



Microfinance Index of Market Outreach and Saturation

Jordan

August 2018

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The retail banking and microfinance sectors in Jordan have an overall moderate penetration among Jordanian resident adults, receiving a MIMOSA score of 2 (lower normal level). However, because nearly all formal lending is limited to citizens (the non-citizens that make up a third of the population), the effective penetration of lending is markedly higher, with a MIMOSA score of 3 (upper normal level) among Jordanian citizens.

This figure moreover obscures a number of other underlying complexities and risks in the market: the relatively high per capita penetration in more rural areas compared to far lower penetration in the main cities of Amman, Irbid, and Zarqa; the significant portion of the population who are unwilling to borrow due to religious concerns; the absence of a common credit reporting platform for the full financial sector, encompassing both banks and MFIs; and most importantly, signs of saturation and over-indebtedness among a significant share of borrowers, especially MFI clients. In light of these factors, we recommend an emphasis on strengthening market systems and infrastructure over continuing growth in outreach and penetration, with the exception of increasing outreach among non-citizens, who are deeply underserved by the financial sector.

Using an established methodology tested in 9 other countries, our estimate of penetration finds 8.4 active borrowers per 100 adults nationally. This is based on compiling data from multiple sources available in Jordan (for details, see Special Discussion #2 below). However, the picture changes completely when looking at borrowers' citizenship status.

Category	Rating	Indicator	2018
Saturation		Loan penetration over capacity (per 100 adults / citizens)	-0.7 / +2.5
	Low	Credit card penetration per 100 adults	1.4
Regulation	● *	Overall quality of regulation	38/100
	●	Prevention of over-indebtedness	0/2
	● *	Appropriate collections	1/2
	● *	Quality of credit bureau & credit reporting	25/100
Competition / overheating	●	Level of competition (HHI)	2186
	●	% Borrowers with 3+ loans	5.7%**
	●	Loan portfolio CAGR in value past 3 years	15.0%
	-	Loan portfolio growth in value expected next 12 months	n/a
Maturity of microfinance institutions	●	% clients at MFIs >20y old	27%
	●	Experienced crisis in past 15 years	no
Transparency	●	Composite transparency score	2.8/4
	● / ●	% leading MFIs with ratings in past 2 years	0%
Other risks	-	FX exposure	n/a

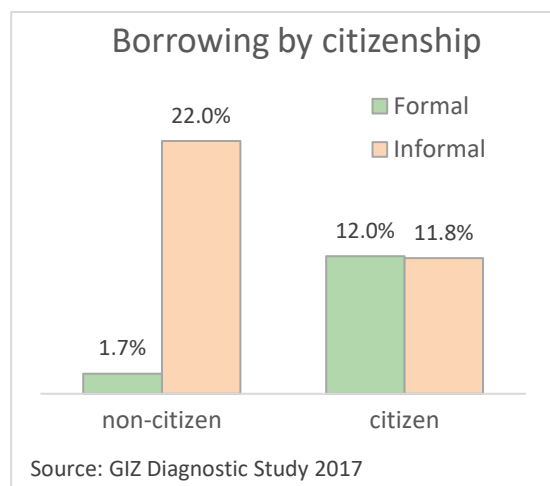
For explanation of ratings in this and subsequent tables, please consult the User Guide at the end of the report.

* Numerical scores from 2016 EIU Microscope (latest version), however, to reflect regulatory changes since then, we adjust ratings to what we'd expect an updated Microscope score would show.

** multiple borrowing data includes only borrowing among MFIs. No detailed data is available for multiple borrowing among either bank clients or clients with both bank and MFI loans.

A third of the Jordanian population are non-citizens, whether refugees, economic migrants, or other temporary residents, including long-time residents.¹ In our assessment of market capacity, these individuals are included as

an integral part of the adult population that comprise potential borrowers.² However, that is not how the Jordan credit providers view them.



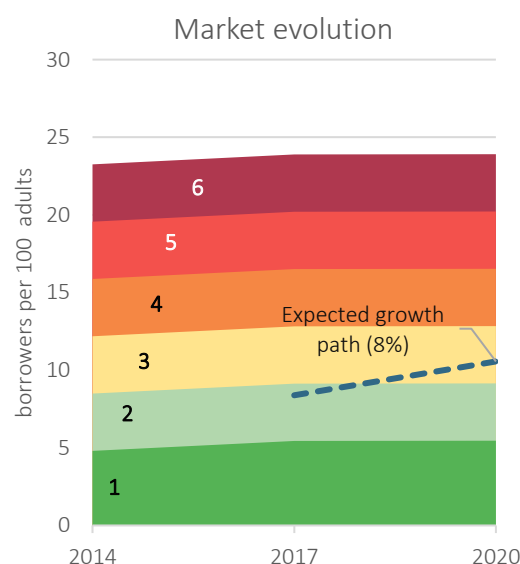
The differences are stark. Non-citizens are perhaps the single most financial excluded group in the country. And it is not due to the absence of demand – non-citizens are nearly twice as likely to borrow from informal sources as citizens, which looks far too much like filling in the gap created by the lack of formal credit. The effect of this goes beyond exclusion. Because non-citizens make up such a large portion of the population, the credit penetration level among Jordanian citizens is far higher than implied by the overall population figures. With 11.8 borrowers per adult citizen, the country's credit penetration profile is

significantly increased – receiving a MIMOSA score of 3 (upper normal level).

This higher penetration level is also a function of the competitive landscape in Jordan. Overall, the competition among MFIs is moderate, with the largest three MFIs, Microfund for Women, Tamweelcom, and National Microfinance Bank accounting for 73% market share in terms of number of clients. Based on the Herfindahl

	2014	2017	2020
HDI	0.740	0.741	0.742
Population density per km ²	74.4	113.7	115.0
Credit Bureau Score	-	20.4	20.4
Borrowing capacity per 100 adults	8.5	9.1	9.1
Borrowers per 100 adults / citizens		8.4 / 11.6	10.6/14.6
Microfinance loans per 100 adults		6.2	8.0
MIMOSA Score		2 3	3 4
GDP per capita (current \$)	5,375	5,678	6,202
CAGR GDP, past 3 years (constant LCU)	2.9%	2.2%	2.7%

* forecasts: IMF for GDP, UNDP for population; MIMOSA for others



¹ Non-citizens are defined as per the Jordan census 2015, which largely excludes most Palestinian refugees who are considered Jordanian citizens.

² Two foundational components of our capacity estimate – the Human Development Index (HDI) and population density – incorporate data on all Jordanians, citizen and non-citizen alike. It is true that non-citizens may be on average poorer and some of the refugees may not have permission to work and thus earn official income, this is by no means true for all, nor probably even a majority of the 2.9 million non-citizen Jordanians (of whom only a quarter are refugees). Moreover, the age profile for citizen- and non-citizen Jordanians is nearly identical – 66% of both groups are 15 or older.

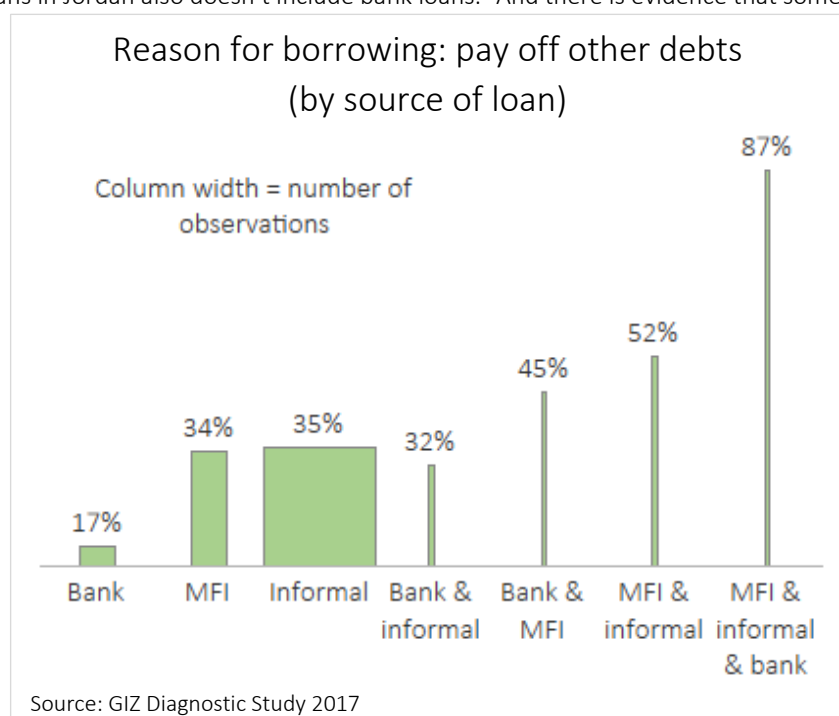
index (HHI), of the nine countries in the MIMOSA project database, only Morocco is less competitive than Jordan.³

Nevertheless, perhaps because of the reduced client base among Jordanian citizens (and after accounting for individuals unwilling to borrow due to their religious beliefs – see Special Discussion #1 below) there are visible signs of over-indebtedness, including among MFI clients. Multiple borrowing is substantial – nationally, 5.7% of MFI clients have loans with 3 or more institutions.⁴ This is higher than any non-Latin American markets covered by Mimosa, where multiple borrowing data is available (including India and Cambodia). Indeed, this level is similar to Morocco in 2008, on the eve of the crisis there.

Despite this, it's worth bearing in mind that the levels of multiple borrowing in Morocco were the lowest of all the major microfinance crisis markets (Nicaragua, Bosnia, and Andhra Pradesh), and were also well below levels seen in many other markets that have not experienced crisis. For example, in Peru 24% of clients have loans with 3 or more institutions. While this might appear inconsistent, what it shows is that multiple borrowing alone is not sufficient to predict a crisis. It needs to be viewed in conjunction with other factors – which is exactly the approach behind the MIMOSA methodology.

The 5.7% of borrowers with 3+ loans in Jordan also doesn't include bank loans.⁵ And there is evidence that some borrowers hold simultaneous loans from both banks and MFIs. A recent GIZ survey⁶ found that nationally, 0.5% of adults (6.0% of borrowers) have taken loans from both banks and MFIs in the past 12 months.

A further source of concern comes from a more direct measure of over-indebtedness: borrowers who took their loans to pay off existing debt. More often than even multiple borrowing, this is commonly seen as closely related to over-indebtedness, or at least debt stress. About a quarter of all borrowers in Jordan report their loan purpose as being



³ By comparison, in Cambodia – a market of roughly comparable population as Jordan – the top 3 MFIs have 40% market share. And it's not even the most competitive market for microfinance – both Peru and India (including smaller regions within India) have even higher levels of competition among MFIs.

⁴ Multiple studies, including in Bosnia and Morocco, have shown that during crisis borrowers with 3 or more loans are substantially more likely to default than those with 2 loans or fewer. That's the reason 3+ loans is the multiple borrowing standard used by MIMOSA. For reference, 25.5% of MFI borrowers in Jordan hold 2+ loans.

⁵ The Morocco comparison data from 2008 also included MFIs only, and no contemporary data exists for that country to verify how many clients were borrowing from both institutions at the time.

⁶ The reference here and elsewhere is to the Financial Inclusion Diagnostic Study in Jordan 2017, implemented by GIZ and Business & Finance Consulting; as part of the collaboration with MIMOSA, GIZ shared the raw survey data on which several of these analyses are based.

primarily for debt repayment. But the figures vary dramatically, based on the source of the loans. Whereas 17% of bank borrowers reported this reason, the figure for MFI clients was nearly three times higher, at 34%. The numbers increase further when we factor multiple borrowing. Nearly half (45%) of clients who borrow from both banks and MFIs use loans to repay debt, and the numbers increase further still, with 52% of clients who borrow from both MFIs and informal sources and 87% of clients using all three (bank, MFI, and informal) using loans to repay debt. It seems likely that such clients are indeed juggling debt, and many of them could be struggling with outright over-indebtedness.

To be sure, the absolute number of such extreme “debt-juggling” clients is small. Just 4 out of the 1000 clients in the survey reported using all three sources of debt (3 of whom borrowed to repay debt).⁷ But the numbers for the other categories are far more significant. Informal borrowing by clients with MFI loans is very common, comprising 18.5% of MFI clients. Given that half of these individuals report borrowing to repay debt, we’re faced with about 1 out of 10 MFI clients juggling debt in this way. Again, on its own this doesn’t imply that all such clients are over-indebted. Many may simply be using two sources to facilitate cashflow management. Even so, that number is not small and should give reason for pause.

In the context of concerns about over-indebtedness, growth becomes an increasingly important factor. Over the past three years, growth in the microfinance sector has been modest, recording 15% CAGR in portfolio during 2014-17. However, in light of the low economic growth during the same period (2.2% CAGR), even this modest level is not sustainable in the long run, unless economic growth overall picks up. Growth in number of loans (8.6% CAGR during 2014-17 for MFIs, and 4.5% during 2016 for banks) has been more modest, revealing that average loan sizes are getting larger, in part due to some MFIs starting to target the very-small enterprise (VSE) market. Since no forecast exists for expected growth going forward, in our modeling of future growth, we have assumed a figure close to the MFI sector growth in borrowers (8%), which would yield a MIMOSA score of 3 for Jordan residents (and a per citizen score of 4) by 2020.⁸

Normally, in markets with significant concerns about over-indebtedness, the focus on growth and outreach should take a back seat to strengthening market systems, infrastructure, and responsible lending practices. Jordan, however, presents an important exception – outreach among non-citizens is so low that it would be reasonable to continue pursuing growth among that segment, even as the broader market strengthening is being implemented.

As it happens, the latter is already taking place. Over the past two years, there have been significant efforts by the Central Bank of Jordan (CBJ) to strengthen the monitoring and supervision of MFIs. It has already published regulatory guidelines focused on MFI governance and a number of other areas and has plans to include factors specific to client protection in the future. Efforts are also underway to have MFIs begin reporting to the credit bureau (CRIF), which already includes bank borrower data, in addition to the Delta system, which contains MFI borrower data. However, this hasn’t been implemented yet, and is in any case expected to be rolled out incrementally, starting with the largest MFIs. Until then, there currently is no mechanism by which lenders can verify a client’s full debt burden, including loans from other lender types.

Similarly, the leading MFIs – with encouragement from the CBJ, as well as Tanmeyah and IFC – have been going through the Smart Campaign client protection certification process, although this hasn’t yet been completed. In short, in terms of regulation and lending practices that support a stronger, more resilient sector, Jordan is a

⁷ The percentage figures don’t correspond exactly to the count of interviewees due to sample weighting.

⁸ The modeling of future capacity requires estimating changes in credit bureau coverage. However, given absence of historical data for the relatively young CRIF credit bureau in Jordan, we have kept their coverage rate the same. Should this change, for example, if MFIs were to start reporting to CRIF instead of Delta, that coverage level would increase substantially. However, at present growth trends, even that would likely result in the same MIMOSA score.

market in transition.

The microfinance sector in Jordan is moderately mature, with most MFIs between 10 and 20 years old. In the MIMOSA methodology, this yields a neutral score for market maturity. Likewise, with the market not having experienced a market-level crisis, there is no special experience among MFI management and senior staff of dealing with such an event or recognizing the early warning signs. While this isn't a risk in itself, these factors can't be seen as providing additional risk mitigation, as they do in more mature markets, especially those that have undergone a crisis in recent memory.

Finally, on data transparency, the financial sector in Jordan gets mixed scores. As mentioned above, both banks and MFIs report loan-level data regularly to appropriate institutions (Delta for MFIs and CRIF for banks), as well as additional info to Tanmeyah and the Central Bank. The public data reported by the Association of Banks in Jordan is more detailed than usual for banking associations, allowing for useful market analysis. However, the Delta reporting system used by Tanmeyah has important drawbacks and limitations. It cannot, for example, produce data on multiple borrowing at the regional level. Meanwhile, while the CRIF system exists, gaining access to this valuable data source for analytical purposes was met with difficulty. In short, the data weaknesses affect both client-level assessment (due to separate credit reporting systems), as well as the type of detailed data aggregations and reports needed to conduct useful market-level analytics.

Like credit reporting, ratings, both institutional and social, as well as detailed assessments and certifications such as Smart Certification, constitute an important validation of the quality and reliability of institutional practices. While there have been no up-to-date ratings published for any of the leading MFIs, the ongoing Smart Certification process for some is evidence that external review is taking place. We thus score the rating category with dual scores, in recognition that near-term outcome is likely to move this indicator upwards.

No data on foreign currency lending in Jordan exists, but local market experts confirm no foreign currency lending is done by any of the MFIs.

MIMOSA Scores by Region

Regionally, Jordan is a country of contrasts, and somewhat surprising ones. Mimosa scores range from the lowest level of 1 in Irbid to the highest of 4 in the western governorates of Madaba, Karak and Tafleia. The three governorates comprising the three largest urban areas in the country – Amman, Irbid and Zarqa – are all among the lowest-penetrated areas of the country. This is unusual, since in most countries we typically observe the opposite, with large urban zones typically seeing higher credit penetration than less populous areas (recall that penetration includes lending by both banks and MFIs).⁹

It appears that much of this is due to relatively higher prevalence of MFI lending per capita in less populous governorates (even if this is mainly concentrated in the smaller urban hubs of those areas), but with no corresponding increase of bank lending in large urban centers, especially in Amman. Thus, the number of MFI borrowers in Amman is just 3.3% of adults, whereas in Madaba, it's 12.1% of adults, resulting in a score of 4 for that region. Meanwhile, bank borrowers in Amman account for 5.2% of adults, and just 3.0% in Madaba.¹⁰ Put another way, in Madaba, the most saturated governorate in Jordan, 80% of all formal sector borrowers are clients of MFIs, and a similar pattern holds for the other regions with a Mimosa score of 4 (Karak and Tafleia).

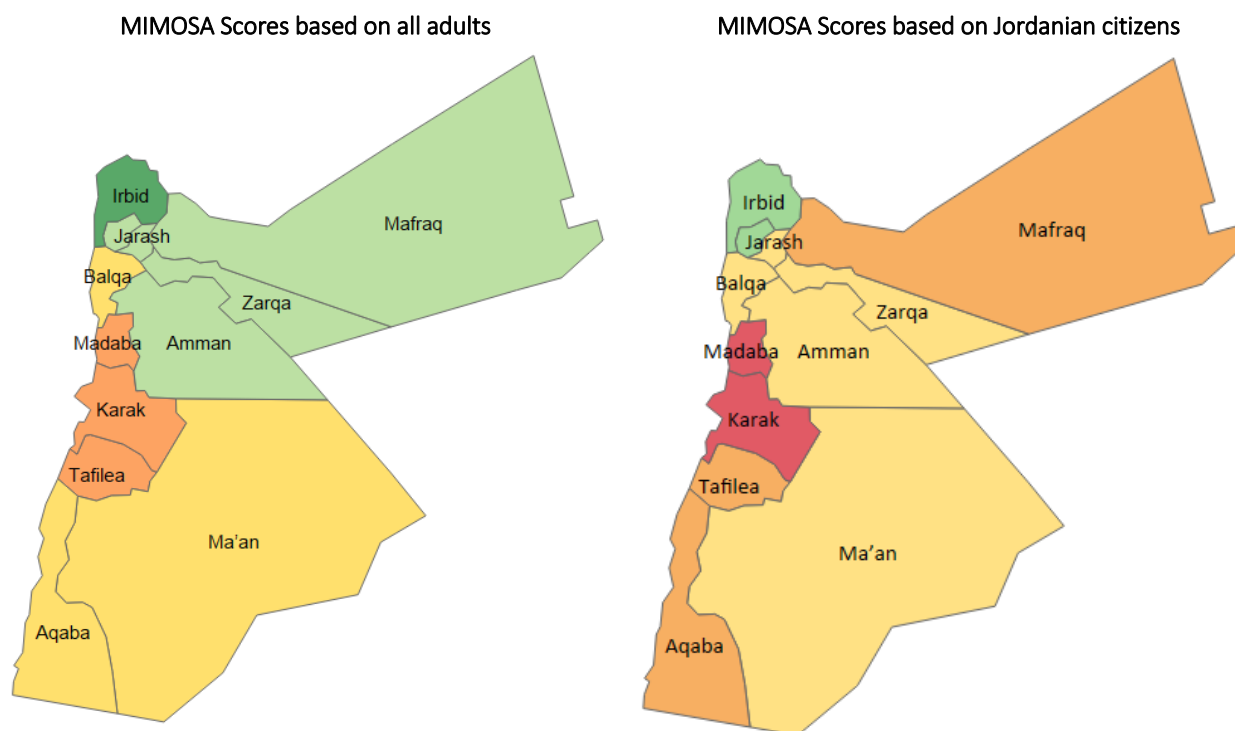
Lending penetration also follows a strong regional pattern, beyond just specific governorates. The western areas of the country, adjoining the Dead Sea, see the highest concentration of lending per capita. Meanwhile, the north, including both Irbid and Mafrq, has the lowest.

Column:	1	2	3	4		5	6		7	
Region	Total Population (000s)	HDI	Population density (per km2)	MIMOSA Score		Borrowing capacity (%)	Borrowers per adult (%)		Penetration over capacity	
				Total	Citizen		Total	Citizen	Total	Citizen
National	10,096	0.741	114	2	3	9.1	8.4	11.6	-0.7	2.5
Amman	4,245	0.763	560	2	3	11.8	8.5	12.5	-3.3	0.7
Irbid	1,875	0.733	>600	1	2	11.5	6.8	8.8	-4.7	-2.7
Zarqa	1,446	0.736	304	2	2	10.0	7.2	9.9	-2.9	-0.1
Mafrq	583	0.731	22	2	3	8.5	6.1	11.7	-2.4	3.3
Balqa	521	0.726	465	3	3	10.7	10.9	13.0	0.2	2.3
Karak	335	0.731	96	4	4	8.9	13.3	15.6	4.4	6.8
Jarash	251	0.730	>600	2	3	11.5	8.6	12.3	-2.9	0.9
Madaba	200	0.723	213	4	5	9.4	15.1	18.0	5.7	8.6
Aqaba	199	0.727	29	3	4	8.5	10.2	13.6	1.7	5.2
Ajlun	187	0.722	444	2	2	10.5	8.7	9.7	-1.8	-0.9
Ma'an	153	0.715	5	3	3	8.2	8.7	10.0	0.6	1.9
Tafleia	102	0.725	46	4	4	8.5	13.1	13.9	4.6	5.3

Sources: 1,3) Jordan Department of Statistics; 2) Jordan Ministry of Planning and International Co-operation, UNDP; 6) Tanmeyah, Delta, Association of Banks in Jordan; 4-5, 7) Mimosa calculations

⁹ But not all. In Cambodia, borrowing penetration is likewise higher in the countryside and rural towns than in the capital.

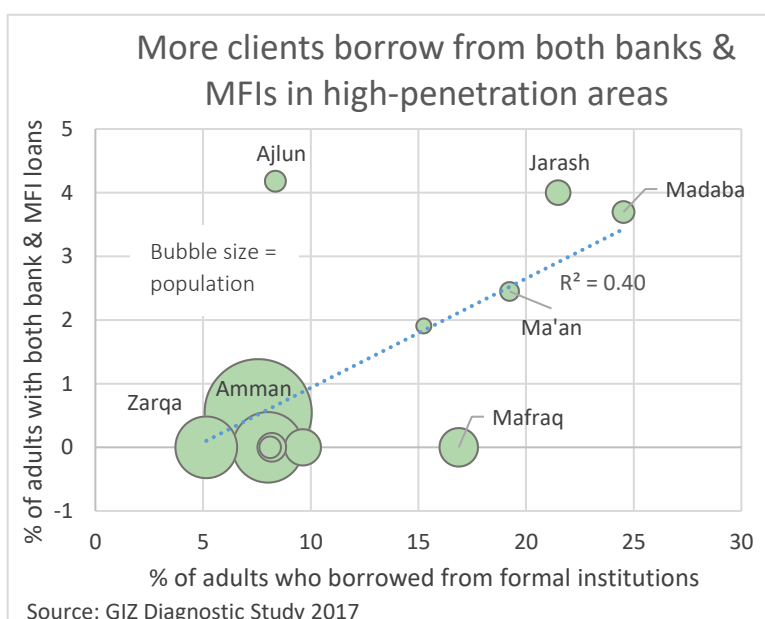
¹⁰ Bank borrowing in this case looks at number of loans disbursed per year, as reported by the Association of Banks in Jordan. The number of loans outstanding is likely higher than this. However, this metric is consistent with the standard measures used by Findex and GIZ surveys, which ask for borrowing in the past 12 months, and with bank loans generally having longer terms than MFI loans, we believe this is a reasonable comparison.



However, looking at these trends alone obscures several important factors that make the picture significantly more complex: the large disparity between lending to Jordanian citizens and non-citizens is replicated at the regional level. Indeed, in regions with especially high non-citizen populations, the gap between total penetration and penetration among citizens is even more stark. Mafrq, the governorate with the lowest overall credit penetration rate of 6.1 per 100 adults but a non-citizen population of 54%, has an implied penetration rate among citizens that's nearly double, at 11.7 per 100 adults. Large increases are also evident in Amman and Jarash. Meanwhile, the levels are only modestly affected in the governorates of Ajlun, Tafila and Ma'an that have a much lower share of non-citizens than the country overall.

For the rest of the country, penetration among citizens increases by 2-3 points, leading to an average MIMOSA saturation score increase of – underserved places becoming normal, while those with moderate saturation scores of 4 shift to a high saturation score of 5.

Finally, looking at governorates illuminates another important trend. Recall that nationally, 0.5% of adults (6.0% borrowers) have both MFI and bank loans that are invisible to the respective lenders due to separate credit reporting systems. But in governorates with high penetration,



the figure nearly triples, with about 15% of borrowers in Madaba holding both bank and MFI loans.

This is consistent with evidence from nearly all markets studied by the Mimosa project to-date, where multiple borrowing is strongly correlated with increased levels of credit penetration. In many respects, this is a natural byproduct of competitive credit markets and one that requires special effort to avoid. Thus, while data limitations in Jordan (for now) limit regional-level assessment of cross-borrowing to cases of borrowing between banks and MFIs, we believe that it's very likely that the same pattern applies to multiple borrowing for MFI clients only, with high-penetration regions likely having higher levels of multiple borrowing than the national-level figures imply. This could be validated with improved reporting from Delta and CRIF.

Special Discussion 1: Religion and Debt

Like other countries in the region, Jordan faces a special complexity when it comes to estimating market capacity and credit demand – the prohibition against debt observed by many religious individuals. The GIZ survey estimates that overall 19% of the population is unwilling to borrow due to their religious beliefs. That is a significant figure that the Mimosa borrowing capacity model does not capture. As a result, we have adjusted the model output by reducing capacity by 19%. We had made a similar adjustment in our report for Morocco.

A related question is whether these individuals who are religiously averse to credit might be motivated to take on Islamic finance products. Answering this question is beyond the scope of this report, however there are two important factors suggesting that bringing them into the financial marketplace through such products is not an easy task.

First, the aforementioned survey also found that, overall, only 1.5% of adults have used Islamic finance products. The structure of the survey questionnaire makes it difficult to factor out which among them did so for specifically religious motivations and would not borrow otherwise, but in any case, a third of them (0.6%) did not cite religion as a reason not to borrow (the question pertaining to use of Islamic products wasn't limited to debt), and half (0.8%) specifically cited borrowing from formal financial institutions, but without specifying whether the loans were Islamic or not. However one interprets the data, the gap between the number of individuals who are religiously motivated not to borrow and those who use Islamic finance is wide.

This is consistent with the findings of another recent study on the use of Islamic finance conducted in Jordan. In this study, individuals who were religiously inclined were indeed more likely to take up sharia-compliant loans, but only modestly so. In the study, 22% of those offered sharia-compliant loans submitted a loan application, versus 18% of those offered a conventional loan. Moreover, the statistical difference in the take-up rates between religiously observant vs. non-observant individuals was weak.¹¹

In summary, we feel that while Islamic finance offers the potential to reach religiously motivated non-borrowers, actual experience in doing so has proved difficult and will likely require more effort. Until then, reduced credit demand due to religious views remains a significant factor and needs to be properly accounted for in any assessments of borrowing capacity, which we have done for this report.

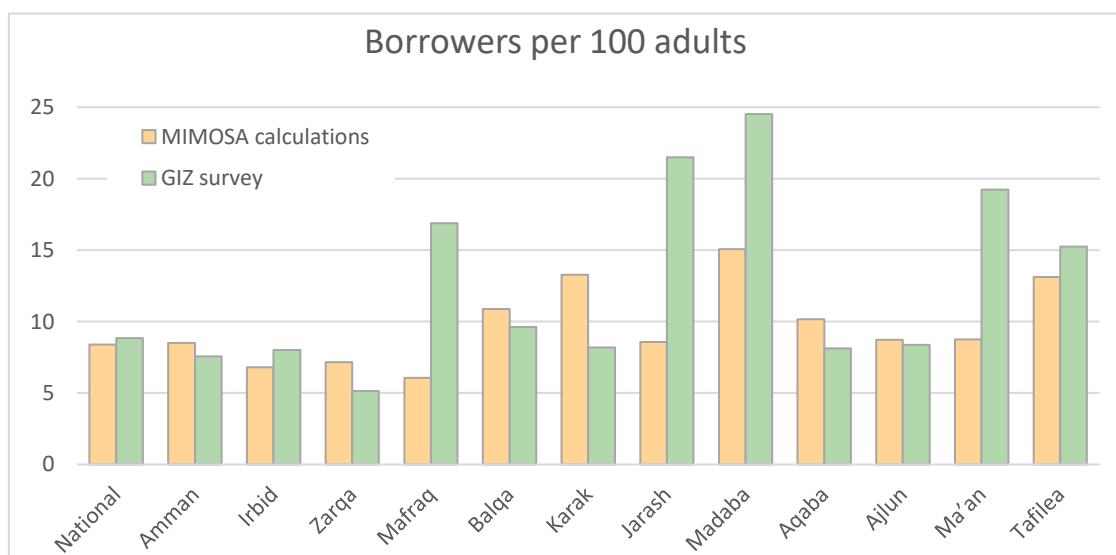
¹¹ Dean Karlan, et. al., To Borrow or Not to Borrow: Religious Norms and the Elasticity of Demand for Credit, February 2017

Special Discussion 2: Localized saturation and explanation of the data

Measuring penetration in Jordan has been quite a complex undertaking for this project. The MIMOSA calculations for penetration rely on three key data sources: the Tanmeyah / Delta system for MFI lending, Tanmeyah's own reports, and the annual reports of the Association of Banks in Jordan (ABJ). Each of these comes with its own limitations. The Delta system has data on unique number of borrowers and on multiple borrowing among MFIs, but only at the national level. Tanmeyah reports lending at the governorate level, but only for loans, not unique borrowers. Finally, ABJ reports disbursed (not outstanding) loans at the national level, and also reports the distribution of bank branches at the governorate level. By combining these sources and making some important (but reasonable) assumptions, we estimate the number of unique borrowers at both the national and governorate levels.

Our calculations align closely with the findings of the GIZ survey, which found a penetration rate of 8.8 per 100 adults, compared to our estimate of 8.4 per 100 adults.^{12,13} Regionally, the two data sets also tell largely the same story, with some important exceptions. In all three large urban areas – Amman, Irbid, and Zarqa – the alignment remains very close, and the same is true for Balqa, Aqaba, Ajlun, and Tafilea. However, there are deviations, in some cases quite substantial, in the less populated governorates, with the survey data usually finding higher penetration than our supply-side calculations (Mafrqa, Jarash, Madaba, and Ma'an), and only Karak showing the reverse.

What might account for the remaining differences? Certainly, our calculations are imperfect and may be the source of some uncertainty. However, it should be noted that in all the misaligned governorates, the GIZ samples were small, typically just 50 respondents. That's the reason why it's generally poor practice to disaggregate survey data down to such small samples (and to GIZ's credit, they reported only broader regional segments).



¹² The Diagnostic study reports an overall formal borrowing rate of 9.9 per 100 adults, which also includes borrowing from credit cards. Under the Mimosa methodology, credit cards are not included in the measure of penetration, so throughout this report, when referring to the GIZ findings, we exclude credit card borrowing.

¹³ The penetration reported in the 2017 Findex study, at 16.6 per 100 adults, is difficult to square with any reasonable assessment of supply-side data or the GIZ survey. We're investigating the reasons for the disparity, but strongly suspect that the Findex findings are substantially overstated.

However, we don't believe that the differences are solely due to statistical noise. Instead they also tell an important story.

Take, for example, Mafrq. Our supply-side calculations show this to be the **least**-penetrated governorate in Jordan, with 6.1 per 100 adults. GIZ's survey finds it to be among the **most**-penetrated, at 16.9 per 100. But let's dig further. The Mafrq sample has 58 respondents in total, of whom 8 reported having borrowed in the past 12 months.¹⁴ One can readily see chance at work here – just three fewer respondents saying they had borrowed would bring the number down to 8.6% penetration. As it happens, three of these “borrower” respondents came from a single location – coded as Shweikeh in the data, where the surveyor polled just 5 individuals. In that small area, the number of borrowers was actually 60% of the adult population! Yes, of course, that's statistical noise at work.

But not only. Credit saturation is often localized. Some places have several branches in a small area. Others require travel of some distance. Mafrq is a desert region with several dense settlements, especially towards the western part that functions almost as a suburb of Amman. The figures for the governorate are thus averages of the two – areas with very little lending activity, and those with quite a lot. Add to this the fact that Mafrq is also the governorate with the highest share of non-citizens, who tend to cluster (as do Jordanian citizens), and this leads to an even greater degree of localized lending. One could thus have a heated credit market in a small location, even as the larger area remains underserved.

We have seen this pattern at work elsewhere, especially in parts of India. This is worth bearing in mind throughout this – or any – report.

¹⁴ The difference between the implied 13.8% penetration (8/58) and the 16.9% calculated one is due to sample weighting.

User Guide

This is an abbreviated guide. For explanation of the methodology behind the penetration and capacity values, please consult the MIMOSA whitepaper.

The MIMOSA index consists of several measures. The primary score evaluates the degree to which the level of penetration exceeds estimated market capacity. The score levels and their interpretation is shown in the below table.

MIMOSA Score	Penetration over/ under capacity		
	Percentage points	Standard Deviations	Market status
6	>11.1%	3+	Saturated
5	7.4-11.1%	2 to 3	
4	3.7-7.4%	1 to 2	
3	0-3.7%	0 to 1	Normal
2	-3.7 - 0%	-1 to 0	
1	< -3.7%	< -1	Underserved

In addition to the score, we include the component metrics underlying the capacity and penetration calculations:

Human Development Index (HDI): developed by UNDP to assess the level of development, comprising GNI per capita, life expectancy, and education metrics. The scale ranges from 0-1.

Population density per km²: standard measure retrieved from country statistical bureaus.

Credit Bureau Score: derived from the Getting Credit measures in the World Bank Doing Business report. We include the level of coverage, and amount of information (both repayment history and debt outstanding) provided. The scale ranges from 0-400.

Borrowing Capacity: % of adults expected to be active borrowers, based on the MIMOSA model.

Borrowers per adult: derived from multiple sources, including the World Bank Findex survey, central bank reports, credit bureaus, and MIMOSA field surveys.

Microfinance borrowers (% of loans): number of active loans of microfinance institutions. Usually defined either by institutional registration with the regulator or membership in the microfinance association. Multiple loans held with the same institution are counted once.

Credit card borrowers (% of adults): number of adults with an outstanding credit card balance. Figure from Global Findex.

Credit card score: level of penetration vs. capacity. Graded on a three-point scale, indicating a market whose credit card demand is under-served, appropriately served, or over-saturated.

GDP 3-year CAGR (current \$): three year cumulative growth rate of GDP. Figure from IMF WEO.

GDP per capita (constant LCU): figure from IMF WEO.

In addition, we include a list of indicators that serve as additional risks or mitigants that in aggregate may increase or reduce the country's ability to manage increased levels of penetration:

Category	Indicator	Indicator	Mitigant 	Neutral 	Risk 
Regulation	Overall quality of regulation	Overall microscope score (0-100)	≥ 75	50-75	< 50
	Consumer protection (OID)	Microscope score 4.2.1	3	2	0 or 1
	Consumer protection (Collections)	Microscope score 11.3.2	2	1	0
	Credit bureau, credit reporting	Microscope score 10	≥ 75	50-75	< 50
Competition / overheating	Level of competition	Herfindahl-Hirschman Index	$HHI > 3,000$	$1,500 < HHI < 3,000$	$HHI < 1,500$
	Multiple borrowing	% borrowers with 3+ loans	$< 5\%$	5-15%	$> 15\%$
	Prior growth	Loan portfolio 3-year CAGR	$< 2x$ GDP growth	2-3x GDP growth	$\geq 3x$ GDP growth
	Future growth	Loan portfolio 12-mth growth expectations	$< 2x$ GDP growth forecast	2-3x GDP growth forecast	$\geq 3x$ GDP growth forecast
Maturity of microfinance institutions	Age of FIs	% clients of MFIs $> 20y$ or $< 10y$ old	$> 65\%$ of the borrowers are clients of MFIs > 20 years old	Other	$> 65\%$ of the borrowers clients of MFIs < 10 years old
	Prior crisis experience	Date of previous crisis	Market experienced crisis in past 15 years	no crisis experience	
Transparency	Composite score	See Transparency worksheet	≥ 3		< 1.5
	Ratings	% leading MFIs rated in past 2 years	≥ 75	50-75	< 50
Other risks	FX exposure	% of loans in foreign currency	< 10	10-25	≥ 25
	Interest rate level	Average Full APR, weighed by number of borrowers	$< 30\%$	30-60%	$> 60\%$