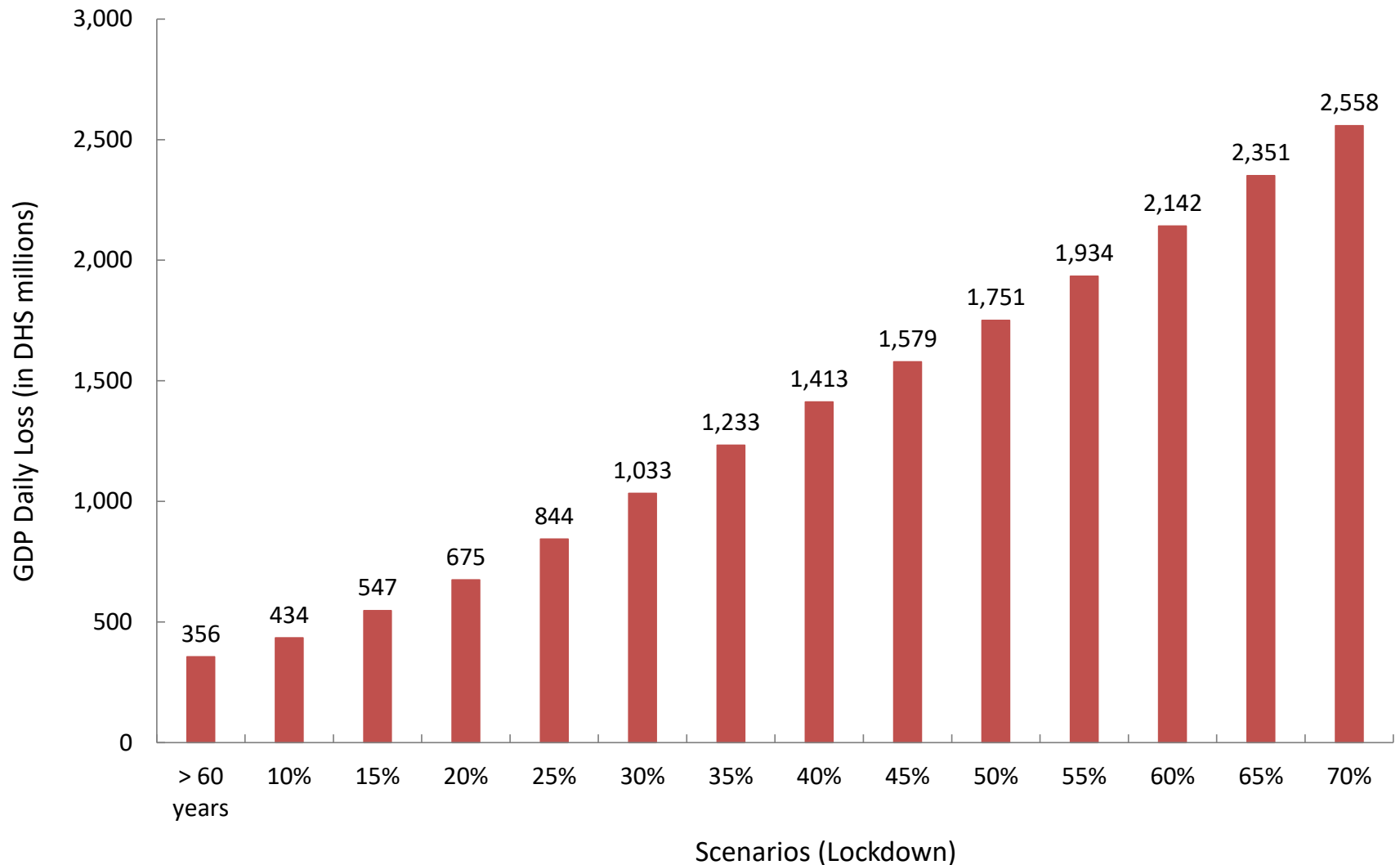
Estimates of the number of workers in lockdown

	<i>Region</i>	<i>Total Employment</i>	<i>Employment in Lockdown</i>	<i>Employment in Lockdown (%)</i>
R1	Tanger-Tetouan-Al Hoceima	1,243,694	746,246	60.0
R2	Oriental	631,153	378,980	60.0
R3	Fès-Meknès	1,306,064	783,971	60.0
R4	Rabat-Salé-Kénitra	1,439,791	864,017	60.0
R5	Béni Mellal-Khénifra	722,712	433,642	60.0
R6	Grand Casablanca-Settat	2,160,963	1,297,133	60.0
R7	Marrakech-Safi	1,374,218	825,079	60.0
R8	Drâa-Tafilalet	370,607	222,463	60.0
R9	Souss-Massa	767,776	460,979	60.0
R10	Guelmim-Oued Noun	87,513	52,543	60.0
R11	Laayoune-Sakia El Hamra	86,162	51,729	60.0
R12	Dakhla-Oued Eddahab	45,647	27,405	60.0
Morocco		10,236,299	6,144,187	60.0

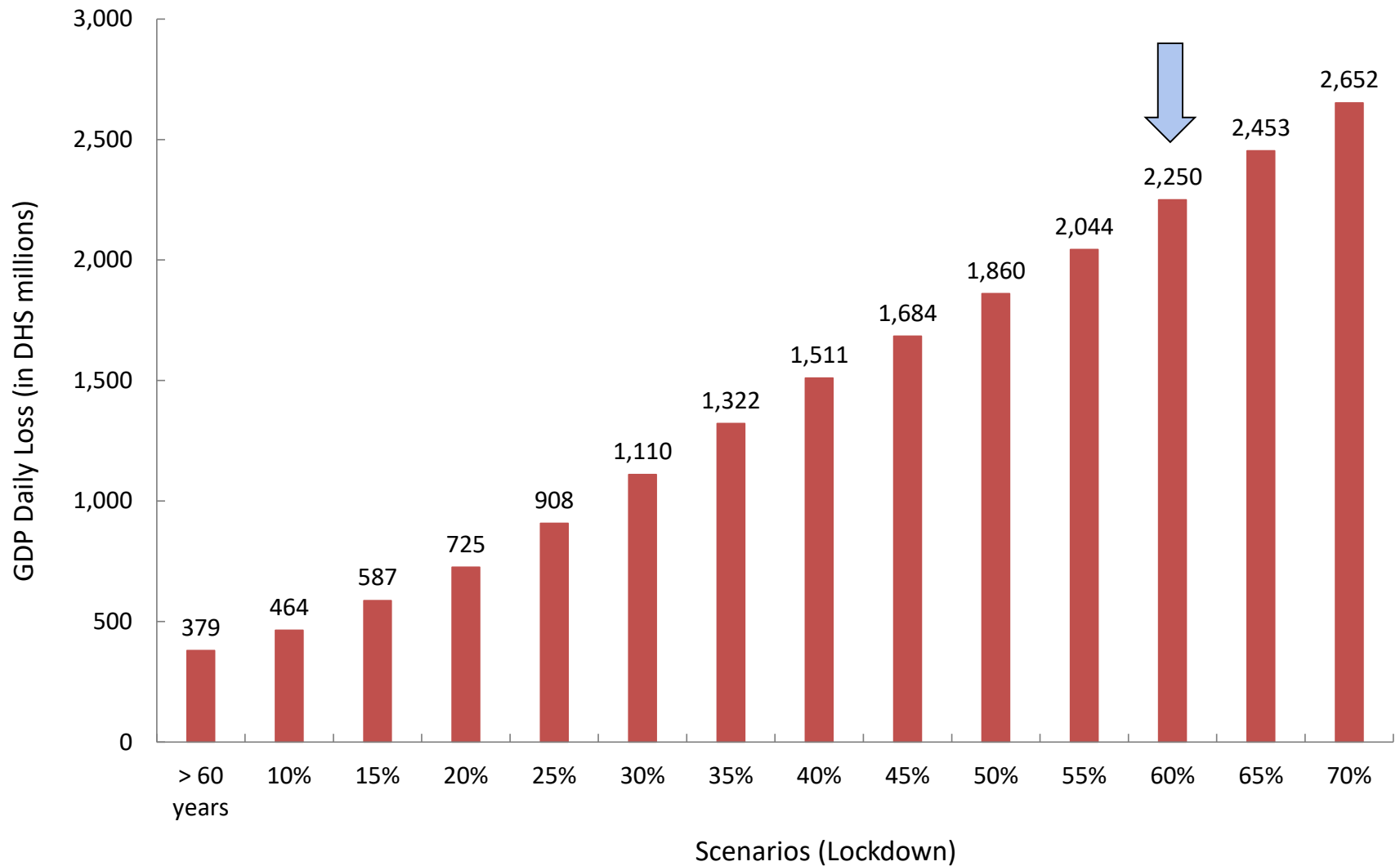
Estimates of the number of workers in lockdown



Daily economic impact (0% income loss – formal)



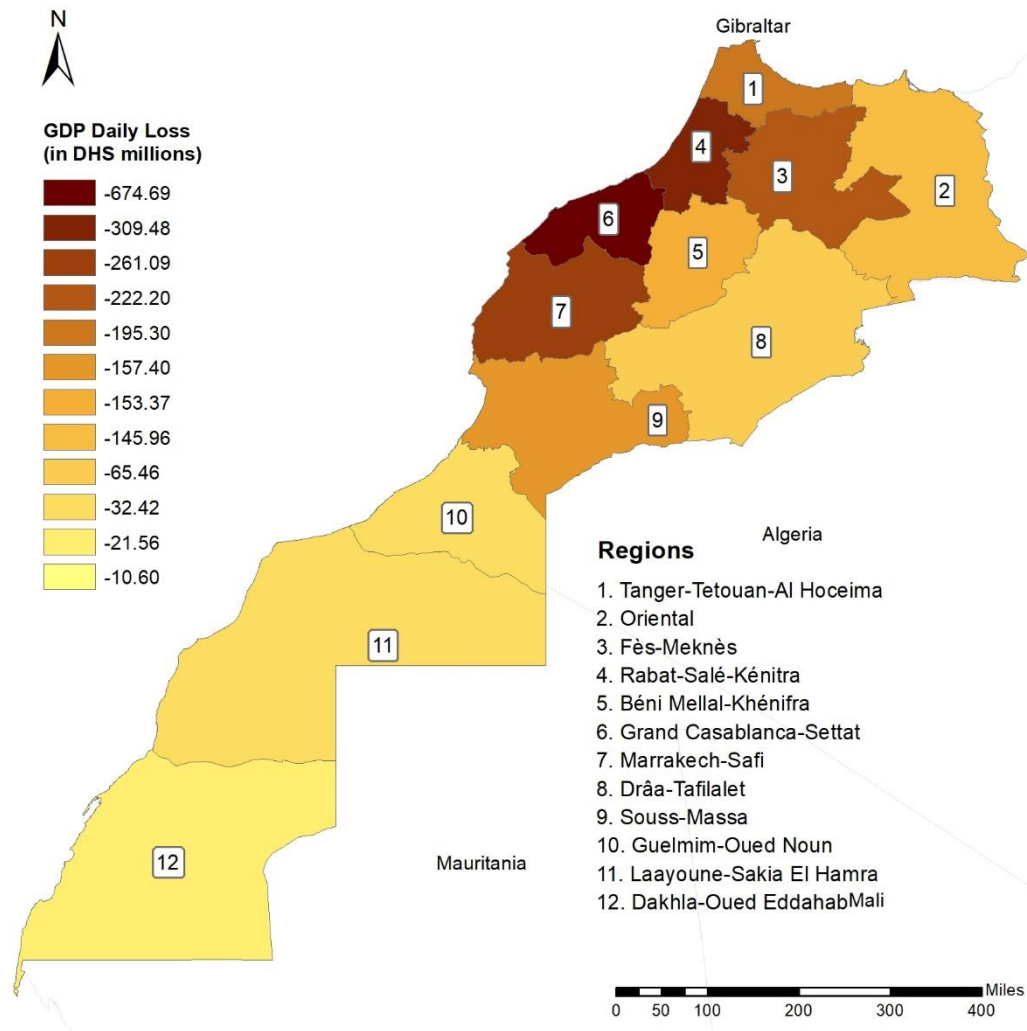
Daily economic impact (50% income loss – formal)



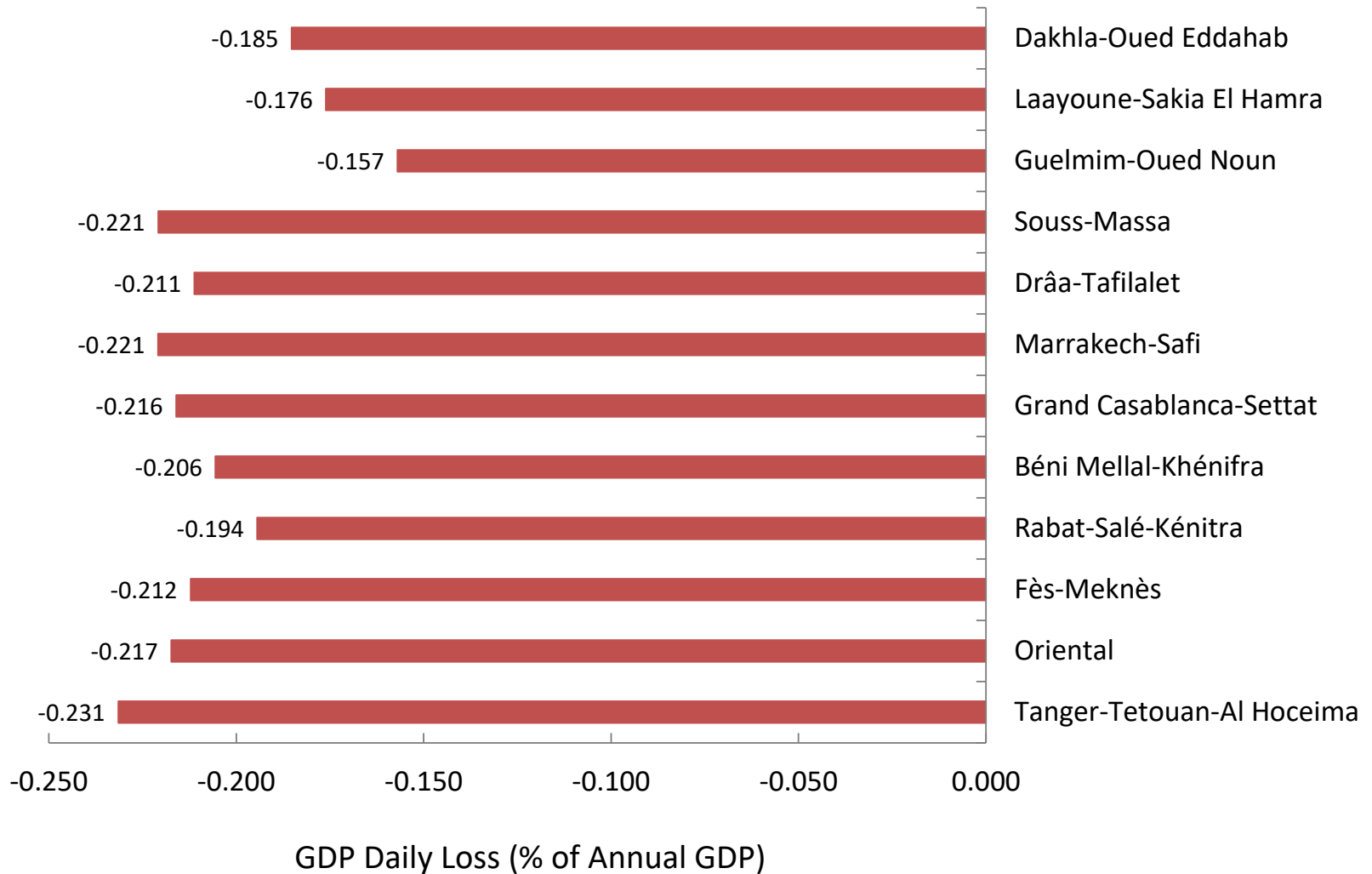
Daily economic impact

Value Added (in DHS millions)													
Sector	R1 Tanger- Tetouan-Al Hoceima	R2 Oriental	R3 Fès- Meknès	R4 Rabat-Salé- Kénitra	R5 Béni Mellal- Khénifra	R6 Grand Casablanca a-Settat	R7 Marrakech- Safi	R8 Drâa- Tafilalet	R9 Souss- Massa	R10 Guelmim- Oued Noun	R11 Laayoune- Sakia El Hamra	R12 Dakhla- Oued Eddahab	Morocco
Agriculture; Fishing	-29	-25	-59	-41	-42	-41	-41	-19	-29	-7	-3	-5	-342
Mining industry	0	-2	0	-2	-37	0	-21	-7	0	0	-6	0	-76
Food industry and tobacco	-8	-2	-15	-9	-5	-71	-7	-1	-17	-1	-3	-1	-141
Textile and leather industry	-8	0	-4	-4	0	-17	-1	0	0	0	0	0	-34
Chemical industry	-1	0	-1	-2	0	-26	-3	0	-1	0	-1	0	-36
Metallurgical and electrical industry	-19	-3	-4	-7	0	-37	0	0	-1	0	0	0	-71
Other manufacturing	-9	-2	-5	-5	-1	-48	-5	0	-4	0	-1	0	-80
Electricity and water	-3	-2	-3	-6	-1	-6	-3	-1	-2	0	0	0	-27
Construction	-27	-21	-20	-29	-15	-44	-32	-13	-13	-2	-5	-1	-221
Trade	-30	-35	-37	-41	-20	-72	-37	-7	-22	-4	-3	-1	-311
Hotels and restaurants	-6	-2	-6	-3	-1	-10	-32	-2	-23	0	0	0	-86
Transport	-11	-11	-14	-20	-6	-38	-13	-3	-9	-2	-2	-1	-130
Post and telecommunications	-6	-5	-7	-10	-3	-16	-6	-2	-4	-1	-1	0	-60
Financial activities and insurance	-7	-6	-8	-28	-4	-53	-11	-2	-6	-1	-1	0	-126
Real estate	-20	-20	-25	-82	-11	-167	-33	-5	-19	-2	-2	-1	-385
Public administration	-3	-2	-3	-7	-2	-6	-4	-1	-2	-1	-2	0	-34
Education, health and social action	-3	-2	-4	-4	-2	-8	-4	-1	-2	0	0	0	-31
Other non-financial services	-5	-4	-5	-12	-3	-15	-8	-1	-4	0	0	0	-58
Total	-195	-146	-222	-309	-153	-675	-261	-65	-157	-22	-32	-11	-2.250

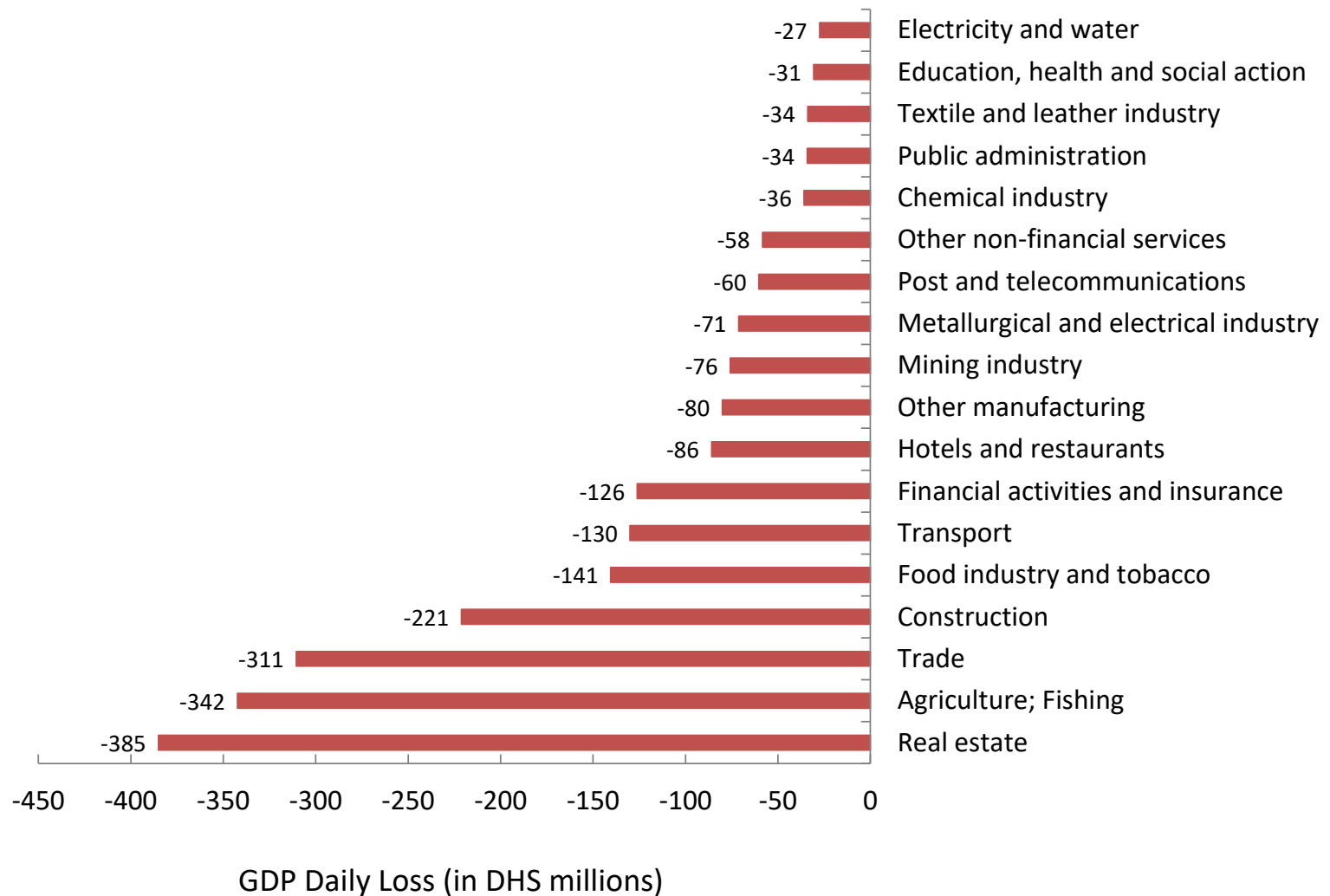
Daily economic impact



Daily economic impact



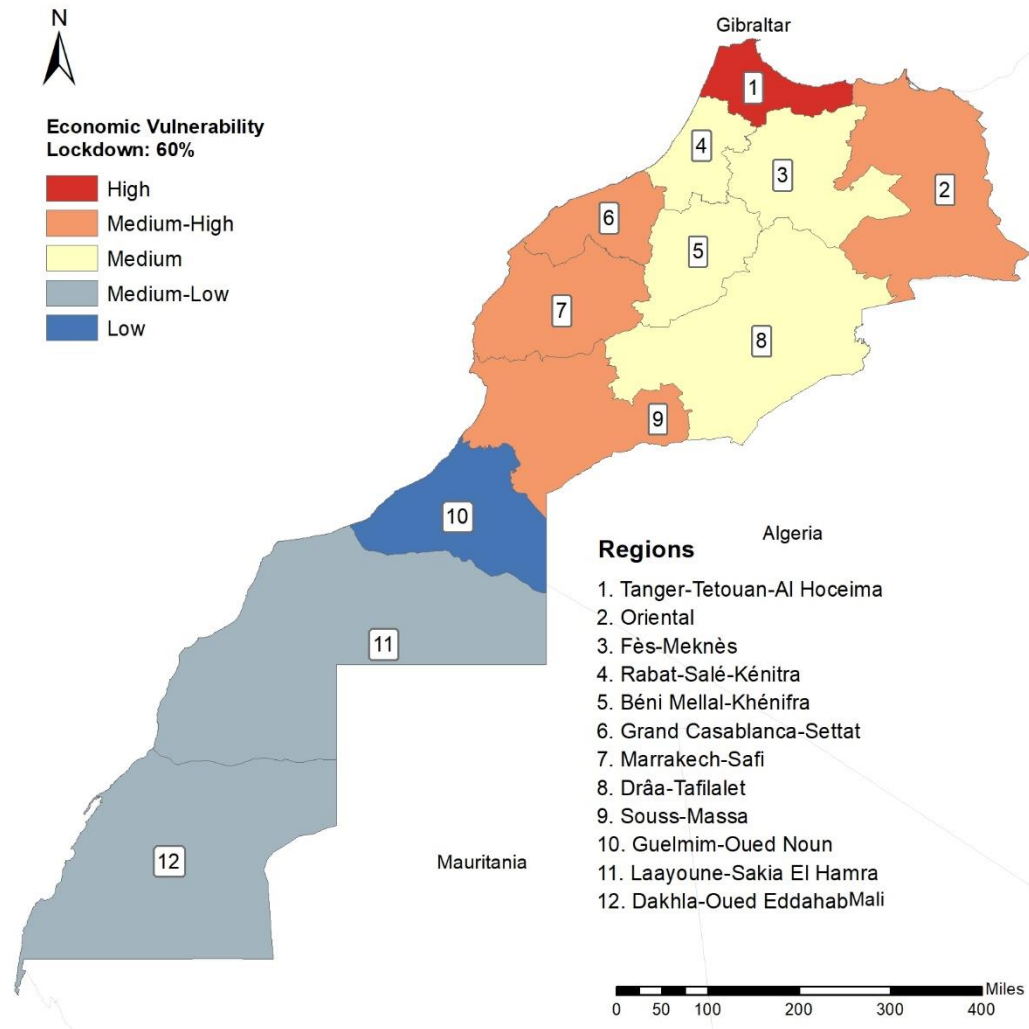
Daily economic impact



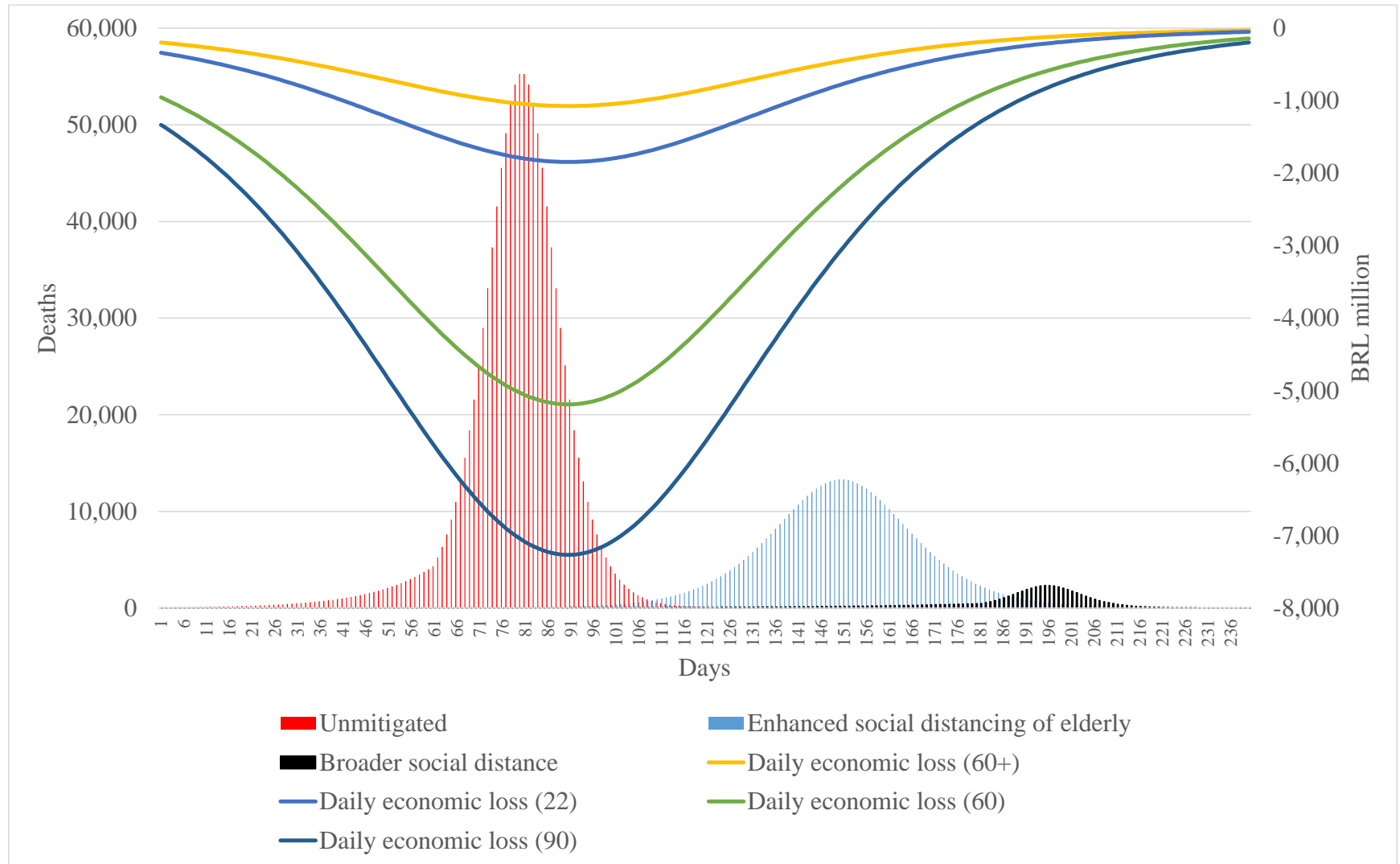
Economic vulnerability

<i>Rank</i>	<i>Region</i>	<i>Index</i>	<i>Vulnerability</i>
1	Other non-financial services	1.000	High
2	Construction	0.935	High
3	Hotels and restaurants	0.929	High
4	Transport	0.901	High
5	Trade	0.857	Medium-High
6	Real estate	0.854	Medium-High
7	Other manufacturing	0.617	Medium
8	Financial activities and insurance	0.597	Medium
9	Agriculture; Fishing	0.571	Medium
10	Food industry and tobacco	0.542	Medium
11	Post and telecommunications	0.522	Medium
12	Mining industry	0.501	Medium
13	Metallurgical and electrical industry	0.460	Medium-Low
14	Textile and leather industry	0.441	Medium-Low
15	Chemical industry	0.429	Medium-Low
16	Electricity and water	0.329	Medium-Low
17	Public administration	0.005	Low
18	Education, health and social action	0.000	Low

Economic vulnerability



Paradox of prevention revisited (Brazilian data)



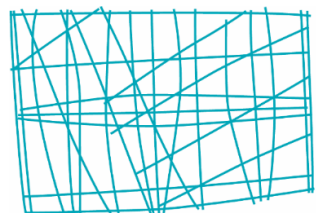
Final comment

Mismatch between the cadence and intensity of the pandemic event in the economy and its cadence and intensity in terms of mortality, based both on people's perception and on the sequencing of real accumulated impacts, provides an opportunity for avoiding stricter control strategies.

Different groups of discontents, e.g. those less vulnerable physiologically, and those more vulnerable economically, may encompass discourses and actions favoring relaxation of more restricted measures of social distancing.

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