

# Morocco's excessive geographic export concentration

By Uri Dadush & Hamza Saoudi<sup>1</sup>

## Summary

In this brief, we review the evidence on Morocco's export concentration, discuss its causes, and then draw some policy implications. The main message is that Morocco needs to raise its game in some less familiar markets and move outside its comfort zone. This implies not only investments by private firms, greater efforts on export promotion by the government and professional associations, but also deeper changes within Morocco, including in its educational system.

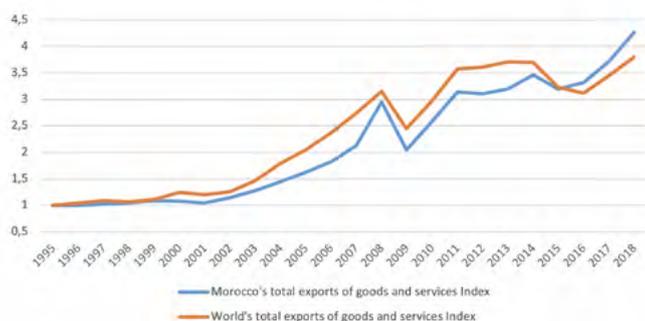
Over the past two decades, Morocco has embarked on a path of trade openness as a central thrust of its development model, an essential decision considering the small size of the Moroccan economy <sup>1</sup>(33.8 million people) and the need to exploit opportunities in the vast global market, including connections with the most advanced techniques. A forthcoming study shows that this opening has been generally positive, reducing costs for consumers and for firms importing intermediate products, resulting in a more diverse supply of products on domestic markets, and increasing inbound foreign investment (Berahab and Dadush, 2019). However, the impact of this opening on economic growth has been less than expected.

Over the last 15 years, the annual growth of Morocco's total exports<sup>2</sup> of goods was 8.2 % on average, which compares favorably to a world average of 6.9 %, and Morocco's export market share has increased from 0.12 % in 2002 to 0.15 % in 2017. As can be seen from Chart 1 and 2 below, Morocco's exports lagged vis-à-vis the rest of the world over most of the period since 1995, but accelerated strongly in recent years, in part due to the establishment of an automobile sector and improved conditions for exports of agricultural products (Berahab and Dadush, 2019).

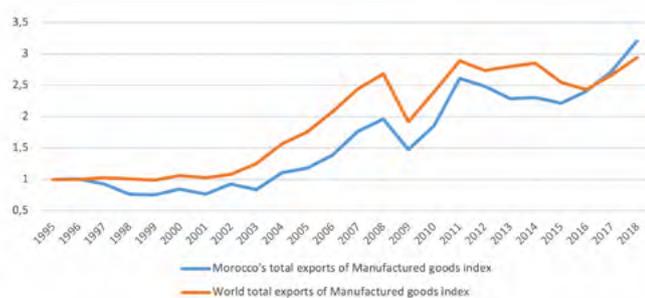
1. We thank Abdelaziz Ait Ali for very helpful comments

2. The data used here comes from the WITS database and is expressed in US dollars.

**Chart 1 : Morocco's and world total exports of goods and services Index (1995 is used as a year of reference)**



**Chart 2: Morocco's and world total exports of Manufactured goods (1995 is used as a year of reference)**



Source: CNUCED, 2018

However, considering Morocco's rapidly expanding population and its low level of income and exports at the outset, export growth has not been enough to cover Morocco's rapidly growing demand for imported petroleum, wheat, machinery and a wide array of consumer products, contributing to a structural current account deficit.

One factor accounting for these outcomes is the excessive concentration of Morocco's exports in two slow-growing and medium sized economies, namely France and Spain. These two countries together accounted for about 44 % of Morocco's exports of goods on average over the period 2002-2017. Unfortunately, because of the lack of data on bilateral trade in services, the rest of this brief focuses on goods only.

The concentration in France and Spain limits the dynamism of a crucial part of Morocco's economy and renders it overly exposed to external shocks originating in those economies, as became evident during the Euro crisis which broke out in 2010 and is yet to be

fully resolved. Already, Morocco's high dependence on imported oil and on rain-fed agriculture makes the economy vulnerable to adverse shocks of different kinds. The explanation of Morocco's exports concentration lies in the colonial links with Spain and France, their proximity and on the language it shares with France. To be sure, these features, which are complemented by the large Moroccan diasporas residing in France and Spain, provide Morocco with an advantage in penetrating markets there, one that should be exploited to the fullest. However, the concentration also carries risks and can lead to missed opportunities in other far bigger and more dynamic markets.

In this brief, we review the evidence on Morocco's export concentration, discuss its causes, and then draw some policy implications. The main message is that Morocco needs to raise its game in some less familiar markets and move outside its comfort zone. This implies not only investments by private firms, greater efforts on export promotion by the government and professional associations, but also deeper changes within Morocco, including in its educational system.

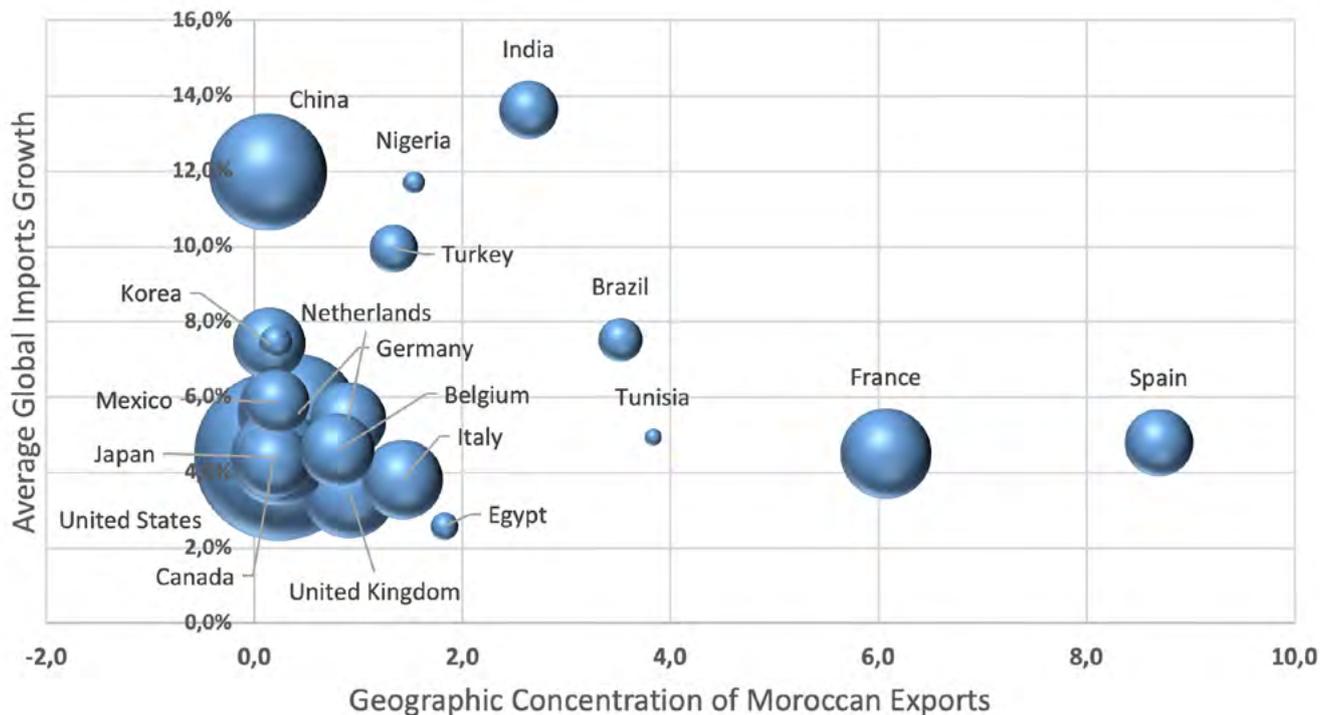
## Morocco's geographic export concentration and complementarity with trading partners

We measure Morocco's export concentration in country X as the share of Morocco's exports going to country X compared to the share of country X in world imports. Spain's average ratio over the period 2002-2017 is near 9, indicating that Morocco sends 9 times the value of exports to Spain as does the world on average. The ratio for France is around 6. The import growth rate<sup>3</sup> of France and Spain expressed in current US Dollars was just 4.9% on average over this period, well below the world's imports growth of 6.6 %. By contrast, the imports of China and India, where Morocco's geographic concentration is very low, grew three times faster, at an annual rate of 13.9%. While India is an economy about the size<sup>4</sup> of France, China is about 3.7 times as large.

3. The data used here comes from the WITS database and is expressed in US dollars.

4. The size of the countries is based on 2018 GDP (constant 2010 US\$) (Source: World bank database)

Chart 3: Average Geographic Concentration of Moroccan Export Vs Average Global Imports by County Over 2002-2017



Source: Authors' calculations based on WITS and CEPII data

It is sometimes argued that Morocco's geographic concentration reflects a lack of supply of products that can be sold outside its traditional markets. In this regard, it is useful to consider Morocco's complementarity index with its trading partners. The Trade Complementarity Index evaluates the extent to which the export profile of a reporter corresponds to the import profile of a partner – i.e. does the reporter tend to export what the partner tends to import? A high index indicates that two countries would stand to gain from trade. The index takes a value "0" if the two countries are perfect competitors and a value of "100" if the two countries are ideal trading partners<sup>5</sup>.

It is evident that complementarity does not explain Morocco's export concentration. The simple correlation between Morocco's geographic concentration and the complementarity index is positive, as would be expected, but

low, standing at 0.20<sup>6</sup>. To illustrate, as table 1 below shows, the complementarity index of Morocco's exports is almost the same for France, Germany and the United Kingdom, while the geographic concentration of Morocco's exports in France is almost 14 times higher than that of Germany and 6 times higher than that of the United Kingdom.

The United States is not only the world's largest economy, but it is also the country with the highest complementarity index with Morocco. Yet, the geographic concentration of Morocco's exports in the US is just 0.24, a quarter of the world average and 25 times lower than that of France. Part of the explanation lies in Morocco's adherence to European standards and weak familiarity with those in the United States. Also, Morocco is integrated in several important European value chains, but not part of American value chains. One implication is that the concentration of Morocco's exports in France and Spain is less if one considers trade in value added. For example, the share of Morocco's exports to the United States that is domestic value added is higher than that of Morocco's exports to France.

5. Mathematical Definition of the Complementarity Index:

$$100 * [1 - \sum_i | \frac{m_{ik}}{M_i} - \frac{x_{ik}}{X_i} | ]$$

Where  $x_{ik}$  is the value of exports of product  $k$  from reporter country  $i$ , and  $X_i$  is the total exports of a the country  $i$ .  $m_{jk}$  and  $M_j$  represents respectively the value of imports of product  $k$  and the total imports of the partner country  $j$ .

6. It should be noted that this correlation has been calculated only on the basis of the 20 most important trading partners of Morocco listed in table 1 and which account a larger share of global imports.

**Table 1: Geographic concentration of Morocco's exports and trade complementarity with Morocco by country**

	Complementarity Index	Average Geographic Concentration of Morocco's exports over the 2002-2017
United States	49.59	0.24
Spain	48.86	8.70
Germany	46.51	0.42
France	46.22	6.07
United Kingdom	46.18	0.91
Canada	45.51	0.18
Brazil	44.11	3.52
Japan	43.67	0.24
Mexico	42.66	0.21
Tunisia	42.49	3.83
Italy	41.86	1.43
South Africa	41.60	0.21
Netherlands	41.60	0.9
Korea, Rep,	40.69	0.14
Belgium	39.44	0.80
China	38.37	0.13
Turkey	36.63	1.34
Egypt, Arab Rep,	35.10	1.83
Nigeria	32.92	1.53
India	30.11	2.64

Source: Authors' calculations based on WITS and WDI database

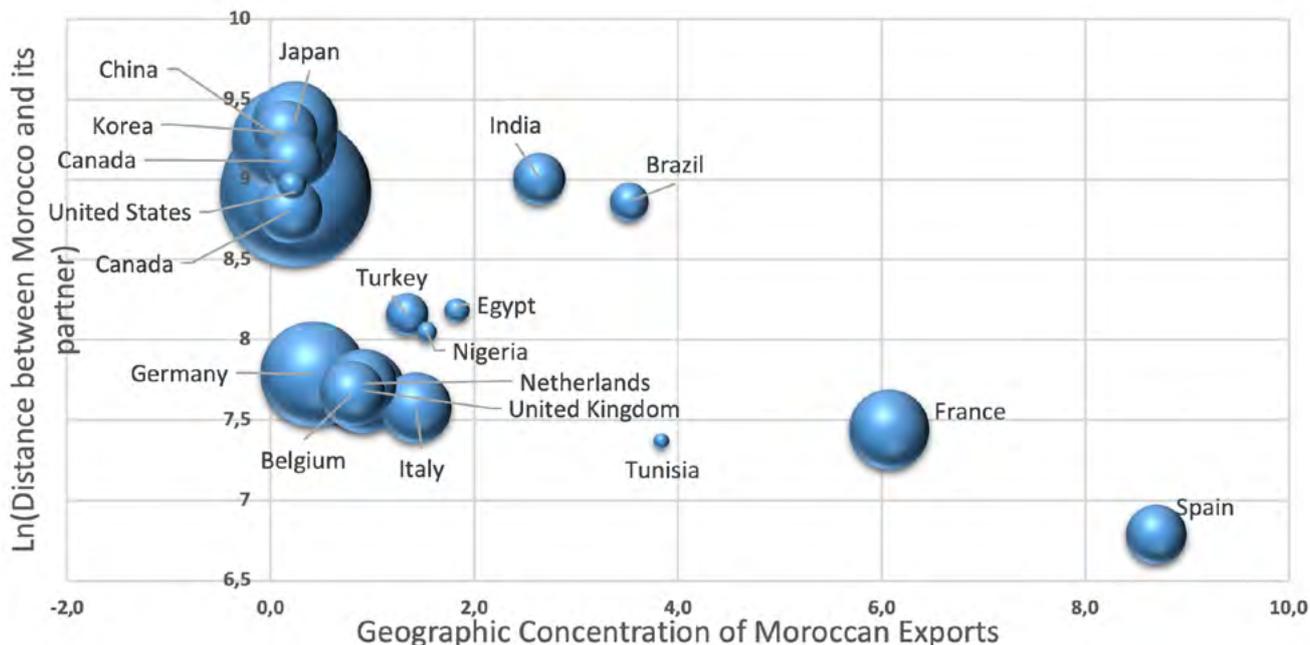
## The role of distance and of transport costs

Distance is a clear contributor to Morocco's geographic concentration but is far from being the whole story. As is evident from chart 4, there is a strong negative correlation between distance from Morocco and the geographic concentration of Morocco, standing at -0.62. However, while Germany and the United Kingdom are almost as distant from Morocco as is France, and have almost identical complementarity index as France, the geographical concentration of Morocco's exports in France is almost 14 times higher than that of Germany and 6 times higher than that of the United Kingdom.

In any event, gravity models<sup>7</sup> that predict trade flows based on relative size, distance, and many other variables, and are estimated over several thousand bilateral trading relationships, suggest that distance should have a smaller effect on Morocco's exports than is evident from their present geographic distribution. Depending on the estimation technique used, the elasticity of exports with respect to distance ranges between -0.49 and -0.77 (See Tamás Krisztin and Manfred M. Fischer, 2015) Taking the mid-point of these estimates, - 0.63, would suggest that Morocco's exports to the United States, which has a higher complementarity index with Morocco than France and Spain, should be 4

7. Gravity equation have been used in empirical trade literature since the early 60s (Tinbergen 1962). Trade economists were at first skeptic about the usefulness of such model in the prediction of bilateral trade follows. By 1995, this view changed, and gravity models were fully introduced to the mainstream literature on trade (Leamer and Levinsohn, 1995). The adoption of this tool confirmed the common acceptance of distance and geographical features as an important determinants of trade pattern.

Chart 4: Average Geographic Concentration of Moroccan Exports over 2002-2017 and Distance



Source: Authors' calculations based on WITS and CEPII database

times smaller at most. In fact, Morocco's exports to the United States are 5.6 times smaller than that of Spain and 6.6 smaller than that of France on average over the period 2002-2017. This difference is surprising since the United States is such a large economy that it should be a special focus of attention for firms and policy-makers. Moreover, like France and Spain, part of the European Union, the United States has a trade agreement with Morocco. It is worth noting that a gravity model<sup>8</sup> estimated for Morocco (see annex) shows essentially no significance of trade agreements in accounting for export concentration. Morocco's low concentration in most Arab countries, with whom it has a trade agreement, and the huge dispersion of export concentration outcomes within the European Union tend to corroborate the regression analysis. Global gravity models can also be used to estimate trade costs<sup>9</sup>, which are related to distance but

can include many other factors, such as shipping costs, logistics, the time and fees incurred in clearing customs, tariffs, etc. These estimated trade costs are available for Morocco and for some 200 other countries. They help us understand the geographic concentration of Morocco's exports. Thus, Morocco's cost of trade with Spain and France are respectively the lowest and second lowest of any country. This is not a surprise given the short distance, and the competition and economies of scale associated with more intensive trade links. Here again, however, we see big differences which are difficult to account for. For example, and as shown in table 2 below, the estimated cost of Morocco's trade with Brazil is almost the same as that with the United Kingdom and Germany while the concentration of Morocco's exports in Brazil is almost 3.9 times higher than that of United Kingdom and 8.4 times higher than that of Germany, even though Morocco's complementarity index with Brazil is lower than that with Germany and the United Kingdom. In another illustration, Morocco's estimated trade cost with Nigeria is one of the highest, yet Morocco's exports are much more concentrated in Nigeria than in Germany, the United States and China.

8. we included in the model the averages of the variables over four years (2014-2017). The 69 countries selected in this study represent nearly 80% of total global imports and account for nearly 95% of Morocco's exports.

9. «The World Bank Trade Costs Dataset provides estimates of bilateral trade costs in agriculture and manufactured goods. It is built on trade and production data collected in over 200 countries. Symmetric bilateral trade costs are computed using the Inverse Gravity Framework (Novy 2009), which estimates trade costs for each country pair using bilateral trade and gross national output » (ESCAP-World Bank: International Trade Costs » (<https://datacatalog.worldbank.org/dataset/escap-world-bank-international-trade-costs>).

Table 2: Geographic concentration of Morocco's exports and trade cost with Morocco by country

	Trade cost in 2015 relative to trade cost with France* *or most recent available data	Average Geographic Concentration of Morocco's exports over the 2002-2017
Mexico	3.8	0.21
Nigeria	3.7	1.53
Korea, Rep,	3.0	0.14
South Africa	2.9	0.21
Japan	2.8	0.24
China	2.5	0.13
Canada	2.5	0.18
India	2.2	2.64
United States	2.2	0.24
Egypt, Arab Rep,	2.0	1.83
Brazil	1.9	3.52
United Kingdom	1.8	0.91
Germany	1.8	0.42
Tunisia	1.7	3.83
Turkey	1.6	1.34
Italy	1.5	1.43
Belgium	1.3	0.80
Spain	0.8	8.70

Source: Authors' calculations based on WITS and WDI database

It turns out that Morocco's export concentration in countries such as Brazil and Nigeria is due in large part to Morocco's exports of phosphates, of which it is the world's largest exporter (Table 3). If one were to exclude phosphates from Morocco's exports, the concentration in France and Spain would appear even greater since Morocco's exports of phosphates to France and Spain account for only 5% of its exports to those countries, but account for 78% of its exports to Brazil and 33% of its exports to Nigeria, 35% of exports to the United States, and 28% of exports to China, to take four prominent examples.

## Policy

In diversifying its exports from its traditional destinations – its historical colonial links – Morocco faces four main challenges. First, is to establish a firmer foothold in big markets such as China and the United States, as well as several high-growth countries in Asia, which requires a considerable investment in start-up costs, partly to be covered by Morocco's larger firms and by the export promotion authorities. The second challenge is to incorporate Moroccan producers in global value chains centered in North America and Asia, complementing its European networks. This may include,

Table 3: Average exports share of phosphate in Morocco's total exports by country over the period 2002-2017

	Average exports share of phosphate in Morocco's total exports by country over the period 2002-2017
India	86%
Brazil	78%
Mexico	54%
South Africa	45%
Turkey	39%
United States	35%
Belgium	35%
Nigeria	33%
China	28%
Netherlands	23%
Canada	20%
Korea, Rep,	19%
Italy	8%
Germany	8%
Japan	6%
United Kingdom	6%
Spain	5%
France	4%

Source: Authors' calculation based on WITS database

for example preparing Moroccan exporter companies to meet American standards in agri-food products. The third challenge is to make a larger number of Moroccan operators conversant and comfortable in the English language and with cultures other than those in the immediate region – i.e. to increase their familiarity with cultures other than French and Arabic. This is a long-term endeavor relating mainly to the education system but also entailing the need to scale up international exchange of people. Morocco is far from unique in confronting this challenge. For example, several European nations made a big effort in the post-war era to adopt English as a second language and to build familiarity with markets in the United States, China and Japan – with considerable success.

The fourth challenge relates to building on its links with Sub-Saharan Africa, which remain weak. The African Continental Free Trade Agreement can be a good opportunity to address the unhealthy concentration of the Moroccan exports, as Africa will be a market of more than 1.2 billion people.

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## Annex

### A Gravity Model for Morocco

Six factors were used to estimate the share of Morocco’s exports in Morocco’s total exports by country, noted by, namely:

1. The share of a country’s total imports in global imports, IMPS. This variable represents the country’s weight in global imports, and the expected effect of this variable is positive.
2. Morocco’s complementarity index with countries, COMPI. The expected effect of this variable is positive.
3. The spoken language shared with Morocco, L which is a dummy variable that takes 1 if the country speaks Arabic or French and zero otherwise.
4. The distance, DIST, which represents the distance between Morocco and each trading partner country.
5. The variable ACCORD, which is a dummy variable that takes the value 1 if the country has a free trade agreement with Morocco and 0 if not.
6. The COL variable, which is also a dummy variable that takes the value 1 for France and Spain that have both a colonial link with Morocco and 0 for all other countries.

It should be noted that all the variables<sup>10</sup> used in the model are expressed in Napierian logarithm except for the dummy variables. The cross-sectional regression estimation<sup>11</sup> results (average of the variables over the last four years) give:

$$\begin{aligned} \text{EXPS} = & \mathbf{0.56} * \text{IMPS} + \mathbf{0.73} * \text{COMPI} - \mathbf{0.39} * \text{DIST} \\ & (7.1) \quad (1.6) \quad (-2.04) \\ & -\mathbf{0.17} * \text{ACCORD} + \mathbf{2.73} * \text{COL} + \mathbf{0.83} * \text{L} \\ & (-0.59) \quad (3.92) \quad (2.79) \end{aligned}$$

Where the numbers in brackets denote t-statistics. All the explanatory variables described above are significant at the usual statistical thresholds except the trade agreement variable (**ACCORD**) and the complementarity index, which appears to have only a weak effect on Morocco’s share of exports by country.

10. We used a four-year average (2014-2017) for all variables in the gravity model

11. The 69 countries selected in this study represent nearly 80% of total global imports and account for nearly 95% of Morocco’s exports.

## About the author

### Uri Dadush

**Uri Dadush** is a Senior Fellow at the Policy Center for the New South who focuses on International economics, trade and financial flows, migration, economic policy and governance, as well as a non-resident scholar at Bruegel, based in Washington, DC. He is also Principal of Economic Policy International, LLC, providing consulting services to the World Bank and to other international organizations as well as corporations. He teaches courses on globalization and on international trade policy at the OCP Policy School and at the School of Public Policy at the University of Maryland. Dadush works mainly on trends in the global economy and on how countries deal with the challenge of international integration through flows of trade, finance, and migration. His recent books include “WTO Accessions and Trade Multilateralism” (with Chiedu Osakwe, co-editor), “Juggernaut: How Emerging Markets Are Transforming Globalization” (with William Shaw), “Inequality in America” (with Kemal Dervis and others), “Currency Wars” (with Vera Eidelman, co-editor) and “Paradigm Lost: The Euro in Crisis.”

### Hamza Saoudi

**Hamza Saoudi** is an Economist at the Policy Center for the New South (PCNS). He is a graduate engineer from the National Institute of Statistics and Applied Economics (INSEA). He is currently working on topics related to business cycles, unemployment, inequality and poverty in developing countries. Hamza is also interested in macroeconomic stabilization policies, International Trade and long-term economic development. Prior to joining the Policy Center for the New South, he contributed to the conception of quantitative models for bank credit risks management..

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### Policy Center for the New South

Suncity Complex, Building C, Av. Addolb, Albortokal Street,  
Hay Riad, Rabat, Maroc.

Email : [contact@policycenter.ma](mailto:contact@policycenter.ma)

Phone : +212 (0) 537 54 04 04 / Fax : +212 (0) 537 71 31 54

Website : [www.policycenter.ma](http://www.policycenter.ma)