



# MOROCCO

## SELECTED ISSUES

March 2017

This Selected Issues paper on Morocco was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on December 28, 2016.

Copies of this report are available to the public from

International Monetary Fund • Publication Services

PO Box 92780 • Washington, D.C. 20090

Telephone: (202) 623-7430 • Fax: (202) 623-7201

E-mail: [publications@imf.org](mailto:publications@imf.org) Web: <http://www.imf.org>

Price: \$18.00 per printed copy

**International Monetary Fund**  
**Washington, D.C.**



# MOROCCO

## SELECTED ISSUES

December 28, 2016

Approved by  
**Middle East and  
Central Asia  
Department**

Prepared by Lorraine Ocampos, Anta Ndoeye, Sanaa Nadeem,  
Lisa Kolovich, Vincent Dadam, and Gregory Auclair

## CONTENTS

<b>IMPLICATIONS OF GENDER INEQUALITY FOR GROWTH</b>	<b>3</b>
A. Gender Gaps in Morocco	4
B. Quantifying the Impact of Gender Gaps on Growth	7
C. Policy Considerations	10
<b>FIGURES</b>	
1. Gender Inequality Index and GDP per Capita	3
2. Education and Literacy in Morocco	4
3. Female Labor Force Participation Gaps	5
4. Labor Force Participation and Employment Levels by Education and Gender	6
5. Employment Trends by Gender and Sector	6
6. Growth Differential Decomposition	8
7. Demographic Transition in Morocco	10
<b>BOXES</b>	
1. Drivers of Female Labor Force Participation in Morocco	9
2. Gender Budgeting in Morocco	11
<b>ANNEXES</b>	
I. Growth Effects of Gender Inequality	13
<b>REFERENCES</b>	16

**CREDIT GROWTH IN MOROCCO: SUPPLY OR DEMAND DRIVEN? \_\_\_\_\_ 18**

A. Background _____	18
B. Stylized Facts and Potential Credit Constraints _____	18
C. The Role of Supply and Demand in Credit Development: A Structural Model _____	25
D. Projecting a Consistent Level of Credit Growth _____	27
E. Concluding Remarks and Policy Recommendations _____	28

**FIGURES**

1. Historical Developments _____	19
2. Credit and GDP Cycles _____	20
3. Financial Conditions of Listed Corporations _____	21
4. Condition of Banks _____	22
5. Non-performing Loans _____	24
6. Cost of Credit and Access to Finance _____	25
7. Predicted Real Credit Supply and Demand, July 2009–July 2016 _____	27
8. Bayesian Mixed-Frequency Vector Autoregression Impulse Response Functions _____	28

**TABLE**

1. Estimation Method: Generalized Method of Moments _____	26
---	----

**REFERENCES \_\_\_\_\_ 30****MOROCCO: UNIT LABOR COSTS AND EXTERNAL COMPETITIVENESS \_\_\_\_\_ 31**

A. Introduction _____	31
B. Recent Trends in Morocco's REER _____	32
C. Sectoral ULC-based REERs _____	33
D. The REER and Morocco's External Position _____	35
E. Policy Considerations _____	36

**FIGURES**

1. Manufacturing ULCs: Morocco vs. Comparator Countries _____	31
2. Labor Productivity, 1990–2015 _____	31
3. ULC and CPI-based REERs _____	32
4. Unit Labor Costs—Manufacturing Sectors _____	33
5. Relative ULCs—Manufacturing Sectors _____	34
6. Sectoral ULC-based REER Sectoral _____	34
7. Composite ULC-based REER – Manufacturing _____	34

**TABLE**

1. Estimation Results: Morocco's REER and External Position _____	36
---	----

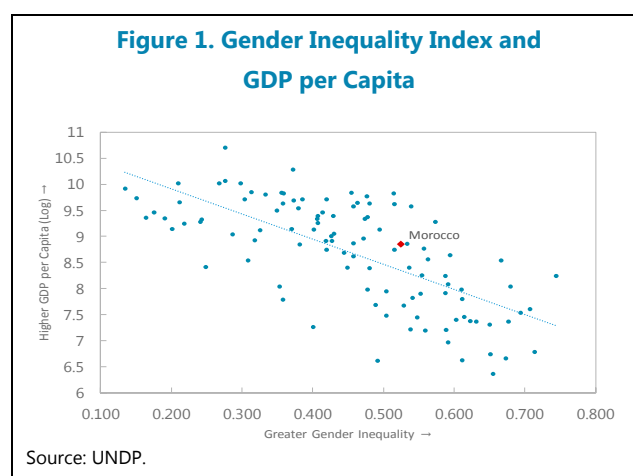
**REFERENCES \_\_\_\_\_ 38**

# MOROCCO: IMPLICATIONS OF GENDER INEQUALITY FOR GROWTH<sup>1</sup>

*This paper quantifies the effect of gender inequality in Morocco on growth, compared to groups of faster growing countries. It also estimates income losses due to low female labor force participation. The results highlight that closing overall gender gaps would help Morocco close its GDP per capita gap with benchmark countries in other regions by up to 1 percentage point. Simulations also show that gradually closing gender gaps in the labor force participation rate could lead to significant income gains over the long term. Policy recommendations to promote gender equality include investing in secondary education for women and in infrastructure, and reforming gender-discriminatory tax policies and laws.*

**1. A number of studies have highlighted the correlation between gender gaps and weaker growth** (WEF 2014; Cuberes and Teignier 2015a; Elborgh-Woytek and others 2013; Gonzales and others 2015b; IMF 2015a). The relationship between gender gaps and growth can work through various channels. Having more women in the labor force increases the pool of talent that employers can hire as well as the number of potential entrepreneurs. This implies a more efficient allocation of resources, and hence higher productivity and growth (Cuberes and Teignier 2015a). Women are more likely to invest a larger share of their household income in the education of their children (Elborgh-Woytek and others 2013). Finally, gender inequality is related to income inequality, which in itself has been shown to be a drag on growth (Ostry and others 2014). An IMF study shows that the Middle East, North African, Afghanistan and Pakistan (MENAP) region could have gained \$1 trillion in cumulative output—equivalent to twice the average real GDP growth during the past decade—if female labor force participation had narrowed the gender gap from triple to double the average for other emerging market and developing countries during the past decade (IMF, 2015b).

**2. This paper assesses the impact of gender inequality on growth in Morocco.** According to the United Nations gender inequality index, Morocco ranked 117th out of 155 countries—below other MENAP countries such as Tunisia (48), Algeria (85) and Jordan (102).<sup>2</sup> This is a cause of concern for



<sup>1</sup> Prepared by Vincent Dadam, Lisa Kolovich, and Anta Ndoeye. Gregory Auclair provided research assistance.

<sup>2</sup> This index measures gender inequality of outcomes (the gap between male and female labor force participation rates and the share of women's seats in parliament) as well as inequality of opportunity (gender gaps in education and indicators of female health, such as the maternal death ratio and adolescent fertility).

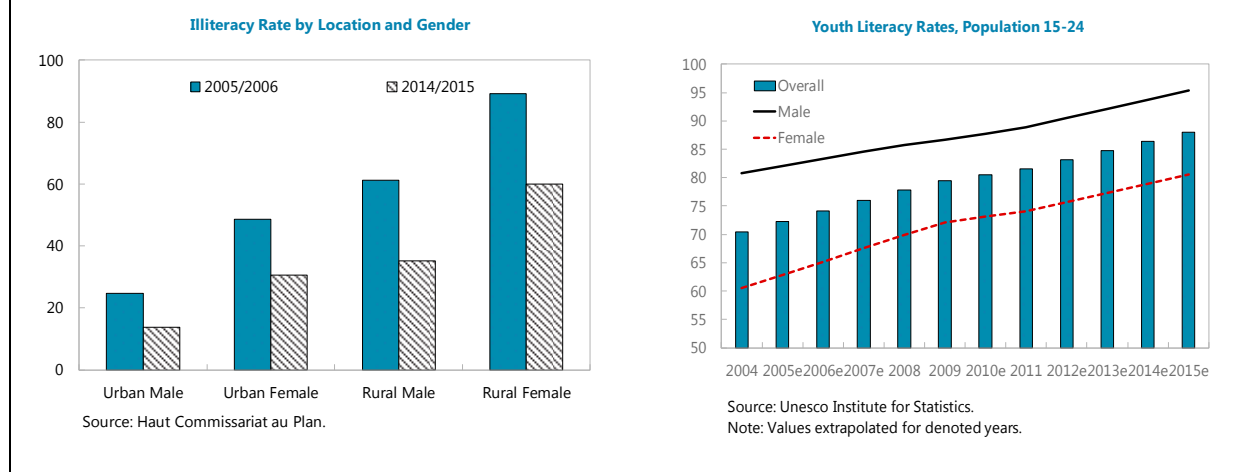
Morocco, since at the global level, countries with high gender inequality are poorer and grow more slowly (Figure 1). The paper will first provide an overview of trends in Morocco's gender gaps over time and compared to peer countries. It will then estimate GDP losses due to gender gaps. Finally, it will discuss policies to reduce gender gaps in Morocco.

## A. Gender Gaps in Morocco

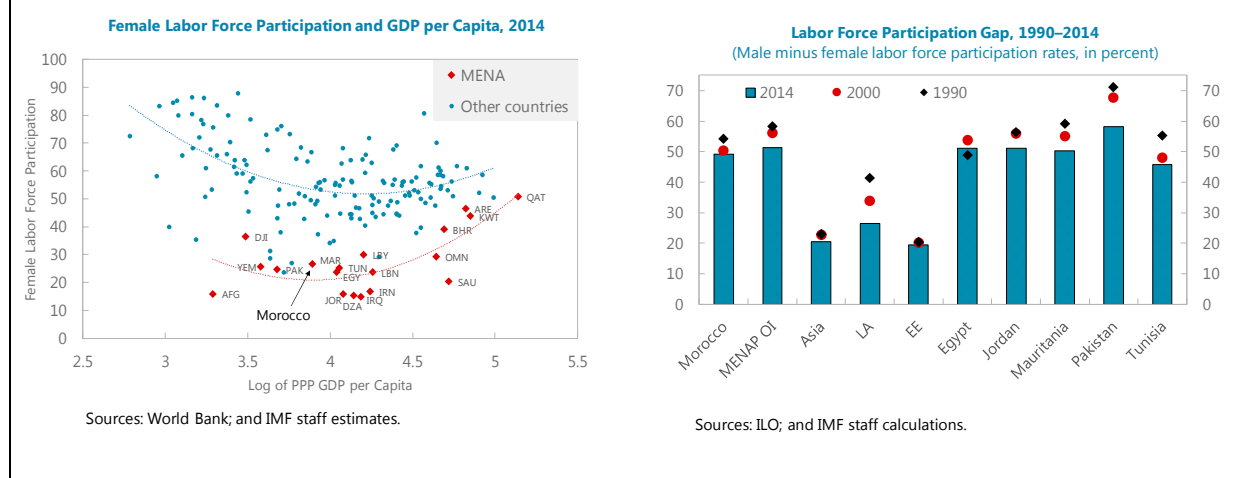
**3. Much progress has been made in closing gender gaps in education enrollment but challenges remain, in particular in rural areas.** The female to male enrollment ratio at the primary school level jumped from around 70 percent in the mid-1990s to 95 percent today, and the gender gap for the secondary and tertiary levels narrowed significantly, up to 85 percent and 90 percent respectively. Nonetheless, Morocco is being outperformed by other comparator regions (Figure 2). Similarly, gaps in the adult literacy rate have also narrowed, but Morocco is also being outperformed by peer countries. Moreover, these improvements have been driven by the urban areas, where gender gaps in primary and secondary education enrollment have narrowed significantly. In contrast, in rural areas, 60 percent of women are illiterate compared to 35 percent for men.

**Figure 2. Education and Literacy in Morocco**

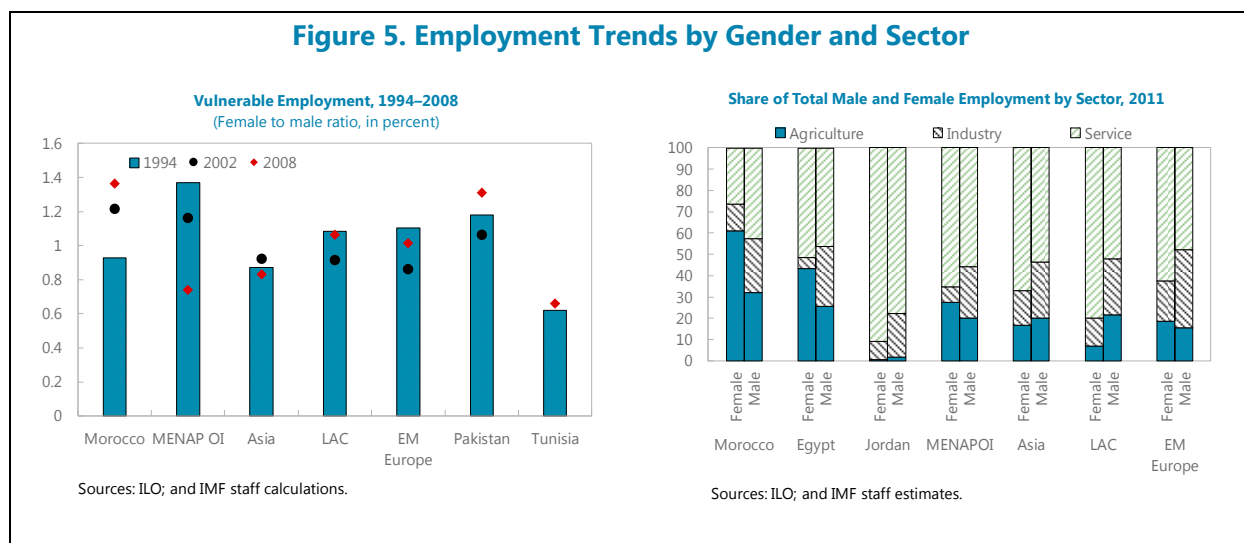
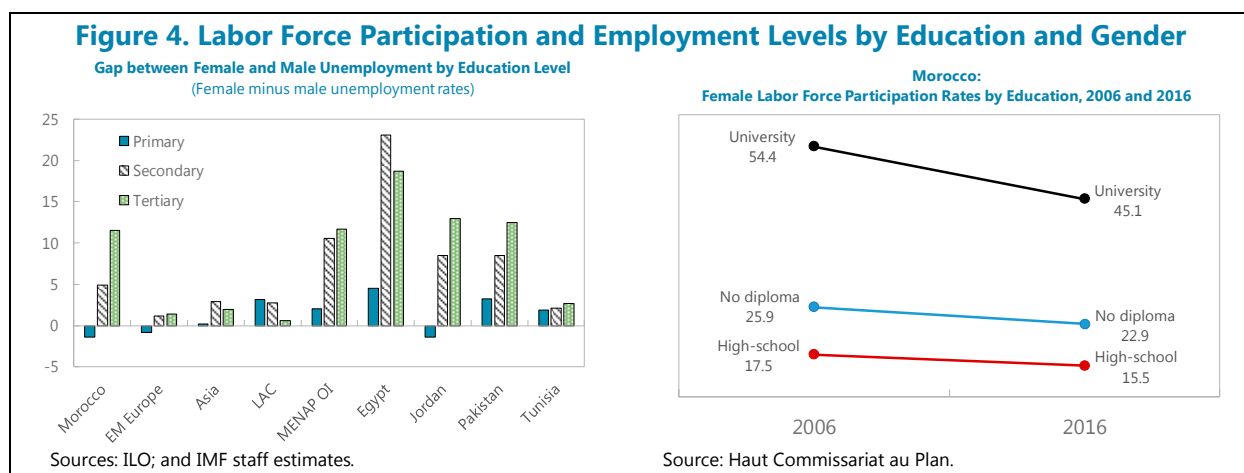


**Figure 2. Education and Literacy in Morocco (concluded)**

**4. Gender gaps in the Moroccan labor market are particularly large.** At 25 percent, the rate of women's participation in the labor force is just at the average for the MENAP oil importers' region and lags behind other countries at a similar income level (Figure 3). In addition, female labor force participation has been declining over the past decade, mainly driven by falling participation for women over 25 years of age (World Bank 2016). There are also disparities between the rural and urban areas in terms of labor force participation, with the gender gap being wider in urban areas (HCP 2015). However, rural women seem to function as a "shock absorber" for the economy as they participate in the labor market in greater numbers when the economy goes well but are the first to be excluded when there is a downturn (Verme and others 2014).

**Figure 3. Female Labor Force Participation Gaps**

**5. There are also some gender disparities in employment rates, in particular for educated and young women.** While the rate of unemployment is only slightly higher for women than for men and similar for youth, educated women have a much higher unemployment rate than their educated male counterparts (Figure 4). Labor market mismatches and regulations are known to be impediments to employment in Morocco and their impact is more acute on women. Indeed, Angel-Urdinola and others (2016) show that high minimum wages and payroll taxes are associated with higher unemployment rates and lower formality rates in Morocco, especially among youth and women in Morocco. Low levels of education also limit the chances of these women to actively participate in the economy and forces them to work in low quality jobs (Figure 5).



## B. Quantifying the Impact of Gender Gaps on Growth

**6. Two different empirical approaches are used in this paper to assess the impact of gender gaps on the Moroccan economy.** First, we decompose the differences in average real GDP per capita growth rates in Morocco and benchmark groups that can be explained by gender gaps between Morocco and these groups. Second, we use a general equilibrium occupational choice model to quantify potential GDP losses due to misallocations of women in the labor force.

### Implications of gender inequality for growth

**7. A growth regression helps quantify the effect of gender inequality in Morocco, compared to groups of faster growing countries.** We estimate the impact of gender inequality on growth while controlling for the impact of variables such as initial income, investment, education, infrastructure, terms of trade, and institutional quality on growth following the approach taken in Hakura and others (2016, Annex 1). The sample consists of 103 countries from regions including MENA, LAC, SSA, and Asia, as well as selected advanced economies over the period 1990 to 2014. We estimate the following equation:

$$y_i = \beta_1 + \beta_{2,i}X_i + \varepsilon_t$$

in which  $y_i$  is GDP per capita,  $X_i$  captures explanatory variables aforementioned and  $\varepsilon_t$  is the error term. A robust two step GMM methodology allows us to control for endogeneity issues.

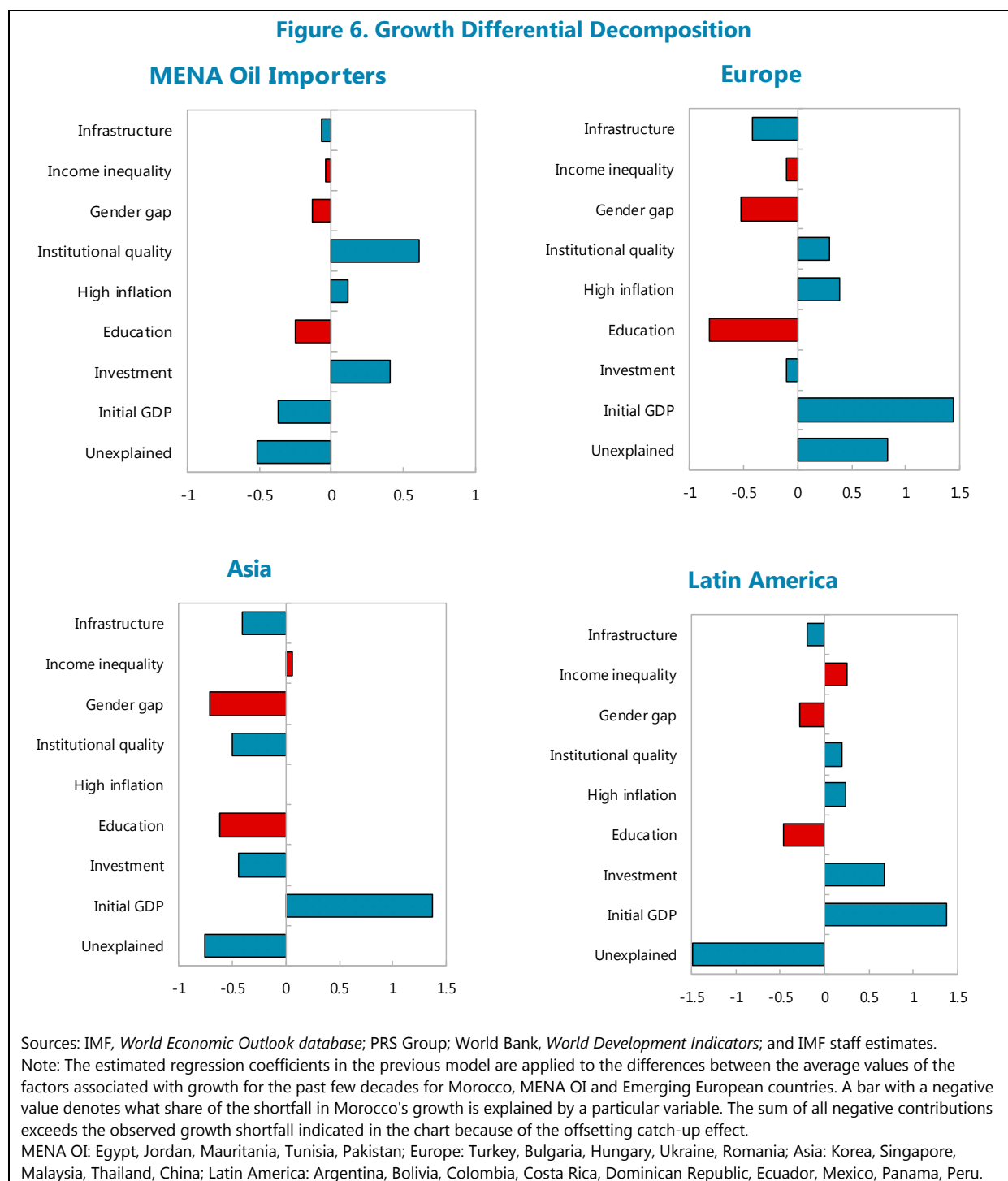
**8. Consistent with previous studies, the results show that gender inequality has a negative impact on growth and this impact is more striking for countries in their early stages of development.** Gender inequality is negatively related to growth for all countries (Annex 1). However, when the model includes gender and income inequalities, gender inequality appears to negatively impact growth for lower income countries only, including Morocco. One plausible explanation is that gender inequality in the early ages of development is high but this effect tends to decrease as the economy grows. In other words, different countries might exhibit different levels of gender inequality because they are at different stages of development (e.g., reverse causality).

**9. We find that Morocco's real GDP per capita growth could significantly benefit from lowering gender inequality.** In a second step, we decompose the differences in average real GDP per capita growth rates in Morocco and four benchmark groups.<sup>3</sup> The results of this approach reveal that in addition to large effects on growth from educational gaps, gender inequality can explain Morocco's real GDP per capita shortfall compared to benchmark groups. Reducing gender inequality and improving education to the levels of the Asian, Emerging Europe and Latin American

<sup>3</sup> MENAP oil importers (Egypt, Jordan, Mauritania, Tunisia, and Pakistan), Asian countries (Korea, Singapore, Malaysia, Thailand, and China), Latin American countries (Argentina, Bolivia, Colombia, Costa Rica, Dominican Republic, Ecuador, Mexico, Panama, and Peru), and European countries (Turkey, Bulgaria, Hungary, Ukraine, and Romania).



benchmark countries could boost real GDP per capita growth rates relative to these countries by 1 percent, 1.5 percent and 0.75 percent respectively (Figure 6).



## Female labor force participation and growth

**10. An occupational choice model is used to quantify the current income losses due to misallocations of women in the labor force.** In particular, we use the general equilibrium occupational choice model by Cuberes, Newiak and Teigner (2016) in which agents are endowed with a random entrepreneurship skill that determines their optimal occupation.<sup>4</sup> Agents choose to work as either employers, self-employed, or employees. However, female labor market frictions prevent an optimal choice of women between these activities.<sup>5</sup> In particular, only a fraction  $\mu$  of women can choose their occupation freely, while a  $1 - \mu$  cannot become an employer. Out of those excluded from being an employer, only a fraction  $\mu_0$  can choose to be self-employed. Finally, only a fraction  $\lambda$  can join the labor market in general, while a share of  $1 - \lambda$  of women is excluded from all occupations. These frictions may reflect discrimination, differences in optimal choices of women, or other demand and supply factors (see Box 1). The parameters  $\mu$ ,  $\mu_0$  and  $\lambda$  are chosen to match the ratios of female to male employers, female to male own-account workers and women to men in the labor force.

### Box 1. Drivers of Female Labor Force Participation in Morocco

There are important regionally specific factors such as history, religion, and culture, as well as social norms that explain the low level of female labor force participation in the MENA region (World Bank 2012). In the case of Morocco, several papers (Verme and others 2014, World Bank 2015) have argued that the slow pace of growth—coupled with factors such as marriage, education, household composition, perceptions of the role of the women in the household, and society's values regarding gender issues—tend to influence labor force participation. Verme and others (2014) highlight that the slow pace of structural transformation has not allowed sufficient creation of manufacturing jobs where women with a secondary school education could be employed. Marriage and household composition also influence the probability of participation. Educated women are likely to marry educated men who have done better than women in the labor market and may be able to support their families on their own. The probability of participation decreases with the number of children below six in urban areas.

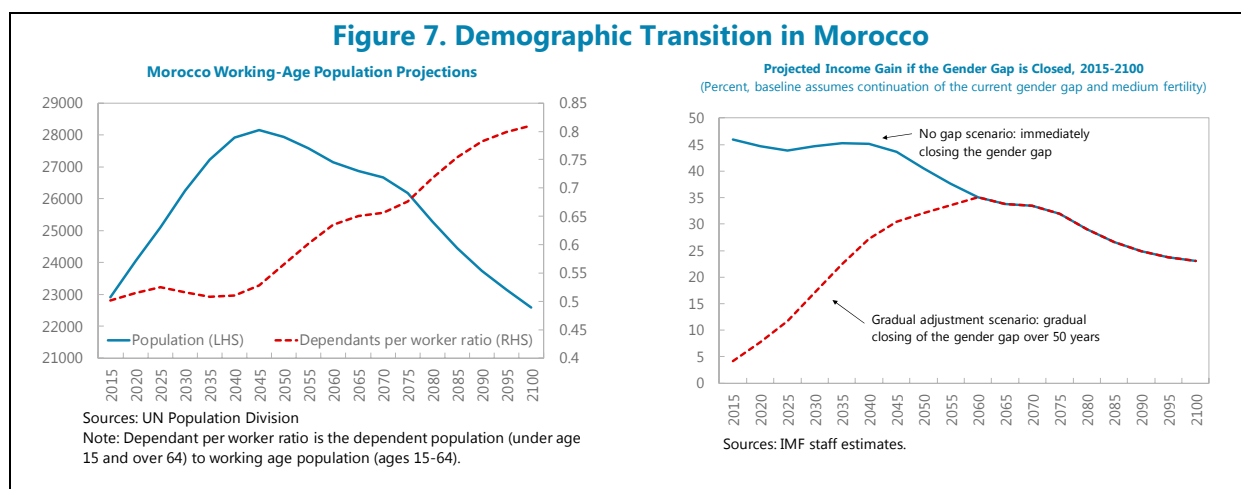
**11. The results show that Morocco is currently losing out on a significant share of income due to gender gaps in the labor market.** The costs associated with gender gaps in labor force participation and entrepreneurship are currently as high as 46 percent of income per capita compared to a situation where women have the same level of labor force and entrepreneurship participation as men.

**12. Reducing gender gaps would also help offset the impact of the demographic transition on growth (Figure 7).** Morocco is in the midst of a demographic transition, leading to an increase in the working age population. However, population growth is slowing, and the United Nations population division projects a rise in the dependency ratio by 2040.

<sup>4</sup> The model is based on the span-of-control framework in Lucas (1978), with the extension of self-employment as a possible occupational choice and uses ILO data on occupation by gender.

<sup>5</sup> This omits the possibility of women producing some type of good in the household sector or in the informal economy.

Simulating the implication of an increase in the dependency ratio for men and women suggests that policies to eliminate gender gaps could offset those negative effects. This in turn may lead to overall income gains of about 27 percent in 2040 if gender gaps are closed in 50 years (Figure 7).<sup>6</sup>



## C. Policy Considerations

### 13. Morocco has implemented several policies to reduce gender inequality:

- *Legal framework.* There are several laws in Morocco that promote gender equality, including the (revised) Labor Code (2004),<sup>7</sup> the 2011 Constitution, which provides for equality for Moroccan citizens, and the family code, which was revised in 2004 with a view to expanding the rights of women in areas such as guardianship, marriage, child custody, and access to divorce.
- *Gender budgeting.* Morocco is notable for having the first and most developed gender budgeting initiative in the Middle East and Central Asia region. Box 1 gives an overview of Morocco's achievements in this area.
- *Maternity leave and protection.* Morocco increased maternity leave in 2004. It now offers 14 weeks of maternity leave, at 100 percent of a woman's wages, payable from a national social security fund, thereby meeting the ILO standards on duration of maternity leave.

<sup>6</sup> These gains in GDP decrease the longer it takes to eliminate gender gaps. For instance, the results show that GDP gains would be 13.6 percent if gender gaps were to be eliminated in 100 years, and 9.2 percent were they to be eliminated in 150 years.

<sup>7</sup> In 2004, a new labor law went into effect in Morocco, offering greater protection for women in the labor market (such as restrictions on women's working hours and types of jobs, mandatory leave and rest days, and time allowances for breast-feeding and childcare requirements).

### Box 2. Gender Budgeting in Morocco

Fiscal policies can play an important role in promoting gender equality and women's development. Gender budgeting allows fiscal authorities, at any level of government, to assess the needs of men and women; identify key outcomes or goals; plan, allocate, and distribute public funds; and monitor and evaluate achievements. More than 80 countries have introduced gender budgeting initiatives. While the focus for most countries tends to be on using spending policies to address gender inequality, some countries have introduced changes to tax policies. Gender budgeting may emphasize administrative changes to expenditure tracking and monitoring systems.

Morocco is notable for being a precursor in introducing gender budgeting initiative in the Middle East and Central Asia region. Beginning in 2002, Morocco's early efforts in gender budgeting focused on meeting the Millennium Development Goals, increasing women's public employment, and collecting gender-disaggregated data. One of the cornerstones of Morocco's effort is its annual Gender Report, published by the Ministry of Economy and Finance. The report now covers more than 30 departments and ministries and highlights key gender equality goals and recent accomplishments; in addition, some ministries report sectoral- and gender-disaggregated data.

Morocco has also taken steps to enshrine gender budgeting in its legal framework. The Council of Government approved in 2014 an organic finance law with two key components designed to strengthen the initiative. First, the law requires that gender equality be considered when defining performance objectives, results, and indicators in all line budgets. Second, the law dictates that the Gender Report be included as part of each year's Finance Bill (UN Women 2014a). The latest Government Plan for Equality calls for strengthening this law by increasing transparency, improving fiscal performance, and generalizing evaluation, audit, and accountability procedures (Ministry of Economy and Finance of Morocco 2013).

Stotsky (2016) summarizes key components found in the most successful gender budgeting efforts and, typically, these efforts are led by the ministries of finance and have support from parliaments and/or NGOs. In addition, successful gender budgeting initiatives often tie their gender equality targets to the Millennium Development Goals or a national development strategy and establish a legal basis for gender budgeting. Morocco's effort includes all of these components. There is however scope to increase the role of parliament or civil society organizations in Morocco's gender budgeting work.

#### 14. While these measures are welcome and should be continued, some could be expanded or complemented by additional policies, such as:

- *Legal restrictions.* Providing for equality in inheritance rights can create opportunities for women to own housing or land (World Bank, 2015) and lead to smaller gender gaps in labor force participation (Gonzales et al, 2015a). There are several areas where legal inequalities remain. Married women are not permitted to be the head of the household. There is also inequality between sons and daughters and between female and male surviving spouses in their rights to inherit assets.
- *Paternity leave.* Increasing paternity leave, which is currently one of the lowest in the world (3 days) could contribute to gender equality at work and intra-household equality.

- *Infrastructure.* Safe public transportation and improved road accessibility would decrease women's travel time and therefore reduce the costs related to work and going to school outside the home (World Bank, 2016). Investing in public childcare facilities could free women's time to go to school and join the labor market, since women are in most cases the main providers of household work in Morocco.
- *Gender budgeting.* Morocco could enhance the oversight, audit, and monitoring of its gender budgeting efforts, as there is currently no comprehensive system in place for monitoring or evaluation.
- *Remove gender discriminatory tax practices.* There are several areas where Morocco has discriminatory tax policies (World Bank, 2015). Morocco is one of 17 out of 189 countries that has tax deductions or credits that are specific to men: a male taxpayer is able to claim a dependent deduction for both his spouse and children, but unless a female taxpayer is able to prove that she is a legal guardian, she may not claim the same deduction.
- *Education and employment.* The national employment strategy has several recommendations to promote equity in education, as well as to raise female labor force participation, which needs to be followed by specific measures. In particular, it recommends: (1) using the current conditional transfers for education (Tayssir) to promote better access to secondary education for girls; (2) literacy programs for women in rural areas and vocational training programs for all women; (3) creating more local jobs, especially in activities which require more women; and (4) supporting female entrepreneurship.

## Annex I. Growth Effects of Gender Inequality

### Methodology

#### 1. The equation set to be estimated is given by:

$$y_i = \beta_1 + \beta_{2,i}X_i + \varepsilon$$

in which  $y_i$  is GDP per capita growth, and  $X_i$  captures explanatory variables including gender and income inequality measures, the log of initial GDP, investment, education, infrastructure, terms of trade, institutional quality, and a dummy variable set to capture periods of high inflation. A problem that often occurs when dealing with growth models is the endogeneity issue. IV techniques, to address endogeneity, suggest the use of instruments that are uncorrelated with the error term but partially and sufficiently linked with the corresponding explanatory variable. The main issue rising with this method is the difficulty of finding proper instruments. The GMM method—which is the method adopted in this study—is useful for its simplicity in dealing with endogeneity issues.

### Data

**2. The selected factors influencing GDP per capita growth are given by:** the initial income per capita measured by the log of GDP per capita, investment captured by the fixed capital formation as a percentage of GDP, education measured by the total average years of schooling, a dummy capturing periods of average inflation of 15 percent and above, an index capturing institutional quality (typically this index captures the quality of politics in the country; essentially a higher coefficient means better institutional quality), and an infrastructure index compiled using the first principle component analysis with variables including mobile phones and internet per 100 people, access to electricity and water, and total air transportation of passengers per year. This equation is augmented with various measures of inequalities for robustness checking purposes. Income inequality is captured by three measures including the ratio of income held by the richest 20 percent of the population relative to the poorest 40 percent, and the net Gini coefficient. Gender inequality on the other hand is mainly captured by the UN's gender inequality index (GII). This index is a combination of various gender gaps in terms of opportunities and outcomes.

**3. The sample consists of 103 countries from regions including MENA, LAC, SSA, and Asia as well as selected advanced economies over the period 1990 to 2014.** All the variables are averaged over a five-year period except for the net Gini coefficient for which the first value of the five years is taken into account; that of the previous year when data is missing. The estimation technique used is a robust two step system GMM method.

**Estimation Results**

<b>Table 1. Baseline Model</b>			
	(1)	(2)	(3)
Initial income per capita (log)	-	-1.606***	-1.801***
Infrastructure index	1.595***	0.435**	0.103***
Institutional quality	0.555**	0.137***	0.279*
<b><u>Measures of inequality</u></b>	0.129**		
Share top 20 to bottom 40 ratio	0.0001		
Share top 20 to bottom 40 ratio x LICs	-		
Initial income inequality (net GII)	0.235***	-0.002	
Initial income inequality (Net Gini) xLICs		-0.033**	
Gender inequality			-0.036**
Gender inequality xLICs			-0.028***
Constant	1.902	2.728	9.755***
Number of instruments	9	8	8
Arellano-Bond AR(1) (p value)	0.006	0.003	0.001
Arellano-Bond AR(2) (p value)	0.027	0.025	0.085
Sargan (p value)	0.249	0.700	0.278
Hansen (p value)	0.520	0.691	0.387
Observations	380	450	369
Number of countries	97	97	97

(\*\*\*)  $p > 0.001$ , (\*\*)  $p > 0.05$ , (\*)  $p > 0.1$

**4. The results robustly reveal that, in line with prior expectations, inequalities have a negative impact on growth.** This is especially important for countries in their early stages of development.

**5. Income inequality is confirmed to significantly and robustly impede growth for low income countries for the Gini coefficient and the ratio of income share held by the top 20 percent richest segment of the population relative to the bottom 40 percent.** For the latter, in model specification (4) which accounts for both gender and income inequality, the impact remains negative and this is so regardless of whether the focus is shifted to the entire sample.

**6. Furthermore, gender inequality is also negatively related to growth as reported by model specification (3) for the whole sample.** However, in model specification (4), gender inequality appears to significantly and negatively impact growth for low-income countries alone. This result in model specification (4) further consolidates the theoretical idea that gender inequality in the early ages of development is high but decreases as the economy grows.

Table 2. Estimation Results

	(1)	(2)	(3)	(4)
<b><u>Measures of inequality</u></b>				
Share top 20 to bottom 40 ratio	-0.040			-0.116**
Share top 20 to bottom 40 ratio x LICs	-0.129*			
Initial income inequality (net GII)		0.006		
Initial income inequality (net Gini)		-0.022**		
xLICs				
Gender inequality			-0.039**	-0.003
Gender inequality xLICs			0.0005	-0.019**
Female legal equity xLICs				-0.031
<b><u>Other control variables</u></b>				
Initial income per capita (log)	-1.267***	-1.438***	-1.913***	-1.421***
Fixed capital investment (% GDP)	0.131***	0.108***	0.084**	0.103***
Schooling (years)	0.021**	0.005	0.024**	0.018**
Infrastructure index	0.177	0.590**	0.252	0.262**
High inflation	1.277	0.064	5.496	-0.738**
Institutional quality	0.130***	0.089**	0.178**	0.063**
Constant	-2.018	0.207	1.321	5.115**
Number of instruments	18	18	21	21
Arellano-Bond AR (1) (p value)	0.017	0.003	0.080	0.003
Arellano-Bond AR (2) (p value)	0.460	0.105	0.349	0.220
Sargan (p value)	0.106	0.165	0.284	0.118
Hansen (p value)	0.566	0.410	0.296	0.491
Observations	380	450	369	234
Number of countries	97	97	97	70
(***) p>0.001, (**) p>0.05, (*) p>0.1				



## References

Cuberes, D., and M. Teigner, 2015a, "Aggregate Effects of Gender Gaps in the Labor Market: A Quantitative Estimate." UB Economics Working Paper 2015/308 (Barcelona).

———, 2015b, "How Costly Are Labor Gender Gaps? Estimates for the Balkans and Turkey." Policy Research Working Paper No. WPS 7319 (Washington, D.C.: World Bank Group).

Das, S., and others, 2015, "Women Workers in India: Why So Few Among So Many?" IMF Working Paper WP/15/55 (Washington: International Monetary Fund).

Elborgh-Woytek, and others, 2013, "Women, Work, and the Economy: Macroeconomic Gains from Gender Equity," IMF Staff Discussion Note, SDN/13/10 (Washington: International Monetary Fund).

International Monetary Fund, 2013, *Regional Economic Outlook. Middle East and Central Asia*, (Washington).

Gonzales, C., and others, 2015a, "Fair Play: More Equal Laws Boost Female Labor Force Participation," Staff Discussion Note, SDN/15/02 (Washington: International Monetary Fund).

———, and others, 2015b, "Catalyst for Change: Empowering Women and Tackling Income Inequality," Staff Discussion Note, SDN/15/20 (Washington: International Monetary Fund).

Hakura, D., and others, 2016, "Inequality, Gender Gaps and Economic Growth: Comparative Evidence for Sub-Saharan African" IMF Working Paper WP/16/111 (Washington: International Monetary Fund).

McKinsey Global Institute, 2015, "The Power of Parity: How Advancing Women's Equality Can Add \$12 Trillion to Global Growth" (September).

Verme, P., A.G. Barry, and J. Guennouni, 2014, "Female Labor Participation in the Arab World: Some Evidence from Panel Data in Morocco," Policy Research Working Paper Series 7031 (Washington: World Bank).

World Bank Group, 2012, "Morocco: Promoting Youth Opportunities and Participation in Morocco" (Washington).

———, 2015, "Women, Business and the Law 2016: Getting to Equal" (Washington).

———, 2016. Morocco: Mind the Gap. Empowering Women for a More Open, Inclusive and Prosperous Society (Washington). <https://openknowledge.worldbank.org/handle/10986/22274>.

World Economic Forum (WEF), 2014, "The Global Gender Gap Report 2014" (Basel).

Ministry of Economy and Finance of Morocco, 2013, "Governmental Plan for Gender Equality (2012–2016).", retrieved from <http://www.slideshare.net/Gobernabilidad/2-presentationmarocco-eng>.

Stotsky, Janet. 2016, "Gender Budgeting: Fiscal Context and Current Outcomes," Working Paper 16/149 (Washington: International Monetary Fund).

UN Women, 2014a, "Budgets Respond to the Needs of Women in Morocco." <http://www.unwomen.org/en/news/stories/2014/3/budgets-respond-to-the-needs-ofwomen-in-morocco>.

———, 2014b. "GRB Regional Centers of Excellence: Knowledge Hubs on Gender Responsive Planning and Budgeting."

# CREDIT GROWTH IN MOROCCO: SUPPLY OR DEMAND DRIVEN?<sup>1</sup>

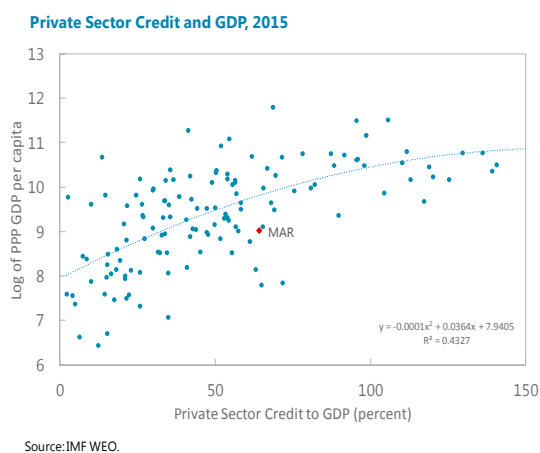
## A. Background

**1. Credit growth in Morocco has been sluggish in recent years.** After the end of the 2006–08 credit boom cycle, when credit grew at 20 percent (y-o-y), credit growth normalized at around 15 percent, before decreasing further in recent years to levels close to 2 percent (y-o-y), much below the pre-credit boom trend of 9 percent. This raises questions about the credit growth drivers—particularly since 2013, including whether credit is merely aligning with economic cycles or whether specific factors regarding credit demand and supply are also at play.

**2. This paper assesses credit growth developments and their drivers.** The first section presents stylized facts on bank lending and discusses factors from the supply and demand side that may constrain credit growth. The second section presents the results from a structural model of demand and supply for credit in Morocco. The third section projects medium term credit growth levels in Morocco consistent with its expected fundamentals, based on cross-country information. The final section concludes with policy considerations.

## B. Stylized Facts and Potential Credit Constraints

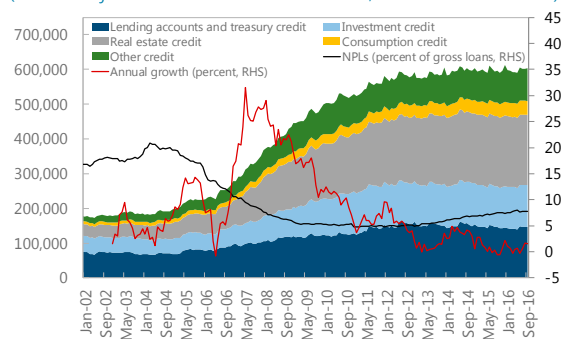
**3. Morocco's level of financial development is close to the emerging market average.** In general, higher credit-to-GDP ratios are correlated with higher per capita GDP, but past a certain threshold, higher credit levels in the economy also increase the negative impact of financial spillovers, crises, and contagion to growth. Morocco's Financial Development index is at the emerging market average but there is room for increasing access and developing both institutions and markets (Sahay and others, 2015). With a private sector credit to GDP of 63 percent, Morocco is well ahead of the average for its lower middle-income peers (45 percent of GDP), particularly Egypt (26.5 percent of GDP) and the Philippines (42 percent of GDP), but below its upper middle-income peers (113.5 percent), including Turkey and Panama (80 percent of GDP) and Malaysia (125 percent of GDP).



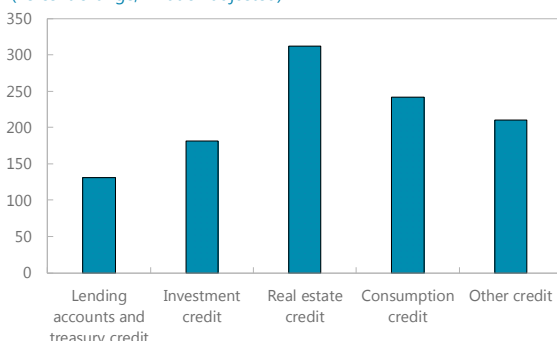
<sup>1</sup> Prepared by Lorraine Ocampos and Gregory Auclair.

**Figure 1. Historical Developments****Real Credit Growth in Morocco by Economic Object**

(Inflation adjusted MDH in constant 2005 terms, unless otherwise noted)

**Real Credit Growth in Morocco, end-2004 to end-2012**

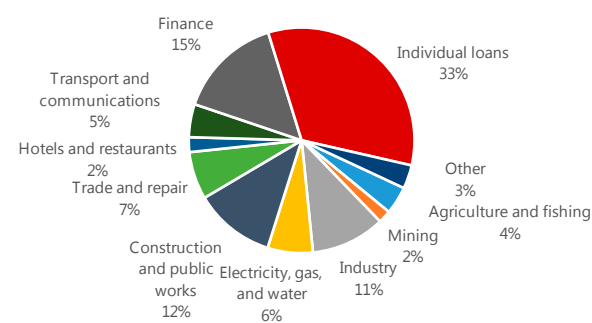
(Percent change, inflation adjusted)



**4. Like many other countries, Morocco went through a credit boom in the second half of the 2000s** (Figure 1). The increase in credit to the real estate sector jumped from 11 percent of total credit to the private sector to 24 percent between 2003 and 2008. At the same time, credit to the financial sector increased from 13 to 20 percent, while the share of credit going to sectors such as agriculture, manufacturing, and services remained constant.

**5. The distribution of credit in the economy is well diversified:**

- **By type of borrowers:** Currently, 55 percent of outstanding credit is allocated to private enterprises, 38 percent to households and 7 percent to the public sector. Even though bank credit to the nonfinancial public sector is just 5 percent of total credit (or 4 percent of GDP), total financing to public enterprises amounts to 23 percent of GDP. Most of it is supplied by foreign financing and, to a lesser extent, through capital markets, to which a few large public enterprises such as the large phosphate company, have access (BAM 2015).

**Credit by Sector, Mid-2016**

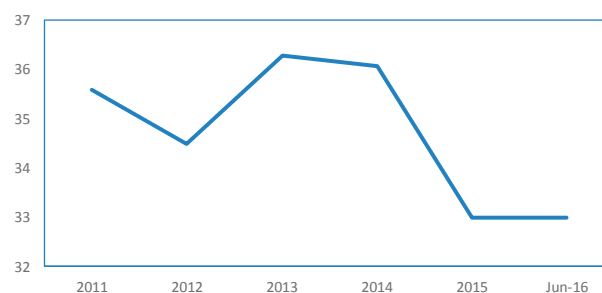
- **By sectors:** Morocco has an acceptable sectoral concentration index of 0.13 (BAM 2015), with credit distributed to households (33 percent) including mortgages, the productive sectors (35 percent), particularly manufacturing, and the financial sector (15 percent).

**6. Credit concentration is high but declining, and it does not seem to affect smaller enterprises.** Large exposures to single parties or groups of counterparties were equivalent to 302 percent of the banking system's Tier 1 capital in June 2016 (against 376 percent in 2009) as total credit to the top three largest corporates declined to 6.2 percent of total banking credit from 8.6 percent a year ago. At the same time, this does not seem to be at the detriment of other

Moroccan enterprises: the latest World Bank's Enterprise Survey shows that in 2013, 52 percent of Moroccan firms had a line of credit (against 33 percent in 2007), and that large enterprises have better access (72 percent) than SMEs (50 percent), ratios that are higher than the world and Middle East averages of 35 and 26 percent, respectively.

**7. However, the share of credit to SMEs has been declining since 2013.** It represented 33 percent of total non-financial sector loans in June 2016 from 36 percent three years ago.

**Credit to SMEs to Total Non-financial Credit**  
(In percent)



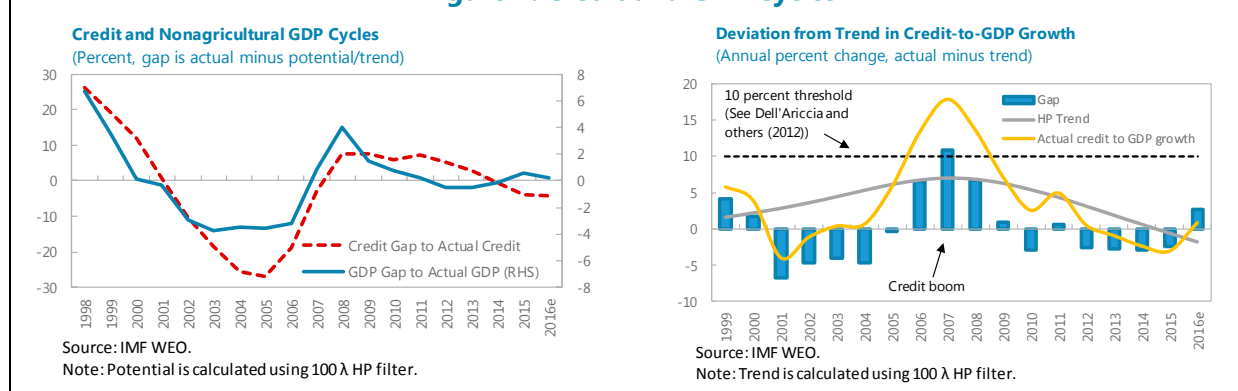
Source: Bank Al-Maghrib.

## Identifying possible constraints to credit

### *Factors affecting the demand side*

**8. Credit and business cycles are aligned, but fluctuations in credit have been much larger than those of GDP** (Figure 2). Before the credit boom, actual credit was much lower than GDP growth, while it converged during the boom period, surpassing the GDP cycle well after the boom. The deviation from the credit-to-GDP growth trend was very large during the credit boom, particularly at the peak in 2007, when growth of credit to GDP surpassed the 10 percent threshold identified in Dell'Ariccia and others (2012). During the post-boom period, and particularly since 2012, credit slowed with actual credit-to-GDP growth below the more recent trend of a negative credit gap.

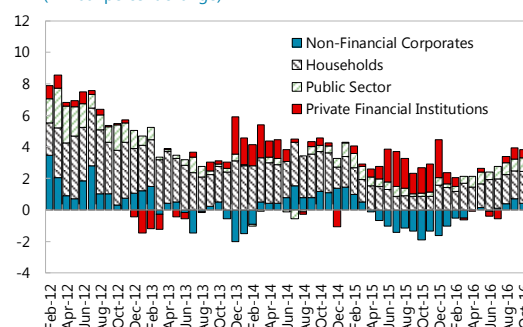
**Figure 2. Credit and GDP Cycles**



## 9. Corporate sector deleveraging, particularly in the real estate sector and SMEs, has been ongoing since 2013:

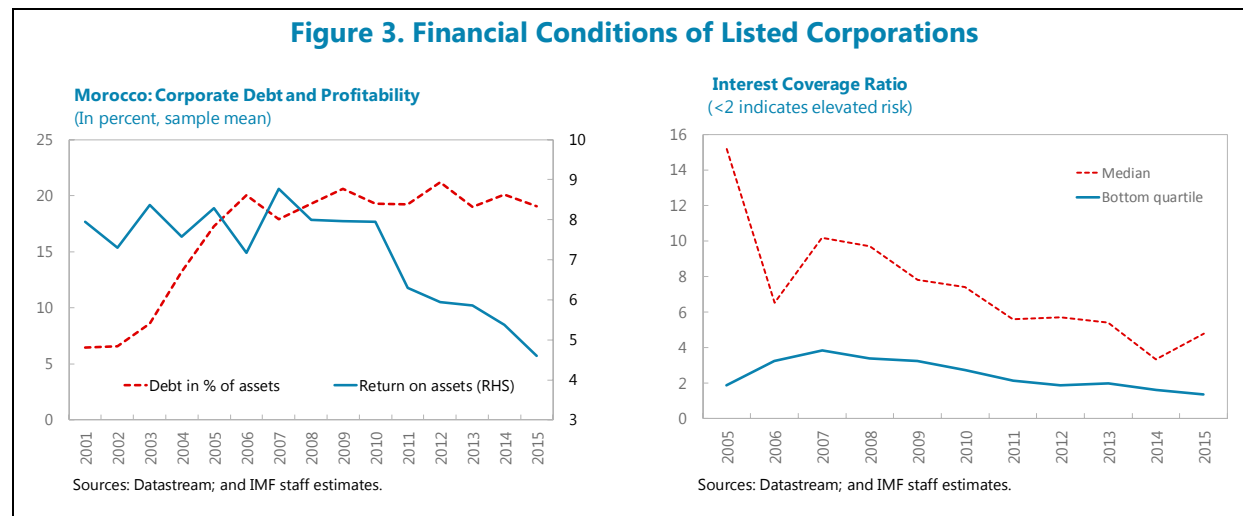
- Private corporate liabilities to domestic banks are declining and driving low credit growth.** These liabilities rose markedly from 25 percent of GDP to 51 percent of GDP between 2004 and 2011. By the end of 2010, nonfinancial private corporations were absorbing the largest share of credit (almost 50 percent). Corporate bank credit declined since then and is currently at 42 percent of GDP absorbing 44 percent of total private credit.
- Credit to the financial sector has been stable** at about 10 percent of GDP, supporting credit growth in recent years.
- Real estate credit dropped sharply**, including as a result of debt restructuring for some large enterprises experiencing difficulties in the sector. Between 2012 and September 2016, mortgage lending increased only by 16 percent in nominal terms while lending to developers decreased by 5 percent.
- SME indebtedness has also declined.** The BAM survey of 1,600 enterprises indicate that, between 2010 and 2014, the debt ratio of large enterprises increased from 38 to 41 percent, while those of SMEs decreased from 20 to 13 percent.
- In parts of the corporate sector, financial health indicators have deteriorated (Figure 3).** This is the case in a sample of firms listed on the stock market, many of which from the real estate sector, and for which indicators point to higher indebtedness and lower profitability.

Contribution to Credit Growth  
(Annual percent change)



Sources: Bank Al-Maghrib; and IMF staff estimates.

Figure 3. Financial Conditions of Listed Corporations

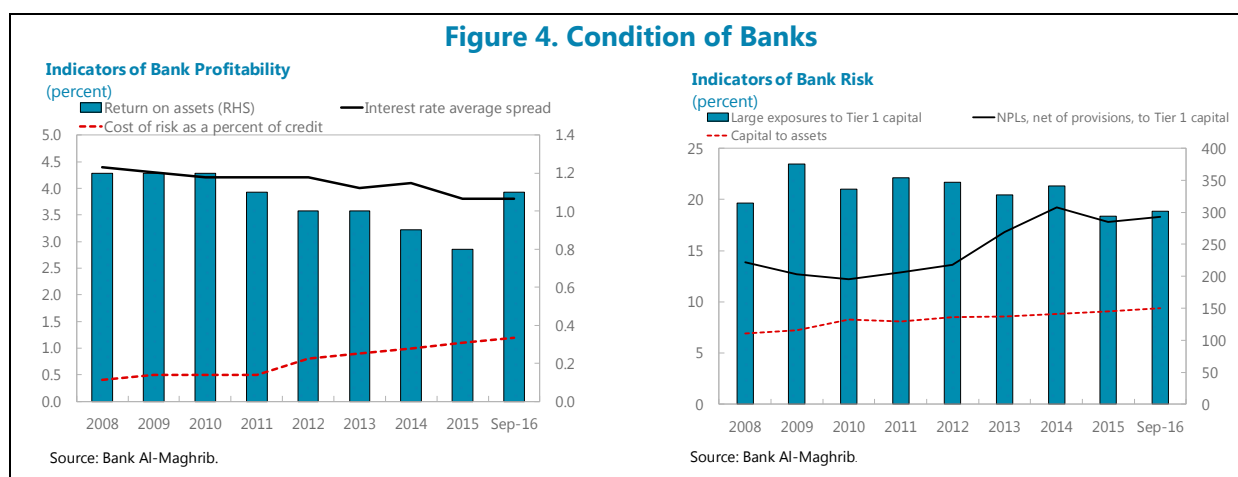


**10. Household credit (mortgage and consumption loans) has become the main driver of credit growth and is larger than in peer countries.** At 31 percent of GDP, Morocco's household debt is higher than in emerging market economies such as Indonesia, Mexico, and Turkey (below 20 percent). Mortgage and consumer loans have increased from 11 percent and 2 percent of GDP to 18 percent and 5 percent of GDP, respectively, between 2006 and 2016.

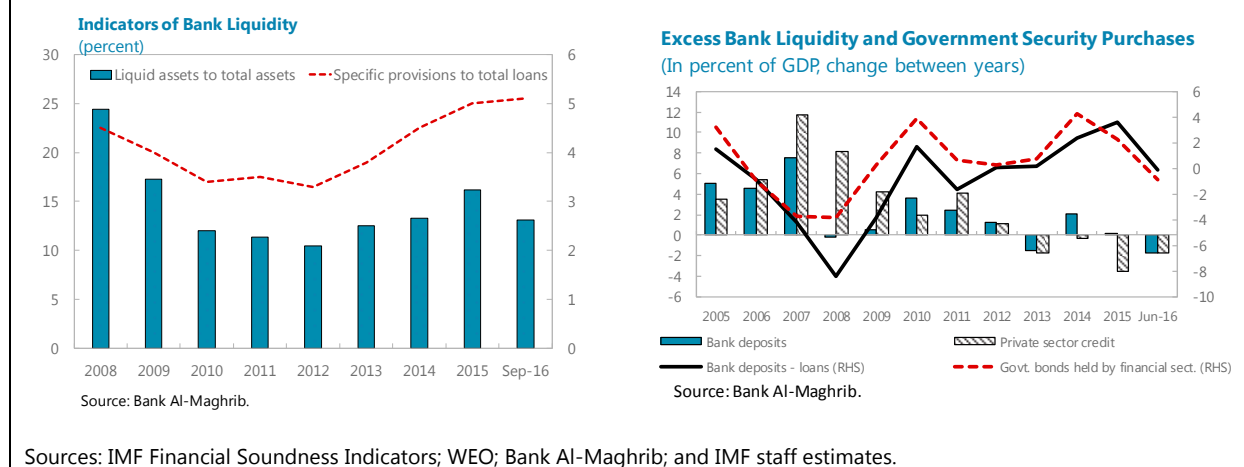
**11. However, there is no sign of significant financial stress in the household sector at this point.** Household debt is estimated to be about 50 percent of household income.<sup>2</sup> This is moderately higher than some European countries (such as Hungary, Latvia, Lithuania, and Slovenia), but lower than other emerging countries such as Malaysia, South Africa, and Thailand. Household debt is denominated in local currency, and house prices have been slightly decreasing since 2013, suggesting the absence of a real estate bubble. Moreover, household NPLs have been decreasing since 2014, averaging around 6.3 percent in mid-2016 (much lower than corporate NPLs).

### *Factors affecting the supply side*

**12. Increasing NPLs and provisioning requirements have affected banks' profitability despite adequate capital buffers (Figure 4).** With increasing NPLs, higher provisions, increasing cost of risk, subdued credit growth, and declining net interest margins, bank profitability declined up until 2015 to levels considered below the global average (Moody's 2016). However, a recovery in credit growth and profitability has been observed in 2016.



<sup>2</sup> According to BAM (2015), household indebtedness continues to increase. By 2015, 25 percent of a sample of households had a debt to income ratio higher than 40 percent.

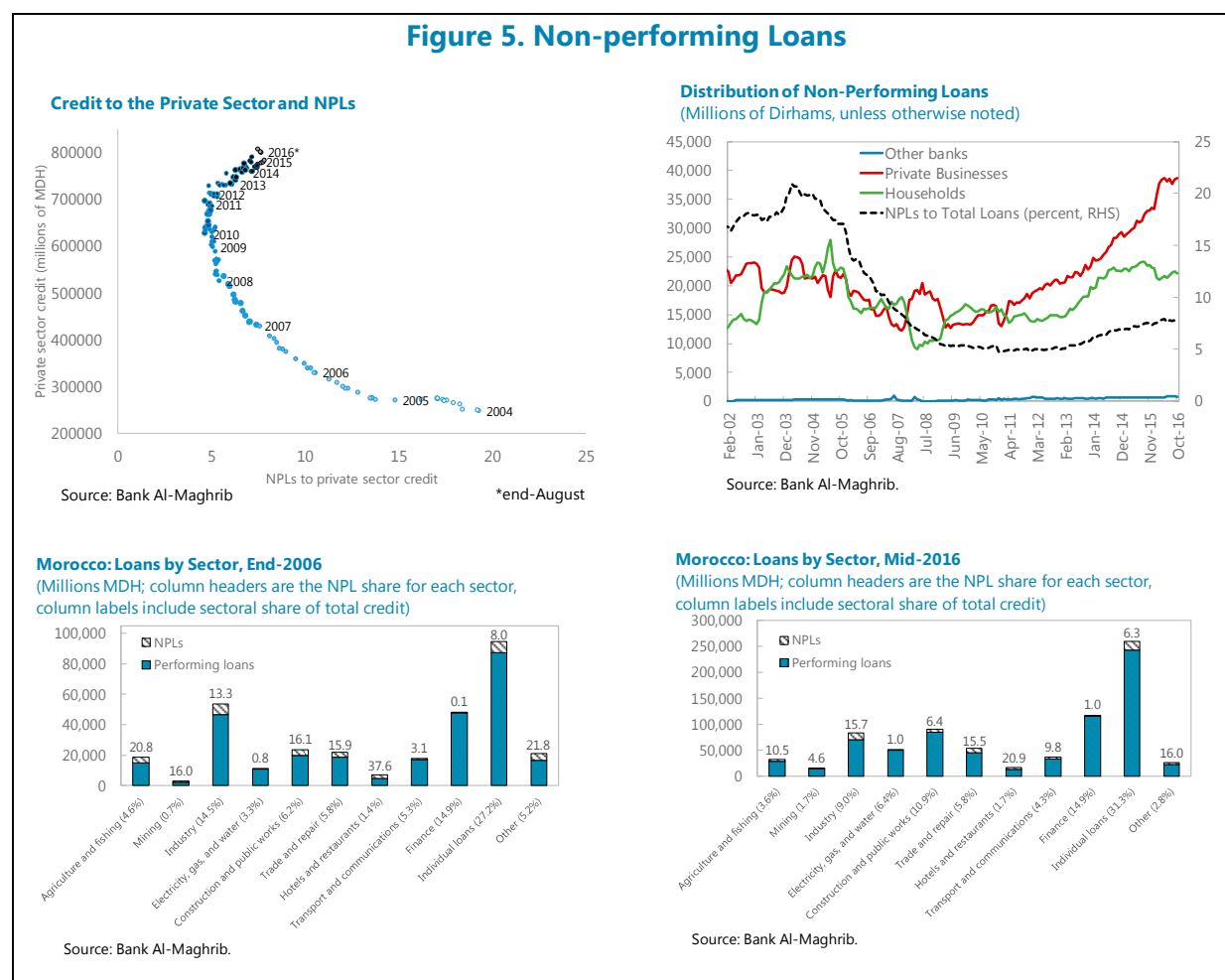
**Figure 4. Condition of Banks (concluded)**

**13. With stable funding and excess liquidity, banks have recently purchased more government bonds.** Moroccan banks benefit from stable funding consisting primarily (72 percent) of customer deposits, 57 percent of which are non-remunerated demand deposits. Since 2013, deposits have increased and liquidity conditions have improved while credit growth was low. On the other hand, weaker credit quality incentivized banks to increase their purchases of zero-risk government bonds (9.5 percent of their assets today, against 6.5 percent in 2012).

**14. Credit allocation to sectors most affected by the adverse cycle, especially the real estate sector, has been reduced (Figure 5):**

- **NPLs have been increasing, reaching 7.9 percent in October 2016 from 4.8 percent in 2011.** At about 11 percent, NPLs from the nonfinancial corporate sector are the main drivers of this development, while household sector NPLs have stabilized since 2014.
- **The sectors with the highest NPL levels are those most affected by weak growth in Europe,** which have suffered from modest economic growth and lower profitability. These include in particular tourism, manufacturing, and trade.
- **Smaller corporations often face liquidity pressures due to payment delays that affect their cash flow situation.** BAM's enterprise surveys suggest that most enterprises are suffering from arrears from their clients (including public enterprises), and that the largest payment delays affect SMEs (almost 7 months), sectors such as real estate development (about 18 months), and public works and industries (more than three months) (BAM 2015).

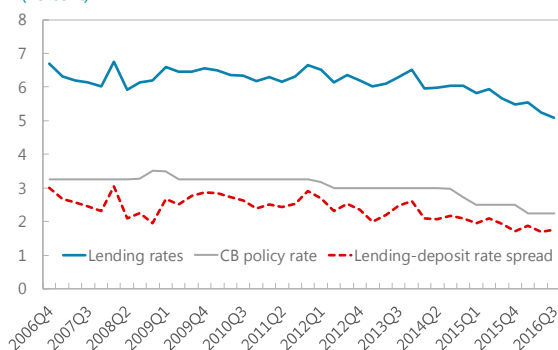


**Figure 5. Non-performing Loans**

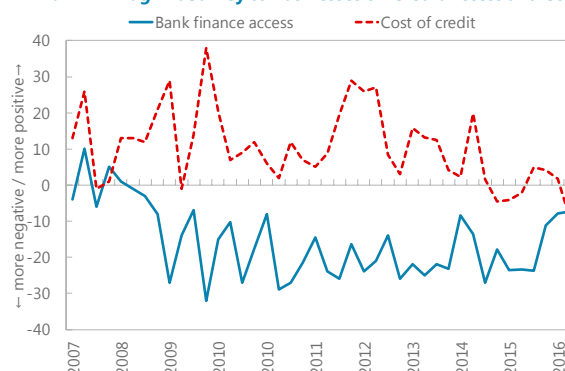
### Determinants of cost of credit

**15. Credit access is improving in 2016, according to the bank survey conducted by BAM** (Figure 6). Lending rates in Morocco are lower than in comparator and emerging market countries. In recent years, they have been declining in line with a more accommodative central bank monetary policy.

**16. However, collateral requirements remain high, particularly for small enterprises.** The World Bank Enterprise Survey (2013) shows that the percentage of loans requiring collateral remains higher than both the global and MENA averages, despite declining from 90 to 84 percent between 2007 and 2013. The value of collateral needed for a loan is, however, lower than in comparator countries and has decreased to an average of 166 percent. However, it continues to be very high for small enterprises at 224 percent, larger than both the global and MENA averages. In addition, enterprises consider access to finance as one of the top obstacles for doing business in Morocco.

**Figure 6. Cost of Credit and Access to Finance****Bank Lending Rates and Interest Margin (Percent)**

Sources: Bank Al-Maghrib; and IMF staff estimates.

**Bank Al-Maghrib Survey to Businesses on Credit Access and Cost**

Sources: Bank Al-Maghrib; and IMF staff estimates.

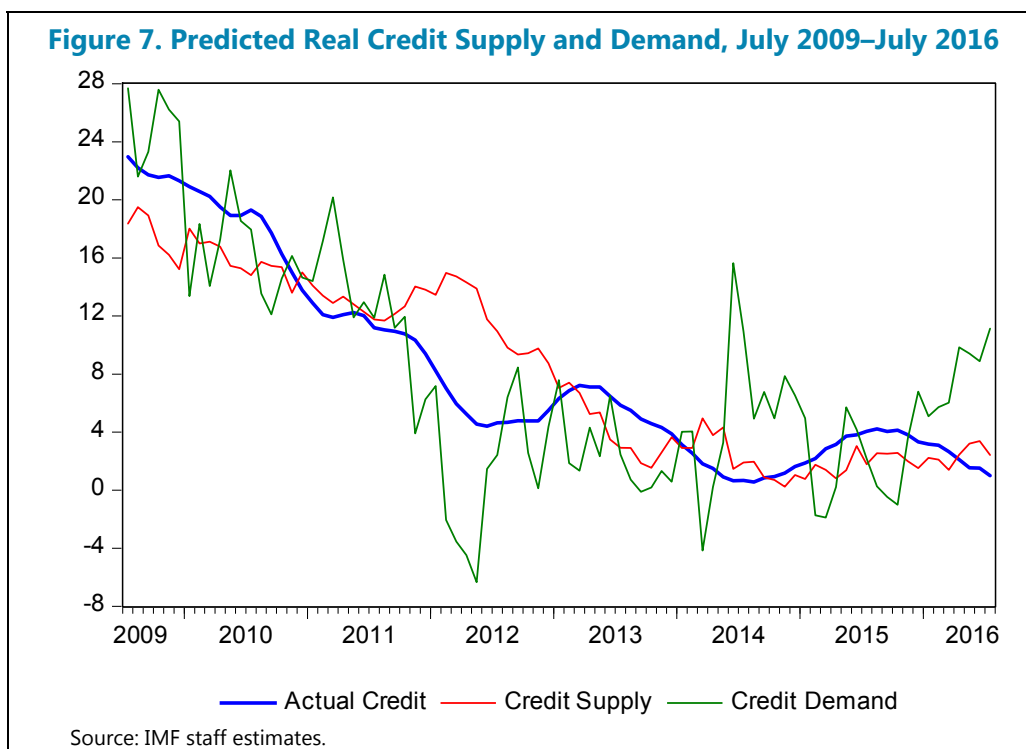
## C. The Role of Supply and Demand in Credit Developments: A Structural Model

**17. This section investigates the credit stagnation of recent years based on a structural model of supply and demand for bank lending.** Supply and demand are a function of the lending-deposit spread and inflation. The lending interest rate adjusts to “clear the market,” that is, to equate demand and supply. The main challenge for the estimation is to find variables that allow for the identification of the supply and demand curves (known as “shifters”). These shifters need to move either supply or demand without affecting the other. For instance, credit supply is expected to negatively correlate with nonperforming loan growth, while credit demand is expected to depend positively on GDP growth. The estimation addresses the endogeneity of the explanatory variables to credit growth by using a generalized method of moments (GMM) procedure. A separate set of exogenous variables is used as an instrument for the supply and demand equations.

**18. The estimation allows the identification of the supply and demand of credit** (Table 1). Both the supply and demand “shifters” are statistically significant variables with the expected signs. The supply curve is shifted by the liquidity position of banks, while the demand curve is shifted by real estate prices. The model also shows a negative relationship between the demand for credit and interest rates and a positive relationship, albeit not significant, with supply. Low significance for some variables is due to the short observation period of the sample and correlation with other explanatory variables. Over the long-term, GDP and non-performing loans have a significant relationship with credit, as described in section D.

**Table 1. Estimation Method: Generalized Method of Moments**

Sample: 2009M7 2016M7				
Included observations: 85				
Total system (balanced) observations 170				
Linear estimation after one-step weighting matrix				
	Coefficient	Std. Error	t-Statistic	Prob.
I. Supply:				
Constant	0.059474	8.676075	0.006855	0.9945
Lending-deposit spread	4.404970	3.533668	1.246572	0.2144
Non-performing loan growth	-0.046775	0.180444	-0.259223	0.7958
Bank structural liquidity position	0.000140	5.27E-05	2.664587	0.0085
II. Demand:				
Constant	32.07201	18.36577	1.746293	0.0827
Lending-deposit spread	-20.14698	10.20299	-1.974616	0.0500
Non-agricultural GDP growth	-0.288099	0.602062	-0.478520	0.6329
Real estate index	0.000887	0.000216	4.097845	0.0001
Determinant residual covariance		204.6272		
J-statistic		0.000559		
Supply Equation: CREDIT = C(1) + C(2)*SPREAD + C(3)*NPL + C(4)*BSLP				
Instruments: Interbank rate, policy rate, central bank interventions, treasury note issuances (volume)				
Observations: 85				
R-squared	0.761978	Mean dependent var	0.761978	
Adjusted R-squared	0.753162	S.D. dependent var	0.753162	
S.E. of regression	3.363643	Sum squared resid	3.363643	
Durbin-Watson stat	0.105177			
Demand Equation: CREDIT = C(6) + C(7)*SPREAD + C(8)*GDPNA + C(9)*REI				
Instruments: Exports, oil price, tourist arrivals, bond yields				
Observations: 85				
R-squared	0.565283	Mean dependent var	8.183447	
Adjusted R-squared	0.549182	S.D. dependent var	6.770238	
S.E. of regression	4.545739	Sum squared resid	1673.763	
Durbin-Watson stat	0.650218			



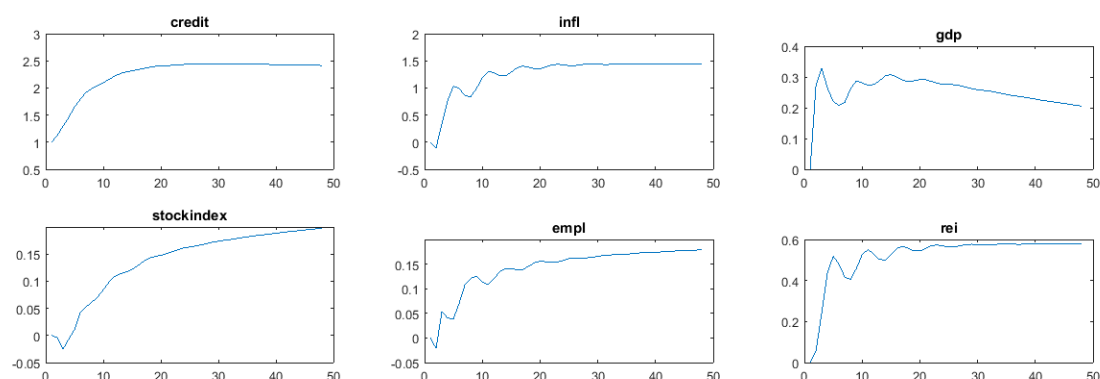
**19. The plots of the estimated demand and supply curves as a function of the lending rate in the two markets show how the curves shifted over the past eight years** (Figure 7). Generally, the predicted curves follow observed credit growth closely. Both credit demand and supply diminished rapidly after the 2008 financial crisis, as credit growth entered its current trend. Credit demand has been affected by lower real estate prices in the post-financial crisis period, while supply has been affected by lower liquidity for banks and lower interest rates, and by the increase in NPLs. More recently, and particularly since 2014, the supply curve has been relatively stable while predicted demand has surpassed observed credit growth.

#### D. Projecting a Consistent Level of Credit Growth

**20. Based on projected macroeconomic fundamentals, credit growth is expected to average 4.5–5 percent over the medium term.** Consistent with expected GDP and inflation growth, the low- and high-end estimates for credit growth rates are 2.5 and 7 percent over the medium term, with the share of credit in GDP remaining constant. This is consistent with the envisaged investment and GDP growth paths, and also with pre-credit boom trends (prior to 2006) and cross-country financial deepening patterns.

**21. Over the medium term, the level of credit will have a significant impact on GDP** (Figure 8). A vector autoregression including GDP, credit, and other high-frequency indicators shows that inflation, the CBI stock index, employment, and real estate price levels move upward in response to higher credit growth. Overall, a one percent increase in credit corresponds to a 0.2 percent increase in GDP levels in later periods.

**Figure 8. Bayesian Mixed-Frequency Vector Autoregression Impulse Response Functions**  
(Response to a 1% increase in credit level shock)



Note: Full system includes credit, inflation, import, exports, CBSI stock index, cement sales, tax revenue, oil prices, GDP, employment levels, unemployment rate, real estate prices, and industrial production. Y-axis shows the percent change in levels, the x-axis shows lags. Data are quarterly and monthly in frequency.

## E. Concluding Remarks and Policy Recommendations

**22. The above analyses suggest that there are no major issues in the functioning of credit markets in Morocco.** In general, credit growth aligns with economic cycles, but larger than-GDP fluctuations in credit suggest that demand and supply factors—mostly related with increasing risks—play a role:

- Low credit growth since 2013 appears to be largely the result of the combination of the business cycle (international financial crisis and related macroeconomic uncertainties) and credit cycle (post-credit boom in the real estate sector, like in many countries);
- On the demand side, a deleveraging process of corporations has taken place, particularly in the real estate sector and in SMEs that are most affected by payment delays;
- On the supply side, higher NPLs and related provisioning requirements have had an impact on bank profitability and credit allocation to sectors most affected by the adverse cycle.

**23. In the long term, credit is expected to pick up in line with Morocco's fundamentals, and supportive policies will have an important role:**

- Policy action by BAM in the form of a further reduction in the policy rate in 2016 has contributed to support a nascent recovery, indicating that monetary transmission mechanisms are effective in Morocco;
- Other policy actions, such as public guarantees for SME credit have helped boost credit supply to SMEs;

- Reducing payment delays will be key to further improve the financial situation of SMEs and their access to credit;
- Reducing collateral constraints, particularly for SMEs, and including by approving the draft law on collateral, would help to improve credit access to SMEs;
- Containing the increase in NPLs will also be essential. Corporate debt restructuring, in particular, may help support credit allocation to sectors that have been lagging behind since the credit boom of the mid 2000s;
- Increasing household indebtedness should continue to be monitored closely, particularly as regards consumption credit (for which NPLs are higher).

## References

Bank Al-Maghrib (BAM), and others, 2015, *Rapport sur la Stabilité Financière (RSF)*, Nr. 3.

Dell’Ariccia, and others, 2012, “Policies for Macrofinancial Stability: How to Deal with Credit Booms,” IMF Staff Discussion Note, SDN/12/6 (Washington: International Monetary Fund).

Moody’s Investor Service, 2016, Banks—Morocco.

Sahay, Ratna, and others, 2015, “Rethinking Financial Deepening: Stability and Growth in Emerging Markets,” IMF Staff Discussion Note, SDN/15/08 (Washington: International Monetary Fund).

World Bank, 2013, Enterprise Survey, Morocco (Washington).

# MOROCCO: UNIT LABOR COSTS AND EXTERNAL COMPETITIVENESS<sup>1</sup>

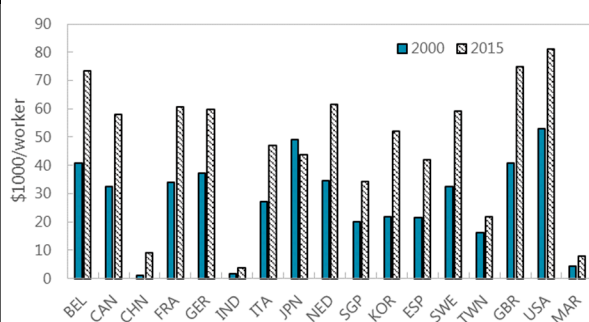
*This paper evaluates Morocco's external competitiveness by examining trends in the unit labor cost-based real effective exchange rate (REER) including at the sectoral level. It finds that although low unit labor costs relative to peers provide a competitive advantage supporting a real depreciation, recent movements in nominal exchange rates have limited this trend. The paper also examines the impact of the changes in REER on Morocco's external position, in particular, merchandise exports. It finds that Morocco's exports remain sensitive to movements in the REER, but this elasticity has slightly declined recently. Policy considerations from this analysis relate to preserving Morocco's external competitiveness, including through future productivity growth, integration into global value chains, supportive structural reforms, and greater exchange rate flexibility.*

## A. Introduction

**1. A central pillar of Morocco's strategy to attain higher, more inclusive growth has been the development of higher value added manufacturing exports.** Morocco's manufacturing exports have grown at an annualized rate of 8 percent between 1990 and 2015, from 24 percent of GDP in 1990 to 34 percent of GDP in end-2015. Since 2012, there has been a marked compositional shift in the export basket toward automobiles and other advanced manufactures, while Morocco's global market share in more traditional sectors, such as textiles has declined. The effectiveness of this sectoral specialization strategy rests on Morocco maintaining external competitiveness vis-à-vis its peers.

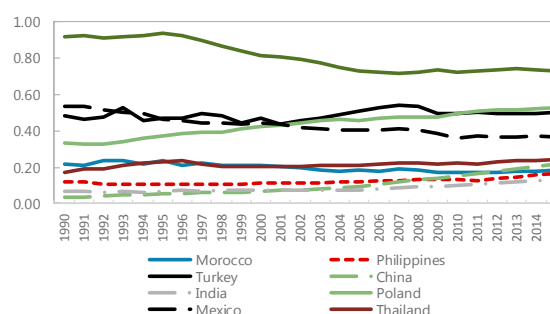
**2. A key indicator of cost competitiveness is unit labor costs (ULCs), the ratio of labor compensation to labor productivity.** Figure 1 illustrates that Morocco's labor compensation has

**Figure 1. Manufacturing Compensation Costs: Morocco vs. Comparator Countries**



Sources: The Conference Board 2016 International Labor Comparisons Program, April 2016; and IMF staff calculations.

**Figure 2. Labor Productivity, 1990–2015 (Output/Worker in 2015, U.S.=100)**



Source: The Conference Board, 2016. The Conference Board Total Economy Database™ (Adjusted version), November 2016.

<sup>1</sup> Prepared by Sanaa Nadeem.



remained low relative to its peers. However, Figure 2 reveals that productivity growth for Morocco has remained sluggish relative to other comparators.

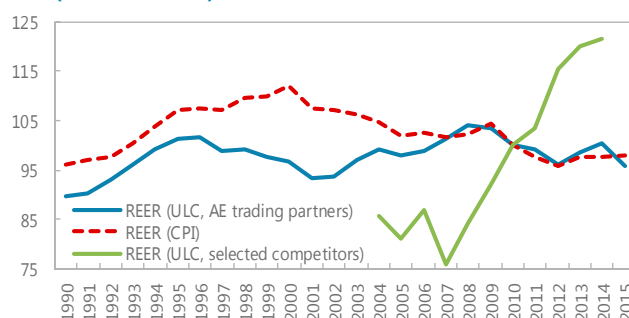
**3. This paper assesses Morocco's external competitiveness by examining trends in the unit labor cost based real effective exchange rate (REER).** The REER comprises the country's nominal effective exchange rate, the weighted average of bilateral exchange rates with the country's main trading partners, deflated by a price or cost index, to account for relative changes in purchasing power or costs. The most readily available (and thus widely used) deflator is the consumer price index (CPI); other deflators include the producer price index (PPI), wholesale price index, and ULCs.<sup>2</sup> Of particular interest here is the ULC-based REER, which can provide fresh insight into the role of productivity-adjusted labor costs relative to peers on the real exchange rate, particularly as Morocco's exports begin shifting to high productivity sectors. To this end, this paper explores recent trends in Morocco's ULC-based REERs, presents an empirical analysis of the impact of changes in REER on Morocco's external position, and discusses relevant policy considerations.

## B. Recent Trends in Morocco's REER

**4. The CPI-based REER steadily appreciated until around 2000, followed by depreciation thereafter.** As Figure 3 shows, the CPI-based REER, taken from the IMF's Information Notice System database, depreciated by nearly 5½ percent between 2000–12, due mainly to movements in the euro, which comprises the largest trading partner weight.<sup>3</sup> Since then, the CPI-based REER has appreciated nearly 4 percent as of November 2016, with the offsetting strengthening in the US dollar.

**5. On the other hand, the path of ULC-based REER varies with the basket of comparator countries.** The ULC-based REER computed against Morocco's main trading partners shows a divergence with the CPI-based REER between the mid-1990s and 2007/08, with an inflection point in 2000, corresponding to the introduction and subsequent appreciation of the euro. Since the global financial crisis (and around the same time that Morocco's export basket

**Figure 3. Morocco: ULC and CPI-based REERs**  
(Index, 2010=100)



Sources: IMF Information Notice System; WEO; UNIDO; and IMF staff calculations.

Note: Exchange rates are expressed as foreign currency units per local currency units; an increase in the REER index implies a loss of competitiveness. Selected competitors include: China, India, Poland, Spain, Thailand, and Turkey.

<sup>2</sup> The REER of country  $i$  with  $K$  trading partners is computed as  $REER^i = \prod_{k=1}^K \left( \frac{D^i}{D^k} e^{i,k} \right)^{\theta^{i,k}}$  where  $e^{i,k}$  are bilateral exchange rates between  $i$  and partner  $k$ ,  $D^i$  are deflators, and  $\theta^{i,k}$  are the weights assigned to each country partner, based on the share of country  $k$  in  $i$ 's exports.

<sup>3</sup> The Moroccan dirham is currently pegged to a currency basket comprising 60 percent Euro, 40 percent dollar (80 percent Euro, 20 percent dollar prior to April 2015).

composition began to shift) this REER shows a real depreciation, reflecting the relative cost advantage with euro area trading partners. However, compared to a basket of emerging economies that includes some of Morocco's competitors in international markets (China, India, Poland, Spain, Thailand, and Turkey), the ULC-based REER shows a sharp appreciation since the crisis, reflecting bilateral nominal exchange rate movements relative to these countries.

### C. Sectoral ULC-based REERs

#### 6. Aggregate, economy-wide REERs can mask movements in sectoral competitiveness.<sup>4</sup>

Using data from the Ministère de l'Industrie, du Commerce, de l'Investissement et de l'Economie Numérique, ULCs and ULC-based REERs are computed for five manufacturing subsectors, as well as a composite measure of sector-based REERs, as in EuroStat (2012). Sectoral ULCs are computed as labor costs in local currency in the sector divided by labor productivity, which is defined as value added per worker.

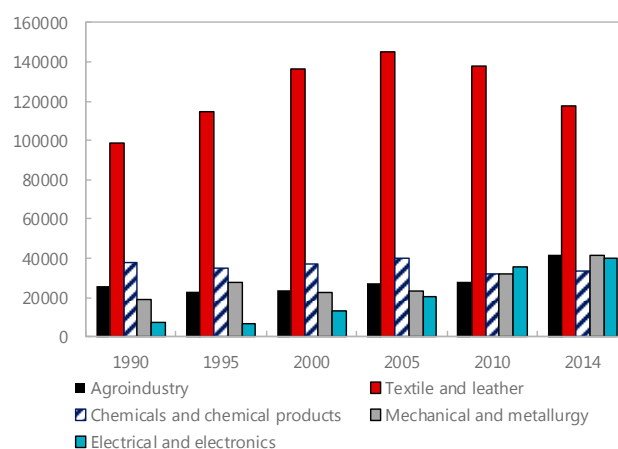
7. **Indeed, ULC trends vary significantly across sectors (Figure 4).** ULCs in textile and leather remain significantly higher than those in other sectors. ULCs have risen steadily in the electronics sector, and more recently in the mechanical and metallurgy and agroindustry sectors. This trend reflects faster growing wage costs than labor productivity. On the other hand, value added per worker has risen steadily in the chemicals sector, keeping unit labor costs steady.

#### 8. Relative to competitors, ULCs present a significant, though narrowing source of competitive advantage (Figure 5).

Morocco's manufacturing ULCs are markedly lower than competitor countries, with the exception of the textiles sector. This pattern is consistent with trends in global export market share, where Morocco has lost ground in the textiles sector. With the exception of the chemicals sector, relative ULCs have been increasing over the last decade, due in part to wage growth exceeding productivity gains relative to competitors.

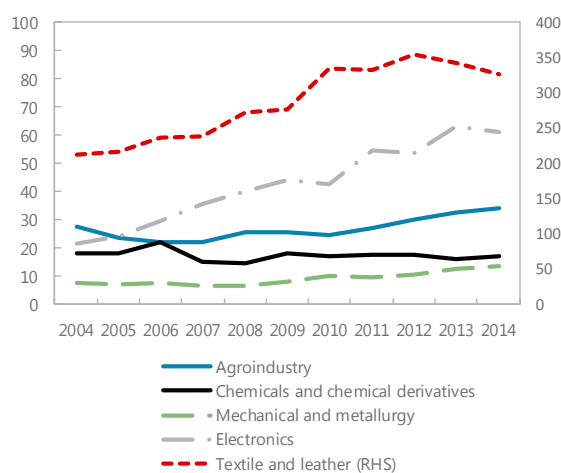
9. **Low relative ULCs should contribute to a depreciation in ULC-based REER, though recent nominal appreciation has checked this trend (Figure 6).** The ULC-based REER for most sectors has been on an appreciating trend since 2000 despite low relative ULCs due to changes in the nominal exchange rate.

**Figure 4. Unit Labor Costs—Manufacturing Sectors**

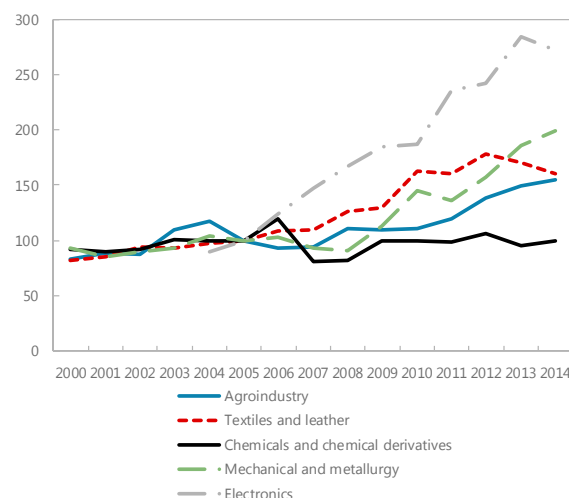


Sources: Ministère de l'Industrie, du Commerce, de l'Investissement et de l'Economie Numérique; and IMF staff calculations.

<sup>4</sup> Further, the use of a manufacturing REER as a proxy for an economy-wide REERs may not be adequately representative of ULCs in other sectors (e.g. tradable services, such as tourism). However, lack of data restricts analysis to the manufacturing sector.

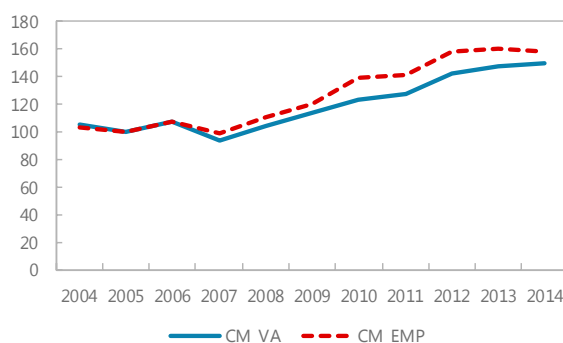
**Figure 5. Relative ULCs—Manufacturing Sectors (100=China)**

Sources: Ministère de l'Industrie, du Commerce, de l'Investissement et de l'Economie Numérique; UNIDO ; and IMF staff calculations.

**Figure 6. Sectoral ULC-based REER Sectoral ULC-based REER (2005=100)**

Sources: Ministère de l'Industrie, du Commerce, de l'Investissement et de l'Economie Numérique; IMF WEO; UNIDO; and IMF staff calculations. Note: Competitors include: China, India, Poland, Spain, Thailand, and Turkey.

**10. Overall, like for the CPI-based REER, nominal exchange rate movements have driven a real appreciation of the ULC-based REER.** A composite measure of external competitiveness can be computed as the weighted average of the sectoral REERs, with each sector weighted by its relative value added in the economy (Figure 7).<sup>5</sup> Because the sectors with the highest relative value added are still a small share of total value added in the economy, this translates to a sharper real appreciation. Using an alternative weighting based on employment shares reveals an even larger appreciation.

**Figure 7. Composite ULC-based REER—Manufacturing (2005=100)**

Sources: Ministère de l'Industrie, du Commerce, de l'Investissement et de l'Economie Numérique; and IMF staff calculations.

<sup>5</sup> The composite measure is computed as  $CM^i = \sum_j w_j^i REER_j^i$ , where  $w_j^i = \frac{GVA_j^i}{\sum_j GVA_j^i}$ .

## D. The REER and Morocco's External Position

**11. This section assesses the impact of changes in the real effective exchange rate (REER) on Morocco's external position.** The literature suggests that a depreciation in the real exchange rate should lead to an increase in exports for both advanced and emerging economies (Amiti et al. 2014; Veeramani 2008). However, this elasticity can weaken as exports move up the global value chain and are increasingly integrated into global production processes, making them less price sensitive (IMF 2015). It is instructive to estimate the REER elasticity of exports for Morocco, given the prevailing sectoral strategy toward higher value added exports and the importance of exports in generating growth.

### Model

**12. To quantify the impact of exchange rate changes,** the following regression is estimated using quarterly data for 1990-2015:

$$\log(Y_t) = \alpha + \beta \log(REER_t) + \gamma X_t + \varepsilon_t$$

where  $Y$  is a measure of Morocco's external position, namely merchandise and manufacturing exports,  $REER_t$  is the ULC-based real effective exchange rate,  $X_t$  is a vector of control variables and  $\varepsilon_t$  is the error term. It is expected that  $\beta < 0$ , i.e., an appreciation of the REER (a loss in competitiveness) would worsen export performance. On the other hand, compositional shifts in the export basket up the value chain could make the trade balance less sensitive to the REER.

**13. The control variables  $X_t$**  comprise own real GDP growth  $y_t$  (all else equal, higher growth would result in greater production capacity, increasing exports); world GDP growth  $g_t$ , a proxy for external demand (higher global demand would increase demand for all exports, including Morocco's); as well a time trend  $T$ .  $REER_t$ ,  $y_t$  and  $g_t$  are lagged to control for endogeneity.

**14. The regression is estimated using ordinary least-squares.** Data on sectoral exports (FOB, by main product groups) is taken from Office des Changes, real GDP growth rates from the IMF's World Economic Outlook, and cubic spline interpolation is used to estimate a quarterly series for the ULC-based REER (relative to trading partners, for data availability).

### Results

**15. Table 1 presents the results of the regression model estimated for three sets of the independent variable  $Y_t$ :** (i) all merchandise exports, and (ii) manufacturing exports. The regression is also estimated for two sample periods, 1990-2006 and 2007-2015 for any structural shifts (e.g. the GFC, export strategy).

**Table 1. Estimation Results: Morocco's REER and External Position**

	(1)	(2)	(3)	(4)	(5)
(i) $Y_t$ = Merchandise exports					
$\log(REER_t)$	-0.384**	-0.239*	-0.122*	-0.391**	-0.192**
$\log(y_t)$	---	0.008	0.015*	0.013	0.017*
$\log(g_t)$	---	---	0.032*	0.029*	-0.019*
$T$	-0.012	-0.000*	-0.001	0.011*	0.021
Constant	-6.312**	-5.311*	-5.530**	-2.483*	-2.342
$R^2$	0.769	0.788	0.892	0.813	0.861
(ii) $Y_t$ = Manufacturing exports					
$\log(REER_t)$	-0.399**	-0.305*	-0.268*	-0.400**	-0.212*
$\log(y_t)$	---	0.006*	0.016	0.014	0.018*
$\log(g_t)$	---	---	0.022**	0.024*	-0.003**
$T$	-0.002*	-0.010*	-0.003*	0.015*	0.014*
Constant	-4.543**	-3.675**	-3.231**	-2.388*	-2.117*
$R^2$	0.811	0.834	0.881	0.833	0.827
<b>Period</b>	1990-2015	1990-2015	1990-2015	1990-2006	2007-2015
Note: ** 5 percent significance level, * 10 percent significance level					

- Models (i) and (ii) suggest that in general, a 1 pp depreciation of the exchange rate leads to an increase in exports by 0.38-0.4 pp, a significant estimate that is broadly consistent with the literature; the relationship appears stronger for the subset of manufacturing exports.
- Specifications (4) and (5) suggest the REER elasticity of exports has weakened since 2007–08.
- The impact of own real growth on exports is weak, though with expected signs; this reflects the resilience of Morocco's exports despite recent volatility in growth (due mainly to agriculture).
- An increase in world economic growth, reflecting global demand, appears to have a positive effect on Moroccan exports. However, the sample split reveals that Morocco's exports have performed strongly despite weak global growth.

## E. Policy Considerations

### 16. This analysis holds several policy considerations for preserving Morocco's external competitiveness and the strength of its external position:

- **Productivity growth should match or exceed nominal wage growth to maintain low relative ULCs.** Whereas low ULCs have thus far provided Morocco an advantage in external competitiveness relative to its peers, this gap is narrowing, and slow productivity growth would pose a constraint as nominal wages rise (for example, for textiles). To maintain relative external competitiveness, productivity growth should match or exceed growth in nominal wages. Also, non-wage labor compensation, an important component of the latter, such as social security contributions, can contribute to high and sticky nominal wages.
- **Efforts to integrate exports into global value chains should continue.** The empirical analysis of export performance suggests that manufacturing industries remain sensitive to the REER

despite recent shifts up global value chains. It is the degree of integration within these chains, rather than the additional value added per se, which would work to weaken the elasticity of exports to the real exchange rate, a shift which is likely to take place in the future as these sectors develop further.

- **Supportive structural reforms will be important.** To the extent that external competitiveness allows returns to accrue to sectors with low relative unit labor costs, structural reforms (such as improving education and training, or labor market reforms) can facilitate the reallocation of productive resources towards more productive, more competitive sectors, increasing welfare gains for the economy.
- **Greater exchange rate flexibility may also contribute.** More broadly, the findings highlight the potential benefits for Morocco from greater exchange rate flexibility, including in order to preserve competitiveness and support the emerging manufacturing sectors (especially where productivity gains have been slow, such as for textiles), and particularly in case of nominal shocks.

## References

- Ahmed, S. M. Appendino, and M. Ruta, 2015, "[Global Value Chains and the Exchange Rate Elasticity of Exports](https://www.imf.org/external/pubs/ft/wp/2015/wp15252.pdf)," IMF Working Paper 15/252 (Washington: International Monetary Fund).  
<https://www.imf.org/external/pubs/ft/wp/2015/wp15252.pdf>
- Amiti, M., O. Itskhoki, and J. Konings, 2014, "Why Hasn't the Yen Depreciation Spurred Japanese Exports?" *Liberty Street Economics*. <http://libertystreeteconomics.newyorkfed.org/2014/07/why-hasnt-the-yen-depreciation-spurredjapanese-exports.html#.Vh8JELRVikp>
- Ministry of Economy and Finance, Department of Financial Studies and Economic Forecasts (DEPF), 2016, *Décomposition de la compétitivité structurelle du Maroc: Marges intensives et extensives de nos exportations* (Morocco).
- European Central Bank, 2012, "Revisiting the Effective Exchange Rates of the Euro," Occasional Paper Series No. 134.
- International Monetary Fund, 1997, "A Primer on the IMF's Information Notice System," IMF Working Paper WP/97/71 (Washington). <https://www.imf.org/external/pubs/ft/wp/wp9771.pdf>
- , 2012. "Assessing Competitiveness Using Industry Unit Labor Costs: An Application to Slovakia," IMF Working Paper WP12/107 (Washington).  
<https://www.imf.org/external/pubs/ft/wp/2012/wp12107.pdf>
- Veeramani, C., 2008, "Impact of Exchange Rate Appreciation on India's Exports," *Economic and Political Weekly*, Vol. 43, No. 22 (May 31–June 6, 2008), pp. 10–14.