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INTERNATIONAL MONETARY FUND

ISLAMIC REPUBLIC OF MAURITANIA

Selected Issues

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June 14, 2012

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I. Inclusive Growth in Mauritania[1]

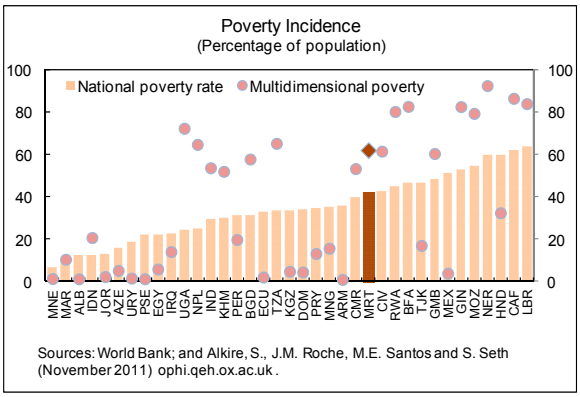
Despite a relatively high real GDP growth rate over the past decade, economic growth in Mauritania was not sufficiently broad-based to make a significant dent in poverty, which remains high. Improving the living standards of the population will require increasing access to basic amenities and services through higher pro-poor spending, more inclusive infrastructure, a decentralized administration, and an improved business climate to encourage private sector activity.

A. The Puzzle: Was Growth Inclusive in Mauritania?

1. **Rapid and sustained poverty reduction requires inclusive growth that allows people to contribute to and benefit from expanding economic activity.** Recent experience has shown that for growth to generate substantial poverty reduction, it needs to (i) be high and sustainable over the long term; (ii) be broad-based across sectors; (iii) create productive employment; and (iv) include a large part of the country's labor force.

2. **As a result, to be able to assess whether growth is inclusive,** it is important to evaluate progress made in reducing poverty, and how the poor have benefitted from growth. Analysis of household data for the 2000–08 period shows that economic growth in Mauritania needs to be broader and more diverse.

3. **Poverty is widespread and uneven across Mauritania. The portion of the p**opulation living below the national poverty line stood at 42 percent in 2008. This ratio masks huge disparities between urban and rural areas where poverty rates hover above 60 percent and the incidence of extreme poverty is double that of urban areas. When we use the multidimensional poverty[2] measure**,** the proportion of the population that was poor stood at 62 percent in 2007, amongst the highest in the world.



4. **Despite a relatively strong growth performance, progress in reducing poverty and improving the population's living standards has been subdued.** Real GDP growth averaged 4.5 percent over the 2000–08 period, in line with the average for sub-Saharan Africa. However, such a performance was not strong enough to significantly reduce the

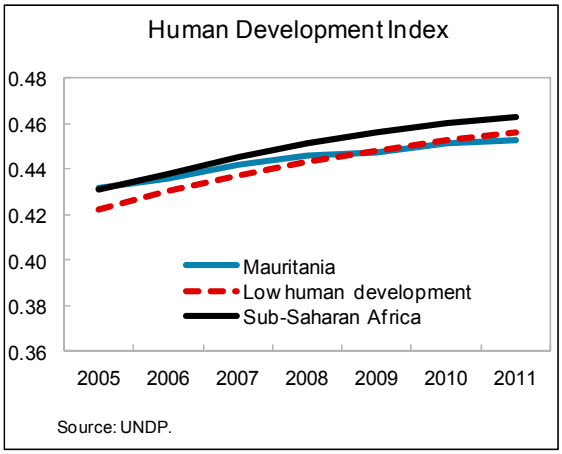
[1] Prepared by Younes Zouhar.

[2] This concept uses 10 indicators to gauge the degree of deprivation with respect to three key welfare dimensions: education, health and living standards.

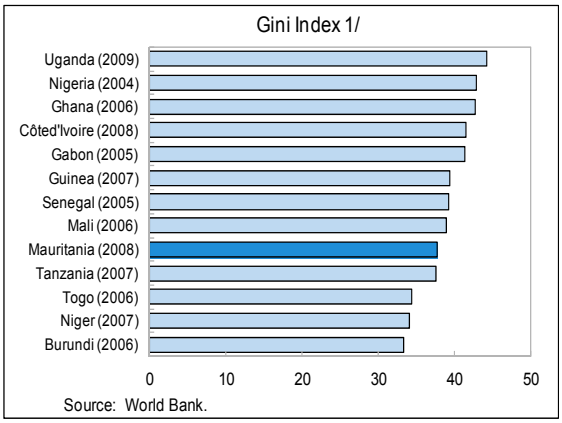
poverty rate, which only improved by 5 percentage points over the same period. An array of welfare indicators also attests to mixed progress in this area:

- **Poverty perception**: The share of household heads that cite the lack of means to satisfy their family's nutritional needs increased from 40 percent in 2000 to 60 percent in 2008.

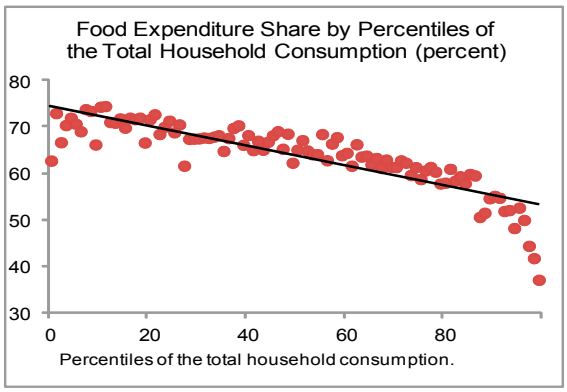
- **Human development index (HDI):** Despite some progress, Mauritania's HDI (a synthetic measure based on life expectancy, literacy, education, standards of living, and quality of life) has been lackluster, and lower, as of late, than those of sub-Saharan African countries.

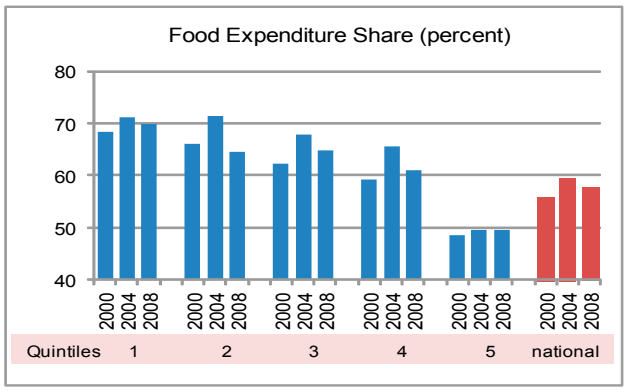


- **Inequality:** The Gini coefficient decreased slightly from 39 in 2000 to 38 in 2008, indicating less inequality, and placing Mauritania ahead of most sub-Saharan countries.



- **Engel's Law:** An improvement in living standards should translate in lower food share in households' total expenditure. This progress did not materialize in Mauritania: the food share rose between 2000 and 2008.





Source: Fund staff estimates based on 2008 household survey.

5. **Further analysis indicates that growth had an uneven impact during the past decade.** In particular, the growth incidence curve (GIC) shows that :

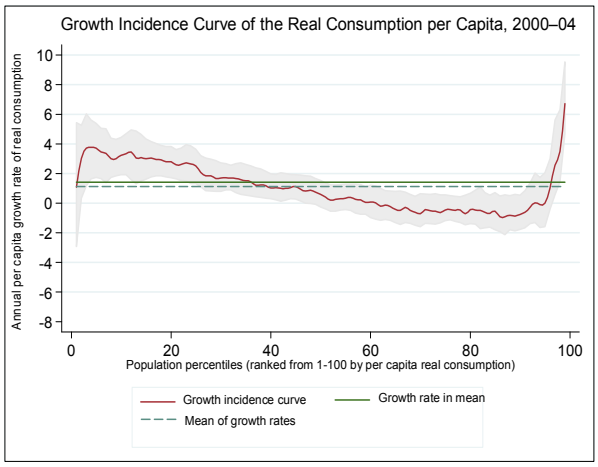
- **Growth was pro-poor during 2000–04.** Despite poor economic performance (annual per capita real GDP growth stood at 1.1 percent), per capital real consumption of households living below the poverty line increased at the annual rate of 2.3 percent, nearly double the national average and higher than per capita real GDP growth (1.1 percent).

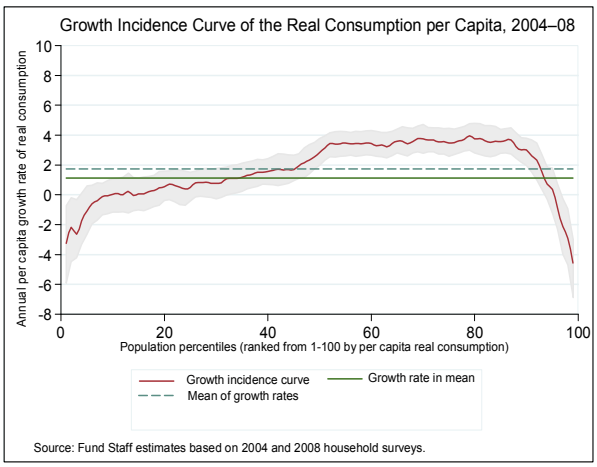
Indicators of Pro-Poor Growth

	2001–04	*2005–08*	*2000–08*
		(percent)	
Average of per capita growth of real consumption	1.4	1.7	1.4
Pro-poor growth at initial poverty rate	2.3	0.5	1.4
Memorandum item:			
Per capita GDP growth	1.1	2.8	1.9

Source: National authorities; and Fund staff estimates.

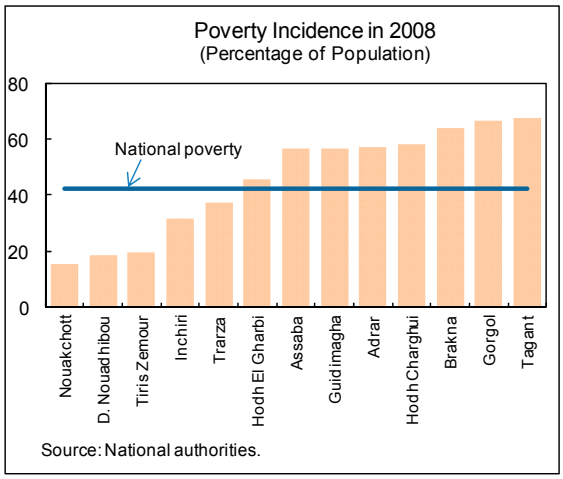
- **Growth over 2004–08 was not inclusive because it did not benefit the poor.** The middle class (defined as the share of the population above the poverty line and below the 80th percentile) greatly benefitted from the 2006 oil discovery that fueled a sharp increase in public spending, and saw their per capita real consumption increase by 3.4 percent annually, while the poorest 20 percent witnessed a 0.5 percent decline in real consumption.





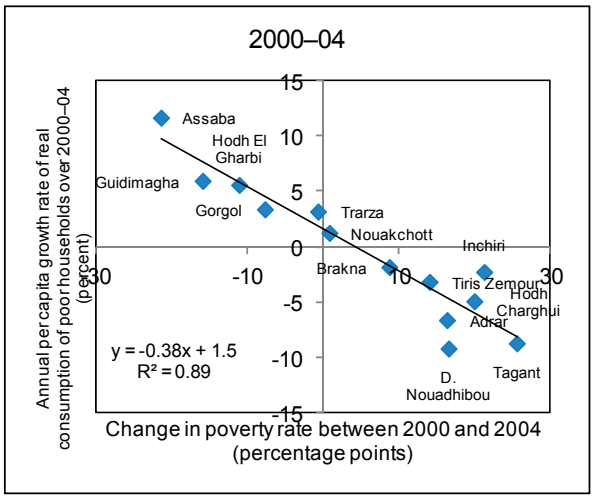
B. What Drives Inclusive Growth Performance in Mauritania? An Explanation Based on an Analysis of Regional Differences

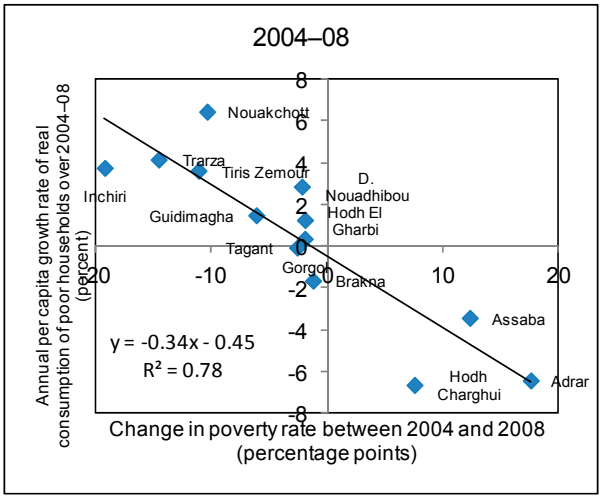
6. **Poverty incidence in Mauritania varies widely across regions,** with the poverty rate ranging from 15.5 percent in Nouakchott (the capital) to 68 percent in the south central region Tagant. Analyzing the reasons for these regional variations helps shed light on what contributes to inclusive growth in Mauritania.



7. **Unsurprisingly, higher pro-poor growth—as measured by increased per capita spending of the poorest households—reduces poverty.** Irrespective of the period chosen, regions with higher pro-poor growth achieved significant reduction in poverty rates. Inversely, poverty became more widespread in regions with negative pro-poor growth. This dynamic also reflects variations of poverty depth[3] among regions.

Pro-poor Growth and Change in Poverty Rate at Regional Level



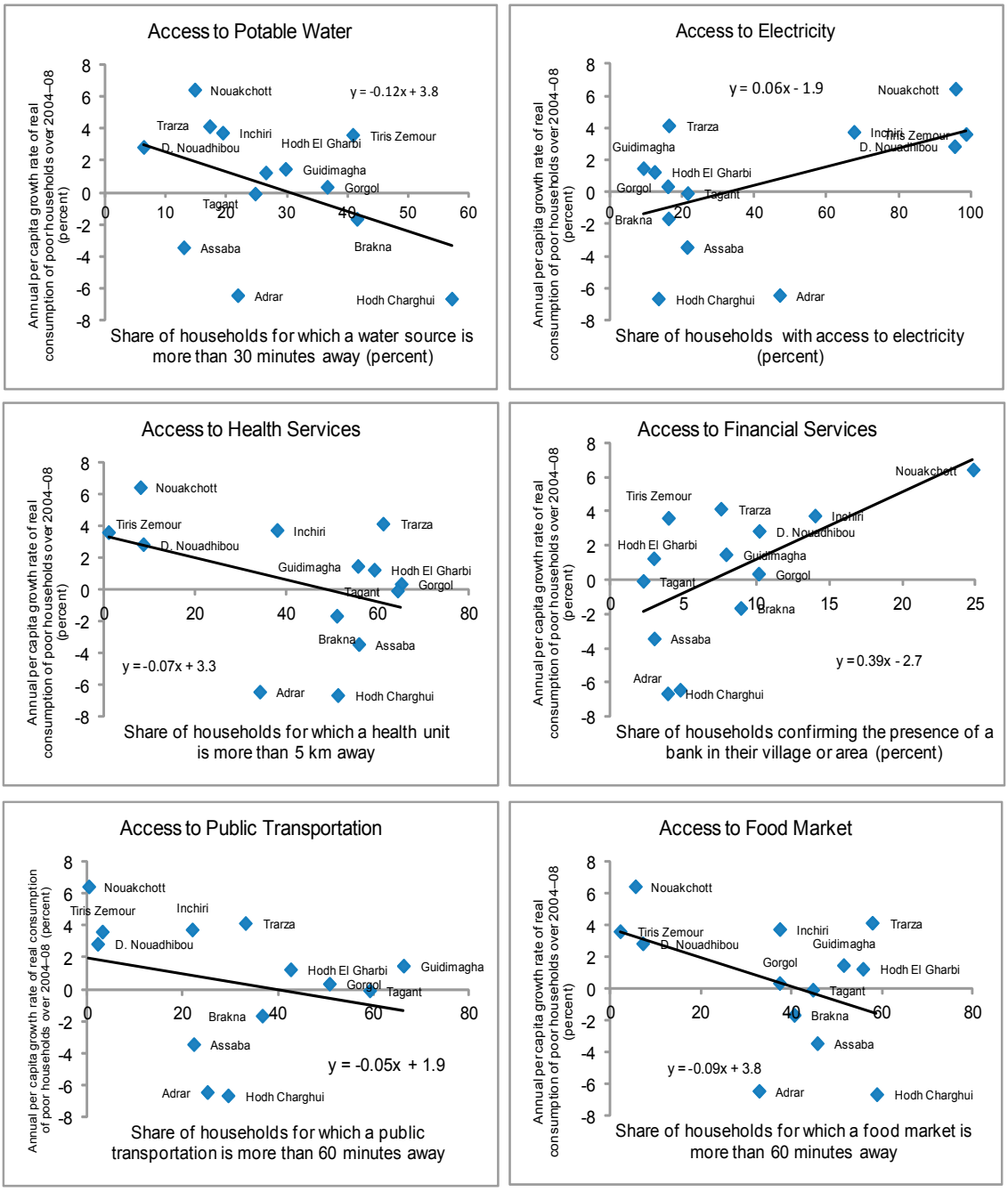


8. **Access to basic amenities, public services, finance, and food markets is strongly correlated with pro-poor growth** (see figure):

[3] The depth of poverty (or poverty gap) indicates how far below the poverty line poor households are on average.

- Regions where households have difficulty in accessing water such as Brakna and Hodh El Chargui, experienced a drop in their per capita real consumption during the period 2004–08. Similarly, regions with high access to electricity have seen elevated pro-poor growth.

Indicators of Access to Basic Amenities and Public and Finance Services

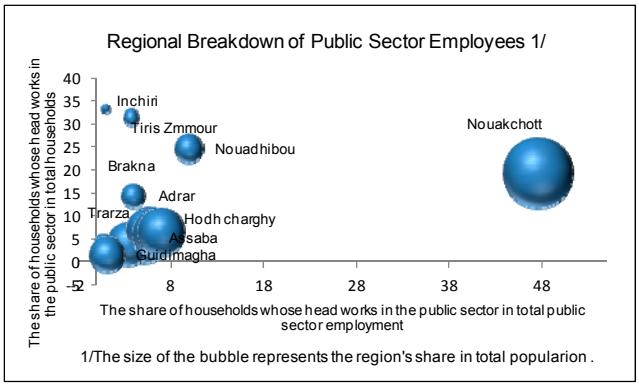


Source: Various household surveys.

- Regions such as Nouakchott, with accessible health services, benefited from higher growth in households' real consumption.
- There is a strong correlation at the regional level between pro-poor growth levels, and the presence of a secondary school in the village or the neighborhood. This is consistent with the findings showing: (i) low poverty rates among households whose head attained a secondary or higher education level (16 percent) and (ii) returns on secondary or higher education are high in Mauritania.[4]
- Factors that facilitate the inclusion of households in the economy and the transition to formality such as public transportation, access to food market and finance, and availability of civil registry offices (*Etat civil*) are positively associated with pro-poor growth.

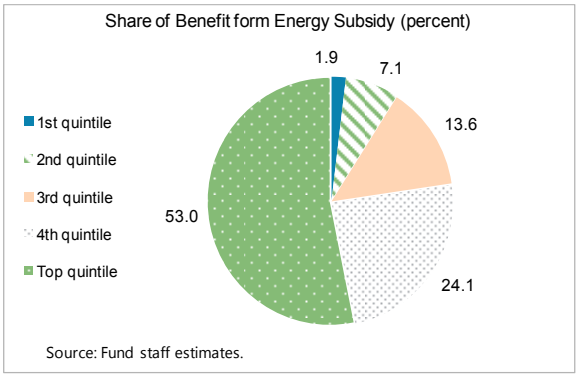
9. **In addition to access to services, political factors and discretionary public policy may have played a role in reducing the inclusiveness of growth during the 2004–08 period.** Two military coups, separated by the country's first-ever democratic presidential elections, have marked one of the most unsettled political episodes in Mauritania's modern history. In parallel, the discovery of oil in 2006, although it was not sustained, prompted large increases in public spending, particularly the wage bill (through adjustment of salaries) and subsidies. These did not necessarily benefit the poorest:

- **Wage bill increase**: Due to the centralized nature of administration, a socially motivated wage increase benefits mainly the better-off**.** The poverty rate among civil servants stands at 22 percent, well below the national average. In addition, almost half of civil servants are located in Nouakchott, representing 20 percent of its population. Some regions that have large populations have few civil servants (less than 8 percent of heads of households are a civil servant);consequently a doubling of wages for all civil servants between 2004 and 2008, corresponding to an annual increase of 15 percent in real terms, widened the disparities between poor and rich regions.



[4] Male wage workers with secondary schooling earn approximately 20 percent more than those with primary education (Rajadel, 2009).

- **Energy subsidies:** The increase in subsidies (electricity, diesel, LPG) that accompanied the large increase in international fuel prices has benefitted rich households at the expense of the neediest**.** Almost 80 percent of all energy subsidies are captured by the richest 40 percent of households, thus widening inequality between poor and rich households. Moreover, important relief-related food subsidies to alleviate the effects of high commodity prices in 2008 were not well-targeted (The relatively better-targeted food shops recently put in place, were not in use in 2008).



10. **Lack of diversification of the production base, an underdeveloped private sector, and under-qualified labor force also contribute to less inclusive growth.** Exports continue to be dominated by mining products (75 percent), the manufacturing industry is still in its infancy and the traditionally labor-intensive resources (fertile lands and fisheries) are largely underexploited. This situation is exacerbated by tepid private investment: potential entrepreneurs face a myriad of obstacles, as detailed in the various World Bank Doing Business Surveys (See Staff Report, Box 5). An inadequate education system has aggravated the skills mismatch in the labor market, keeping youth unemployment rates among the highest levels in the region (Staff Report, Annex IV).

C. Conclusions and Policy Recommendations

11. **Mauritania needs to make greater progress towards inclusive growth.** While the verdict over inclusiveness during the 2009–12 will only be out once new household survey data are finalized in 2013, the analysis of earlier surveys already makes it possible to highlight and reinforce priorities needed to strengthen the inclusiveness of growth (some of these priorities are already part of the government's agenda):

- **Enhance the distributional impact of public spending:**
  - **Promote a decentralized public administration:** More accessible administration services (such as civil registry) will facilitate people's integration into the economic environment, particularly in underserved regions.
  - **Avoid increasing public wages as a measure to reduce poverty:** Doing so widens the gap between poor and rich households and regions. Targeted measures to reach low-wage earners in the public sector would be more cost-effective and efficient.

- **Accelerate the transition to well-targeted subsidies:** The subsidy reform underway should be implemented forcefully; at the same time, cash transfer programs should be scaled up.

- **Extend the access to health and education services:** Mauritania is still far from its MDG targets in reducing child mortality and improving maternal health (Staff Report, Table 9). Extending the geographical coverage of health units to poor regions will facilitate access to basic health services. Similarly, improving the secondary school coverage will reduce the wide gap in secondary education vis-a-vis sub-Saharan countries and enhance employment opportunities for the labor force (Staff Report, Annex IV).

- **Build inclusive infrastructure:** Greater household participation in economic activity will be facilitated by higher mobility and better access to factors of production and markets. Construction of roads in remote areas will further encourage trade and economic activity.

- **Enhance access to financial services:** According to a recent World Bank survey (Global Financial Inclusion Database), 17 percent of adults in Mauritania hold a bank account. Making the banking sector more accessible will improve people's ability to save and invest, thereby reducing their consumption volatility and creating new employment opportunities.

- **Improve the quality of pro-poor spending:**

  - **Improve the scope of pro-poor spending:** While the recent practice of setting within a budget a floor for pro-poor spending should be continued, the relevance of the concept should be improved through the exclusion of outlays that marginally benefit the poor (e.g., energy subsidies) and public wages. A regional dimension should also be considered in the near term to monitor the distributive impact of public spending.

  - **Monitor the quality of public service delivery:** More focus should be put on the quality of the public service delivery; recent evidence points to a disconnect between public spending on education and health and outcomes because of lack of accountability and monitoring (Global Monitoring Report 2011, Chapter 3). Implementation of the recent initiatives strengthening governance and accountability in the public sector (civil service reform, anti-corruption legislation) will help address these issues.

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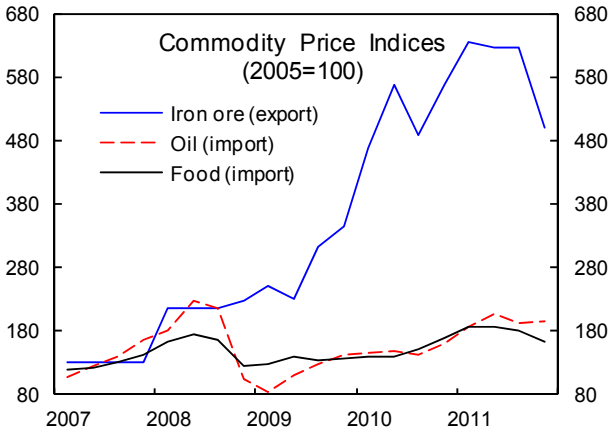
II. Why Care About Shallow Credit Markets? The Case of Monetary Policy (In)Effectiveness in Mauritania[1]

As a small open resource-dependent economy, Mauritania's monetary policy stance often shifts due to changes in the external environment. Yet exogenously driven policy changes do not seem to affect bank lending at the margin, which suggests ample scope to strengthen monetary policy effectiveness. A necessary pre-condition of more policy traction is a more inclusive financial sector. Strengthening the quality of credit demand, reinforcing supervision, and enhancing the institutional infrastructure seem fruitful avenues toward encouraging banks to finance a wider range of activities and customers.

A. The Puzzle: Liquid Banks but Little Lending

1. **Mauritania experienced a large positive terms of trade shock in 2010/11, leading to involuntary surges in bank liquidity.** The recent run-up in commodity prices boosted Mauritania's foreign exchange receipts, notably those from iron ore exports. To address longstanding external vulnerabilities, the authorities used this opportunity to build up foreign exchange reserve buffers. In the process, the size of the central bank's balance sheet expanded, with a larger international asset position giving rise to a local currency counterpart in the form of banking sector liquidity.



Source: International Financial Statistics.

2. **Specifically, the export-related foreign exchange inflows found their way into the banking sector through two channels**:

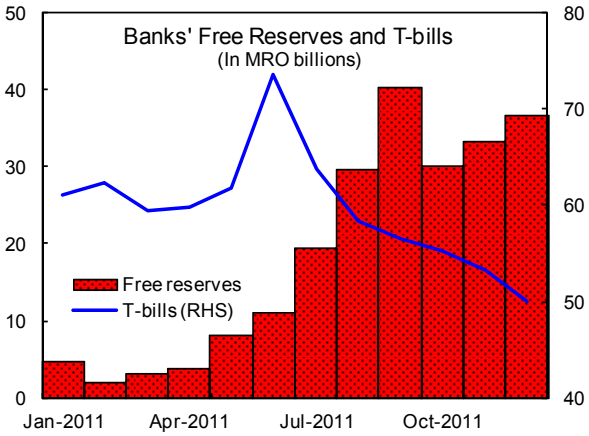
- **Repatriations of mining companies**. Mining-related repatriations reached unprecedented highs last year, as the mining companies' local currency expenditures tend to be proportional to their international sales, which were very strong. The modalities for the repatriations, and the impact on bank liquidity, differ between companies:

    - **State-owned mining company (SNIM)**. SNIM keeps its local currency account at the central bank, which implies that its repatriations are sterilized until the time it draws on the account to spend. About 80 percent of its repatriations in 2011 created new liquidity.

[1] Prepared by Robert Blotevogel.

- **Foreign-owned mining companies**. The CBM issued a new regulation last summer that required foreign-owned mining companies to surrender their foreign exchange to the CBM. Because these mining companies have their bank accounts with commercial banks, the repatriations directly increase bank liquidity without the possibility to sterilize.

- **Change in the financing mix of the Treasury and reduced borrowing by state-owned enterprises**. With sharp increases in mining-related revenue from SNIM, the Treasury had less appetite to roll over T-bills held by banks. The additional revenue also created fiscal space for clearing arrears and accelerating transfer payments to loss-making state-owned enterprises, thereby reducing their need to resort to bank credit. As a result, the composition of banks' assets changed in favor of free reserves following the redemption of T-bills in the second half of last year.



Source: Central Bank of Mauritania.

3. **Absent active sterilization efforts, positive terms of trade shocks result in looser monetary conditions**. This scenario materialized in Mauritania last year. For the first time in years, financing needs of the Treasury were lower than the sterilization objective of the CBM. With a stronger budget position, the Treasury was hesitant to issue T-bills solely for monetary purposes, while the CBM did not have the financial resources to undertake large-scale sterilization operations on its own account. The only instruments left in the CBM's liquidity management toolkit were reserve requirements and the sale of foreign exchange. The former was not used because of marked differences in liquidity positions across banks, and the authorities' policy objective of accumulating international reserves limited the use of the latter. Illustrating the liquidity overhang, T-bill yields fell to historic lows of just below 3 percent.

4. **Yet in spite of abundant liquidity, increased competition, and a generally favorable economic backdrop, credit expansion was modest**. Private-sector credit rose 10.6 percent in 2011, in contrast to broad money that expanded almost twice as fast (19.9 percent). Adding to the puzzle of why bank lending was relatively subdued is that two new banks entered the Mauritanian market last year, a development which should normally foster competition and lending activity.

B. The Role of Reserves in the Bank Lending Channel

5. **If monetary policy has an effect on the economy, it will likely be through the banking system.** Mishra, Montiel, and Spilimbergo (2012) distinguish between four main channels of monetary transmission: (i) interest rates; (ii) asset prices; (iii) the exchange rate; and (iv) bank lending. In Mauritania, the first three channels are unlikely to be strongly developed because the necessary institutional prerequisites—significant savings and investments, equity and bond markets, and an open capital account—are absent. This leaves the bank lending channel.

6. **Bank lending tends to react to changes in the supply of reserves**. If reserves and credit are imperfect substitutes, profit-maximizing banks will target an optimal ratio between both assets. In this framework, exogenous shocks to either asset should be associated with movements in the same direction in the other so as to keep their ratio unchanged. As means of illustration, consider a bank that finds itself with one additional ouguiya in reserves. The bank will want to keep only a fraction of the ouguiya in (unremunerated) reserves, with the remainder available to be lent out in search of profits. This matters for the central bank because it controls the amount of reserves in the banking system through foreign exchange intervention, refinancing operations, and coordination with the Treasury on T-bill issuance.[2]

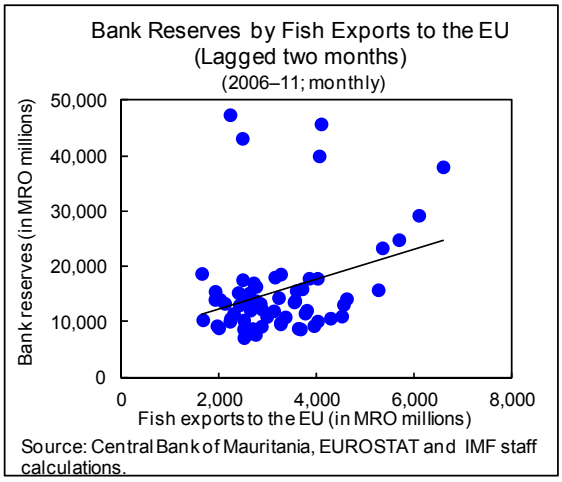
7. **The optimal ratio of reserves to credit will vary across banks and change over time**. Agénor, Aizenman and Hoffmaister (2004) and Saxegaard (2006) directly model banks' demand for reserves. Applying this approach to Mauritania would suggest that optimal reserve holdings depend on the one hand on bank-specific determinants: (i) asset riskiness; (ii) risk aversion; (iii) volatility of funding base. But the following general economy-wide factors will play a role as well: (iv) institutional environment; (v) demand conditions; and (vi) competition among banks. For increases in (i) – (iii), banks will find it optimal to hold relatively more reserves, while the reverse will be true for improvements in (iv) – (vi).

C. An Empirical Analysis of the Link Between Reserves and Lending

8. **Changes in banks' optimal reserve levels are not observable and complicate estimations of monetary policy effectiveness**. Merely examining the empirical co-movements of reserves and credit will not yield meaningful conclusions about the effectiveness of monetary policy. A successful empirical strategy would need to control for third factors that determine banks' optimal reserve levels (see preceding paragraph), which could change simultaneously, confounding the influence of monetary policy on credit.

[2] See Annex II in the staff report for a discussion of the liquidity management framework, including the limitations of the current toolkit.

9. **Fish exports can be used to identify exogenous changes in reserves**. Fish is one of Mauritania's main exports, accounting for 16 percent of total goods exports in the five years to 2011. Fish exports were subject to a repatriation requirement, which means that banks in charge of executing the repatriations tend to see their reserves increase in response. Such changes in reserves are primarily driven by the world price for Mauritanian fish varieties and fish captures—factors that are exogenous to banks' lending activities and unlikely to be systematically related to unobserved third factors that affect reserves.



Source: Central Bank of Mauritania, EUROSTAT and IMF staff calculations.

10. **Monetary policy, as measured by changes in reserves arising from repatriated fish export receipts, has no significant impact on banks' lending activities.** An empirical analysis of six Mauritanian banks with established business relationships with the fishing industry over the 2006–11 period shows no discernible link between changes in monetary policy and bank lending (see table). Specifications that use government credit and short-term trade finance as dependent variables also fail to uncover robust relationships between reserves and lending.

	Private-sector Credit					
	(1)	(2)	(3)	(4)	(5)	(6)
Reserves	-0.22		-0.25			
	(-0.33)		(-0.40)			
Reserves (-1)		-0.40	-0.10			
		(-0.68)	(-0.20)			
ΔReserves				-0.88		-0.88
				(-1.96)		(-1.42)
ΔReserves (-1)					-0.23	-0.05
					(-0.40)	(-0.23)
Observations	135	129	129	129	123	123
R-squared	0.55	0.52	0.53	-0.09	0.00	-0.08
First-stage *F* statistic for excluded instruments	25.68	31.12	20.04	6.79	17.90	7.34

Source: IMF staff calculations.

Note: Observations are three-month averages over the period 2006–11. Cluster-robust *t* statistics in parentheses. The table presents 2SLS estimators using fish exports to the EU lagged by one period as instrument. Columns (1)–(3) use reserve in levels as endogenous variable and include bank fixed effects and a linear time trend. Columns (4)–(6) use the first difference in reserves as endogenous variable. All specifications include a dummy for the Lehman bankruptcy.

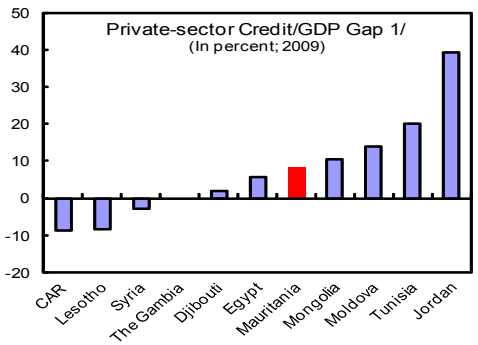
11. **Monetary policy ineffectiveness in low-income countries is not a surprising finding**. Mishra et al. (2012) summarize empirical evidence that broadly suggests that the monetary transmission mechanism is fundamentally weaker, if not altogether ineffective, in low-income countries. Striking the same note, Khemraj (2010) presents a number of Caribbean and African countries where higher reserves did not lead, at the margin, to more private-sector credit. He shows that oligopolistic competition and risky borrowers can make

banks indifferent between holding reserves and lending to the private sector—the opportunity costs of holding reserves are not sufficiently high to make banks rebalance their portfolios toward credit—though this is not to say that situations in which monetary policy does affect banks' lending decisions can never occur. A sufficient condition for reserves to affect credit is a positive difference between the marginal profit of lending and the marginal profit of holding excess reserves. For example, if banks lowered their optimal reserve/credit ratio (which reduces the marginal profit of excess reserves) but did not have sufficient loanable funds, expanding the supply of reserves could well be effective as a means of relaxing banks' funding constraint.

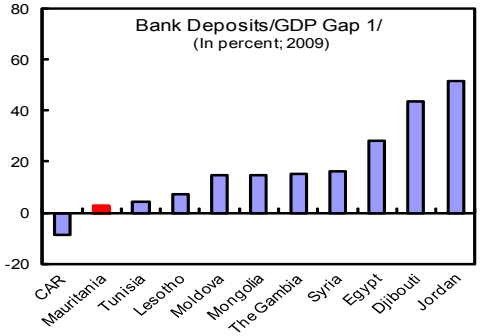
D. Factors Reducing the Traction of Monetary Policy

12. **In general terms, credit markets in Mauritania are considered too shallow to effectively transmit impulses from monetary policy to the rest of the economy**. However, constraints that typically impede the monetary transmission mechanism in other countries are less of a factor in Mauritania:

- **Structural size**. Recognizing that financial sectors always develop against structural features in the economy that are fixed in the short run, Al-Hussainy et al. (2010) calculate for a large sample of countries expected levels of private-sector credit/GDP and deposits/GDP that are based solely on structural characteristics. In particular, they consider GDP per capita, demographics (dependency ratios), population size, and oil resources. On these measures, Mauritania performs rather well: its 2008 actual level of credit was higher than its predicted level, implying a positive "credit gap" of 5.1 percent of GDP. Note, though, that economies in other parts of the world at similar stages of development—such as Moldova and Mongolia—have already developed deeper credit markets. While also outperforming its structural benchmark in deposits/GDP, Mauritania still has scope to mobilize more bank funding in light of the widespread use of cash, which partly reflects its underdeveloped payment system. In addition, banks' concentrated ownership structures conflict with their ability to attract long-term resources from outside investors.



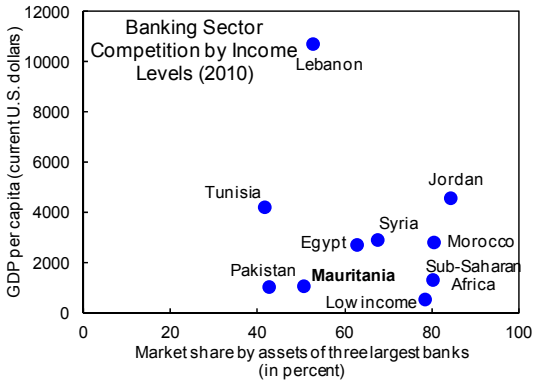
Source: World Bank (FinStat 2012).



Source: World Bank (FinStat 2012).

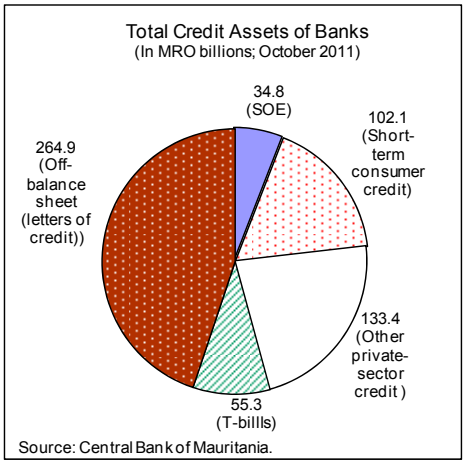
1/ Private-sector credit/GDP and bank deposit/GDP gaps are defined as the difference between each country's realization and structural benchmark. Structural benchmarks are derived from cross-country regressions that explain credit and deposits only as a function of structural factors, namely economic development, population, and demographics.

- **Competition**. There are 12 commercial banks, of which five are foreign-owned, one is a joint venture between the Libyan Foreign Bank and the Mauritanian government, and six belong to large domestic family-owned conglomerates. The domestic banks continue to dominate the market, but competition has been improving thanks to the entry of three foreign banks in the period 2006–10—a key recommendation of the 2006 FSAP. This helped reduce Mauritania's three-bank concentration ratio to a level that is in line with those of comparator countries.

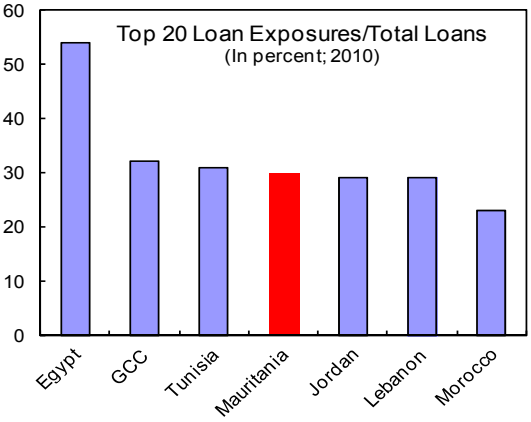


Source: World Bank (FinStat 2012 and World Development Indicators).

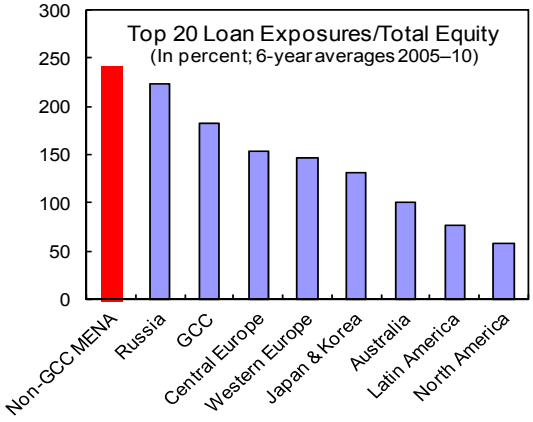
13. **The banking sector's limited reach is a key constraint**. Only a limited number of economic actors have access to bank finance. Banks in Mauritania tend to focus on providing banking services to their parent group and affiliated parties. Other significant revenue sources are letters of credit, short-term consumer credit, and lending to government and state-owned enterprises—all forms of relatively low-risk credit. As a consequence, concentration risk is very high. The 20 largest loans of Mauritanian banks, either to state-owned companies or affiliated parties, represented 30 percent of all loans at the end of 2010. This is in line with the high levels of concentration risk seen in other countries in the Middle East and North Africa (MENA), the region where portfolio concentration is highest.



Source: Central Bank of Mauritania.



Sources: Standard & Poor's (2010); Central Bank of Mauritania; and IMF staff calculations.



Source: Standard & Poor's (2010).

14. **Weaknesses in the institutional framework can partly explain the prevalence of related-party lending and high single-party exposures**:

- **Pervasive information asymmetries**. Given widespread informality in the economy, few economic actors produce viable financial statements, and audited statements are often of low quality. This makes it difficult for lenders to obtain reliable information about borrowers. The launch of a credit bureau in 2005 has only offered partial remedy as the bureau still does not regularly communicate real-time information that is consistent with banks' internal data.

- **Weak creditor rights**. Collateral with predictable value is in short supply and enforcing collateral rights (especially the seizing of real estate) is fraught with difficulty. Official land registries and rights to other properties exist but are ill-functioning. Judicial procedures are lengthy and costly, and courts have voided financial contracts between banks and customers in the past. These problems are put into even starker relief because general payment discipline in the economy is reportedly low.

- **Interest rates floors and caps**. Maximum lending rates are fixed at the policy rate—currently nine percent—plus eight percentage points. If banks' required return for the marginal borrower is above this threshold, they will ration credit to non-affiliated borrowers. On their liability side, banks may not be willing to raise large amounts of term deposits due to interest rate floors on a particular type of savings account ("*compte sur livret*"). The authorities are now in the process of relaxing this minimum interest rate requirement.

15. **These institutional constraints are one explanation for the high rates of nonperforming loans**, which stood at 28.7 percent of gross loans at end-2011, covered to 91 percent by provisions. But shortcomings in Mauritanian banks' internal credit risk management capacities—noted in the 2010 audit of commercial banks' financial statements—also contribute to weak asset quality since they prevent banks from properly evaluating outside lending opportunities. Hauner (2009) suggests that banks can become complacent and lazy if they are guaranteed steady returns regardless of whether they finance outside projects. To address this problem, the authorities have recently adopted a new regulation that sets minimum standards for banks' internal risk management systems.

16. **Regulatory loopholes and limited intrusiveness of supervision also contributed to limiting the reach of the banking sector**. Until March 2012, domestic regulation on related-party lending stipulated exposure limits on an individual company basis instead of applying the notion of groups. This allowed banks to build cumulative exposures to their own group in excess of 25 percent of capital while still respecting the legal framework. This loophole is now closed, as the authorities have recently aligned the regulations with international standards. Moreover, in cases when the supervision authority registered breaches of related-

party and concentration risk limits, it did not always take swift corrective actions against the banks in question. Inspired by the approach of Barajas, Chami, and Yousefi (2012), simple cross-country regressions underscore the importance of pro-active banking supervision for the development of deeper financial markets. To classify supervisory regimes, the regressions use a proxy variable drawn from the latest available World Bank Survey on Bank Regulation that indicates whether supervisors have in the previous five years suspended banks' decisions on remuneration or dividends. Defined in this way, supervisory intrusiveness is significantly related to cross-country variations in the private-sector "credit gap" (described in paragraph 12) and is economically large:

$$\underset{}{\textit{credit gap}_{it}} = \underset{(0.0)}{0.3} + \underset{(2.5)}{6.0}\ \textit{supervisory intrusiveness}_{it} - \underset{(-4.1)}{2.9}\ \textit{defacto fx regime}_{it} + \underset{(2.6)}{0.5}\ \textit{inflation}_{it}$$

$$+ \underset{(1.4)}{0.5}\ \textit{stability}_{it} + \underset{(7.2)}{0.2}\ \textit{trade openness}_{it} - \underset{(-6.9)}{0.5}\ \textit{banking sector concentration}_{it}$$

R^2: 0.61
Observations: 62

Source: IMF staff calculations.
Note: Robust *t* statistics in parentheses. Please see Annex for definition of variables and alternative specifications.

Countries with more intrusive supervisory regimes had private-sector "credit gaps" that were six percent of GDP larger on average than those without (see Annex). However, these benefits arguably accrue more over the medium term as a tighter application of existing rules and regulations may rule out a number of lending operations that banks currently undertake.

17. **The underdeveloped interbank market is another factor that hampers bank lending and monetary transmission**. Banks are uncertain about their ability to cover unexpected liquidity needs at short notice because of weaknesses in the two existing short-term refinancing options: (i) the interbank market is shallow, and some of the largest and most liquid banks almost never lend to other banks, despite strict collateral requirements; and (ii) the CBM's ability to fill its role as a lender of last resort is not firmly established. Banks are therefore reluctant to accept maturity mismatches that would result from using excess reserves to lend more to the private sector. And changes in the individual banks' liquidity position do not tend to affect the rest of the system, often making the distribution of liquidity across the system inefficient.

E. Conclusions and Policy Recommendations

18. **The Mauritanian banking sector finances a limited number of economic actors and activities, which limits the influence of monetary policy**. Mauritanian banks are characterized by high single-party exposures and widespread related-party lending. Such business models tend to blunt the effectiveness of monetary policy because lending decisions are not, at the margin, driven by changes in the amounts of loanable funds. Consistent with this hypothesis, exogenous changes in bank reserves in Mauritania, similar to the ones seen in 2011, did not increase credit.

19. **For monetary policy to be more effective, the banking system needs to broaden its reach**. The main challenge is to make the banking sector more inclusive by encouraging banks to lend to a wider range of clients. The level of private-sector credit to GDP itself, on the other hand, does not raise immediate concerns. Reforms aimed at boosting the amount of credit-worthy demand and ensuring adequate supply, as well as improvements in the institutional infrastructure, could go a long way towards extending the reach of the banking sector.

20. **Two actions are central to reinforce the supply of credit**:

- **Make banking supervision more effective by applying the regulation on concentration risk and connected lending**. In addition to making the banking system more resilient to shocks, reducing the incidence of high single-party exposures could encourage banks to actively search for lending opportunities elsewhere.

- **Ensure that banks reinforce their risk management capacities**. A greater focus on internal risk management could make banks more comfortable about lending to new outside clients. The recently adopted instruction on banks' internal risk management systems is a very good first step, with the focus now shifting to its swift implementation.

21. **The institutional infrastructure could be improved along a number of dimensions**:

- **Alleviate information asymmetries**. A better resourced credit bureau could provide more reliable information about potential borrowers, and an enhanced legal framework for domestic auditors could strengthen the quality of audits.

- **Reduce judicial uncertainty**. Creditor-debtor disputes could be dealt with in specialized commercial courts that are staffed with well-trained legal experts.

- **Strengthen collateral systems**. The process of pledging real estate and cash flow collateral could be streamlined by increasing the number of land titles in circulation and enhancing administrative capacity in public registries.

- **Improve the liquidity management framework**. Absorbing excess liquidity with a short-term T-bill instrument that is under the sole control of the central bank would increase the number of borrowers in the interbank market. As this market develops, liquidity changes of individual banks would filter through the rest of the system, strengthening the link between changes in reserves and credit to the private sector.

22. **Taken together, the above measures will contribute toward making the banking sector more inclusive, reducing its vulnerabilities, and strengthening monetary policy effectiveness**. But the demand side matters, too. While not the focal point of this paper, the limited amount of credit-worthy demand is also a key explanation for banks' concentrated loan portfolios. Tax and other regulatory incentives could aim at bringing more businesses into the formal sector, helping them build up a pool of pledgeable assets and produce certified financial statements. In this context, setting up a system of quality control for the audit profession would also be beneficial.

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ANNEX

Gaps in Private-sector Credit

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Supervisory intrusiveness	10.02***	10.94***	11.79***	6.04**	6.09**	4.69**	4.65**
	(3.44)	(3.85)	(3.81)	(2.52)	(2.52)	(2.43)	(2.44)
Macroeconomic controls							
De facto FX regime	-1.00	-1.82**	-1.88**	-2.86***	-2.99***	-2.23***	-2.19***
	(-1.35)	(-2.36)	(-2.54)	(-4.10)	(-4.36)	(-2.99)	(-3.22)
Inflation	0.56***	0.49***	0.57***	0.51**	0.47***	0.21	0.21
	(2.74)	(2.99)	(3.48)	(2.62)	(2.70)	(1.17)	(1.11)
Stability	0.34	0.31	0.45	0.49	0.62*	-0.49	-0.50
	(0.89)	(1.04)	(1.31)	(1.42)	(1.80)	(-1.64)	(-1.67)
Trade openness	0.11***	0.14***	0.14***	0.19***	0.20***	0.22***	0.22***
	(3.24)	(4.76)	(4.05)	(7.25)	(7.98)	(9.32)	(9.30)
Export concentration index		-0.22**	-0.15				
		(-2.61)	(-1.39)				
Remittances			0.11				
			(0.67)				
Financial sector policy variables							
Banking sector concentration				-0.49***	-0.52***	-0.45***	-0.45***
				(-6.85)	(-7.02)	(-7.48)	(-7.39)
Restriction entry of foreign banks					1.88***	1.95***	1.99***
					(2.71)	(3.26)	(2.97)
Number of government banks						0.19	0.20
						(1.36)	(1.18)
Ownership limits for single owner							-0.54
							(-0.20)
Observations	80	78	76	62	62	50	50
R-squared	0.24	0.44	0.46	0.61	0.63	0.67	0.67

Source: IMF staff calculations.

Note: The dependent variable is the private-sector "credit gap" in percent of GDP of low-income and lower-middle income countries. Observations are yearly for the period 2007–08. Coefficients are based on pooled OLS regressions that include a constant and a year dummy. Cluster-robust *t* statistics are in parentheses. Supervisory intrusiveness is a dummy with 0 (no interference with directors' decisions on dividends, bonuses, or remuneration in the past five years) and 1 (interference occurred), drawn from the World Bank Survey of Bank Regulation in 2008. The macroeconomic control variables are defined as follows. De facto FX regime ranges from 0 (hard peg) to 8 (freely floating), inflation (CPI) is measured in percent, stability (the composite risk indicator from ICRG) ranges from 0 (high risk) to 100 (low risk), trade openness measures imports + exports in percent of GDP, export concentration index (UNCTAD) ranges from 0 (very diversified) to 100 (very concentrated). The financial sector policy variables are all from the same source as supervisory intrusiveness. Banking sector concentration measures the asset share of the five largest banks in percent, restriction of entry of foreign banks ranges from 0 (no restrictions) to 4 (restrictions on acquisitions, subsidiaries, branches, and joint ventures), number of government banks as a share of all banks in percent, and ownership limits for single owner is a dummy with 0 (no limits) and 1 (limits exists). Specifications with fiscal variables did not improve on the results reported here, but are available on request.
* p<0.1, ** p<0.05, *** p<0.01.

III. SPILLOVERS FROM EUROPE INTO MAURITANIA[1]

As a small open economy, Mauritania is highly vulnerable to global shocks, but particularly to developments in Europe given its geographical location, its close historical ties, and the reform agenda of the past few years. A novel econometric approach shows that Mauritania's interconnectedness with Europe has increased recently and manifests itself mostly through the trade channel. The vulnerability of Mauritania's economy to a shock from Europe is higher than in the average low-income country, but lower than in other Maghreb economies. Diversification of both export products and markets are essential to help Mauritania become more resilient to external shocks.

A. Background: What are the key spillover channels?

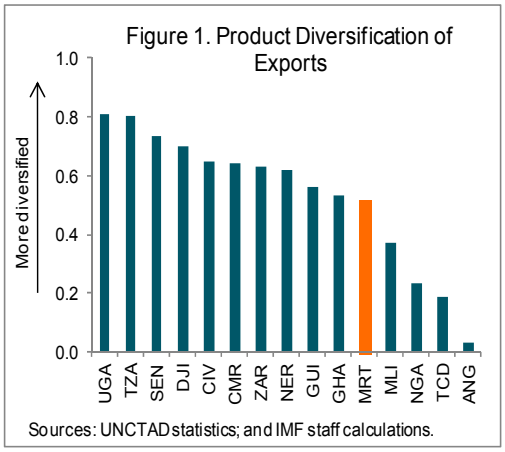
1. **Over the past decade, Mauritania has embarked on a rich reform agenda aimed at liberalizing its economy and encouraging foreign trade and investment**. In that context, Mauritania's trade regime has been revised and further simplified, leading to the elimination of trade barriers and to improved competitiveness of its exports. During that period, the country's ties with Europe were reinforced through the signing of a preferential trade agreement with the EU (through the Cotonou initiative) and a fishing agreement that has been repeatedly renewed since 1987. In addition to trade linkages, Mauritania's dependency upon Europe for foreign aid, large FDI inflows, and remittance flows is also important, reflecting the country's geographical proximity to Europe and close historical ties.

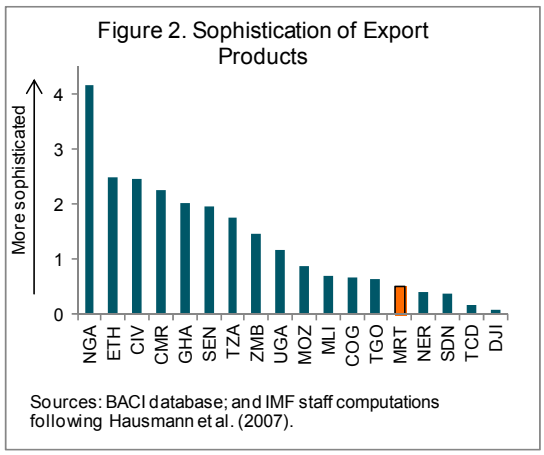
Trade Channel

- Exports from Mauritania to Europe have more than doubled over the 2000–10 period, and now represent 30 percent of GDP, the highest among low-income country (LICs).

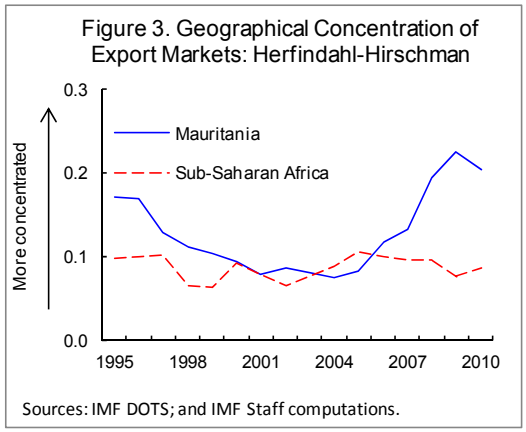
- Mining (iron ore, gold, and copper) and fishing products account for 74 percent and 23 percent, respectively, of all goods exported to Europe during the past decade. As a result, Mauritania lags behind its peers in export diversification, with higher metals prices making the economy even more dependent on developments in extractive industries. Moreover, the technological content of Mauritania's export is low, which makes it lag behind many countries in the region, and keeps it dependent on the "extractive industries."

[1] Prepared by Christian Ebeke (SPR).





- Export destinations have also remained quite concentrated, despite recent attempts to expand toward Asia in the aftermath of the global crisis, which had seen Mauritania's mining exports severely affected by clients facing "force majeure" events. Such diversification efforts were much less successful than those of other sub-Saharan countries, which had succeeded in keeping diversification high during the past decade. Additional diversification is needed to reduce the country's exposure to both global and region-specific shocks[2] (see da Costa Neto and Romeu, 2011, on how export diversification softened the impact of the 2008 global financial crisis).



Financial Channels

- The Mauritanian banking system has limited links with international markets, including those in Europe. Banking activities are funded in large part with domestic deposits (78 percent of bank liabilities) and cross-border financing is small (7 percent of GDP in 2011). In 2011, liabilities of Mauritanian banks to external counterparts amounted to $124 million, of which 73 percent is from Europe (2 percent of GDP). Such exposure is much lower than the average.

[2] In the aftermath of the 2008 global crisis, China has been the "client of last resort" of Mauritania's main export product (iron ore). This has somewhat helped the country reduce its dependency upon Europe.

- Moreover, while the current account is fully open, there are several restrictions on the capital account as certain flows (including export receipts in foreign exchange) must be repatriated and are subject to prior approval of the Central Bank.

- Foreign banks have only started operating in Mauritania over the past five years, and only represent 24 percent of banking assets in Mauritania. Of those, European banks represent a mere 7 percent, thus limiting the financial transmission channel from Europe. Nevertheless, the presence of foreign banks will increase banking competition and diversify funding sources.

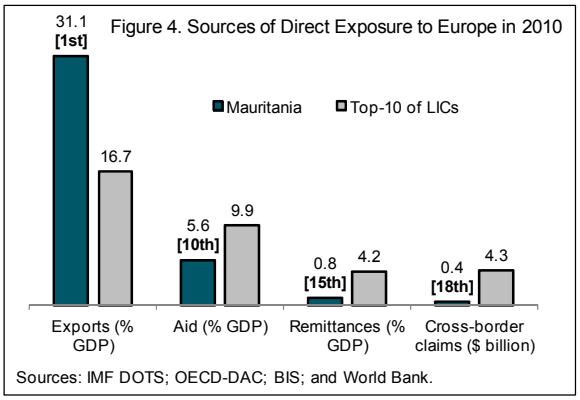
- Flows of private capital to Mauritania reached close to 23 percent of GDP in 2011, led mostly by FDI and loans to the iron ore company. Most of this FDI was from the North American region, and targeted mainly at the mining and oil industries.

Aid and Remittances

- Aid flows are important for Mauritania, averaging 13 percent of GDP, mostly from multilateral institutions. Of the bilateral flows, about 80 percent comes from Europe, which represents about 5 percent of GDP in recent years. This is important enough to make the country vulnerable to a drying-up of official development assistance, but still well below the LIC average of 10 percent of GDP.

- Remittances averaged 2 percent of GDP in Mauritania over the past decade, 54 percent coming directly from Europe. The dependency of the country upon remittance flows appears particularly limited, though this is based only on official data, which somewhat underestimate the true size of remittance flows.

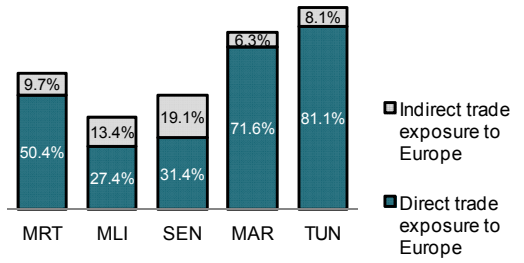
Figure 4. Sources of Direct Exposure to Europe in 2010



Sources: IMF DOTS; OECD-DAC; BIS; and World Bank.

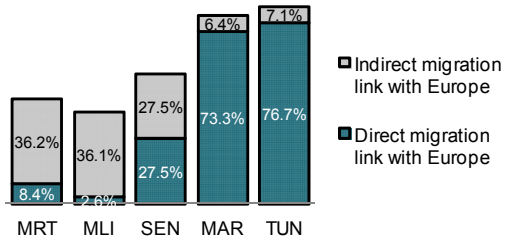
2. **Against this background, trade and aid appear to be the most important transmission channels, although remittances become relevant after third-country exposures via Europe are accounted for.** Indeed, accounting for indirect impacts (Box 1) increases the country's exposure to spillovers from Europe through both trade and remittance channels. In terms of magnitude, 36 percent of Mauritanian migrants live in countries that are directly connected with Europe, and 10 percent of Mauritania's exports are to economies that are well integrated with Europe.

Figure 5. Direct and Indirect Trade Exposure to Europe, Average over 2000–10



Source: IMF staff calculations based on IMF DOTS data.

Figure 6. Direct and Indirect Migration Links with Europe, Average over 2000–10



Source: IMF staff calculations based on Global Bilateral Migration Dataset (World Bank).

Box 1. How to Measure Indirect Channels

The trade and migration channels are retained to investigate the strength of the indirect linkages. More formally, the following calculations are used to compare the direct and indirect linkages for a given country *i*:

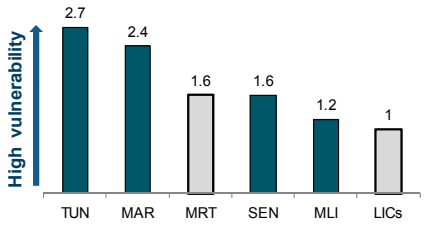
$$de_i = \frac{v_{ie}}{\sum_j v_{ij}} \quad [1], \quad and \quad ie_i = \frac{\sum_j \left(v_{ij} * \frac{x_{je}}{\sum x_{j.}} \right)}{\sum_j v_{ij}} \quad [2],$$

where *de* and *ie* stand for the direct and indirect exposures, respectively. v_{ie} denotes either exports or stock of migrants from country *i* (let's say Mauritania) into Europe, $\sum_j v_{ij}$ the country's *i* total exports or migrants, v_{ij} the bilateral exports or migrants from *i* to a given country *j*, $\frac{x_{je}}{\sum x_{j.}}$ the share of country's *j* exports to Europe divided by country's *j* total exports. Bilateral trade data are drawn from the IMF Direction of Trade Statistics (DOTS) while bilateral migration data come from the new World Bank Global Bilateral Migration Database.

The sample consists of bilateral data covering more than 200 countries (53,592 pairs of countries and about 1,179,024 observations) over the period 1990–2011. Such a large sample takes into account countries' trade composition with all potential trading partners and then ensures multilateral consistency.

3. **Putting all the pieces together suggests that Mauritania is more exposed to shocks from Europe than the average low-income country.** Combining trade, migration and foreign aid channels into an index of exposure to shocks from Europe (constructed using principal component analysis) shows that Mauritania is 60 percent more exposed to shocks from Europe than the average low

Figure 7. Index of Exposure to Shocks from Europe, (1990–2010)



Source: IMF Staff estimates. The index exposure to shocks from Europe has been computed as the aggregation (using the principal component analysis) of bilateral exports, aid, and migration data between LIC and Europe.

income country. This exposure is on par with neighboring countries such as Senegal and Mali, but still below countries with strong export, tourism, and remittance links Morocco and Tunisia.

B. Estimating the Spillover Effect Between Mauritania and Europe

4. This section proposes a new framework to identify and measure the response of Mauritanian activity to a slowdown in Europe. The analysis then measures the impact of the main determinants of economic spillovers.

Empirical approach

5. **Spillovers from Europe into Mauritania are estimated by testing for business cycle synchronization using a time-varying approach**. This regression-based approach is preferable to the vector autoregressive models often used for this type of analysis, high-because- frequency output data (monthly or quarterly) are not available for Mauritania. The methodology developed in this paper helps overcome this data limitation by measuring the strength and the significance of the business cycle co-movement at each point of time.[1] It also controls for global shocks so as to remove the omitted variable bias when the coefficient measuring the business cycle co-movements is estimated. Data used for this analysis are annual for the 1985–2011 period. To allow for comparisons across countries, all Maghreb countries are covered (including Egypt). The econometric specification is as follows:

$$y_{it} = \kappa_{it} y_{it-1} + \theta_{it} y_t^* + \sigma_{it} y_t^w + \epsilon_{it} \quad [3]$$

where
$y_{it}, y_t^*,$ and y_t^w denote the real GDP business cycle in each country, Europe's real GDP business cycle, and the world real GDP business cycle, respectively.[2] Including y_t^w allows us to control for global shocks and helps ensure that the effect of Europe's GDP shocks y_t^* on each retained country in the sample is direct.[3]

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[1] To allow for time-varying regression parameters, the paper follows the procedure discussed in Aghion and Marinescu (2008) and in Ebeke (2011).

[2] More specifically, each indicator of the business cycle is derived as follows: $x_{it}^c = ln\left(\frac{x_{it}}{x_{it}^{HP}}\right)$, where x_{it}, x_{it}^{HP}, and x_{it}^c, represents the real GDP variable, its trend obtained from the Hodrick-Prescott filter, and the cyclical component, respectively. All the business cycle series are computed using the Hodrik-Prescott (HP) filter with the lambda parameter set at 6.25 following Ravn and Uhlig's (2002) recommendation for annual data.

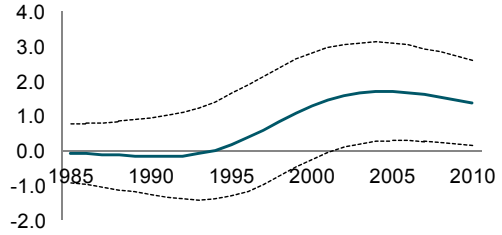
[3] Global shocks are represented by the world real GDP business cycle. This approach allows controlling for world risk aversion and technological changes, which would affect both Europe and Mauritania business cycles. Results did not change after accounting for world oil prices as a global shock.

From equation [3], the coefficient of interest is θ_{it},[4] which measures the correlation of business cycles between each country *i* and Europe after controlling for global shocks. In sum, this measures the "spillover effect" indicating the extent to which income shocks in Europe are affecting each country *i* and at each year *t*.

Effects of external shocks from Europe

6. **Business cycles between Mauritania and Europe are increasingly synchronized across time.** An analysis of the spillover effect during the past 25 years shows a clear dichotomy between business cycles. The pre-2000 period is characterized by no co-movement with Europe, with coefficients small and statistically insignificant. In the post-2000 period, spillovers are significant and rising, implying that a 1 percentage point decrease in Europe's growth below its potential will on average decrease Mauritania's growth by 1.5 percentage points below its potential. This increasing importance can mostly be explained by three main factors:

Figure 8. Coefficient of Business Cycle Synchronization Between Mauritania and Europe: Local Gaussian Ordinarily Least Squares Estimates 1/

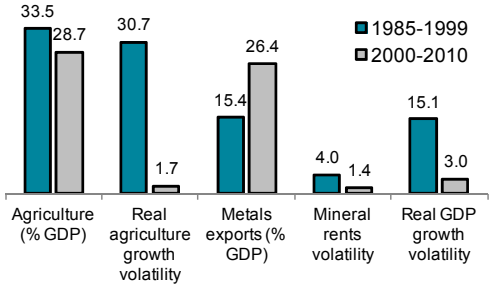


1/ Bold line represents the time-varying coefficients of business cycle synchronization between Mauritania and Europe. Dashed lines denote the confidence interval at 95 percent.

- **Larger trade pattern**. The spillover effect is mostly linked to the high dependency of Mauritania's main export receipts upon European markets. Regarding the remaining explanatory variables (foreign aid and remittance inflows), their marginal effects are disproportionally lower than for other countries (see Annex I).

- **Higher exports of demand-sensitive products**. Over the past decade, the share of ores and metals exports to Europe has significantly increased, from 71 percent in 2000 to 83 percent in 2011. At the same time, fish export share (a potentially less demand-elastic product) to Europe has decreased from 27 percent in 2000 to 16 percent in 2011. Over the period, an estimation of a simple regression model shows that the demand for Mauritania's exports is highly sensitive to Europe's income shocks, with

Figure 9. Structural Breaks and Sources of Aggregate Fluctuations in Mauritania



Sources: World Bank; and World Development Indicators.

[4] We implement a local Gaussian weighted ordinarily least squares method to estimate the time-varying spillover coefficients of spillovers for each country.

a semi-elasticity of demand of 3.2. [5]

- **Different structure of the economy.** The Mauritanian economy was less exposed to the trade channel during the 1985–1999 period because its output depended more on agriculture, which was often volatile (affected by droughts), leading to higher aggregate output volatility. Also, as explained above, the country's dependency on metals exports has increased sizably since then, with the global recession revealing Mauritania's vulnerability to demand from Europe.

C. Conclusion

Mauritania has become increasingly dependent on developments in Europe, mostly through the stronger impact of the trade channel. This increasing exposure to external shocks represents an important challenge that needs to be addressed through at least two sets of policies. First, the country should continue to increase its diversification of export products and markets, including the development of a domestic industrial base. Second, countercyclical policies that consist of building buffers in good times are appropriate to cope with global shocks.

[5] This suggests that a decrease in GDP growth in Europe by 1 percentage point would lead to a drop in Mauritania's exports to Europe by 3.2 percent.

ANNEX: DETERMINANTS OF SPILLOVER EFFECTS

To investigate the main drivers of business cycle co-movement between Mauritania and Europe, the time-varying coefficients of synchronicity are regressed on the bilateral trade variable while for other potential sources of contagion are controlled (aid, and remittance flows) for.[6] The following econometric model is estimated using panel data of the following countries: Mauritania, Tunisia, Morocco, Egypt and Djibouti.

$$\hat{\theta}_{it} = \sigma_1 \mathbf{\Gamma}_{\mathrm{it}-1} + \sigma_2 \mathbf{\Gamma}_{\mathrm{it}-1} \cdot d_i + u_i + \epsilon_{it} \quad [4]$$

where
$\mathbf{\Gamma}_{it}, d_i,$ and $u_i,$ denote the indicators of economic linkages with Europe (trade, remittances, and foreign aid), a dummy variable identifying Mauritania, and the country fixed effects, respectively. $\sigma_1 \sigma_2$ identifies the effect of globalization variables $\mathbf{\Gamma}$ on the synchronization of business cycles between Mauritania and Europe, whereas σ_2 measures the average effect of these globalization variables in other countries.

The econometric estimations correct the biases arising from business cycle co-movement $\hat{\theta}_{it}$ that have already been estimated and exhibit distinct levels of precision. The statistical bias is then factored in by using the weighted panel least squares method. In this method, each observation is weighted by the country specific average of the inverse of the standard errors associated with each $\hat{\theta}_{it}$ (see Alesina et al., 2008).

Results (Table 1) indicate that the spillover effect due to trade is stronger for Mauritania than in other countries, with the index of exposure being more significant (Table 1, column 2).

[6] Due to lack of time-varying data on bilateral remittance data from Europe, the econometric model only controls for the total amount of remittance inflows for each country. In contrast, bilateral aid data which are available from the OECD-DAC database have been directly used.

Determinants of business cycle synchronization: The specificity of Mauritania. Standardized coefficients are reported.

	[1]	[2]
Trade intensity with Europe	0.0598	
	(0.513)	
Remittance-to-GDP ratio	0.312**	
	(2.432)	
Aid dependency upon Europe	0.0830***	
	(3.130)	
Trade intensity * Mauritania dummy	0.655**	
	(2.001)	
Remittance ratio * Mauritania dummy	-0.302**	
	(-2.291)	
Aid dependency * Mauritania dummy	-0.425*	
	(-1.703)	
Exposure index		0.193***
		(4.139)
Exposure index * Mauritania dummy		1.353***
		(9.647)
Intercept	1.671**	0.343***
	(2.363)	(6.070)
Observations	83	83
R-squared	0.94	0.34
Total effect of trade in Mauritania	0.71	
Total effect of remittance flows in Mauritania	0.01	
Total effect of foreign aid in Mauritania	-0.34	
Total effect of vulnerability in Mauritania		1.546

Weighted Least Squares regression (weight = inverse of standard deviation of Theta). Robust t-statistics in parentheses. Country fixed effects are included but not reported. All the explanatory variables have been lagged.

*** p<0.01, ** p<0.05, * p<0.1.

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