Summary Information			
TF#097625	KCP II - Bank competition and access to finance		
KCP Window	Investment Climate & Trade and Integration		
Sector	Finance	**Theme**	Financial and Private Sector Development
Countries	53 countries[1]	**TTL Name**	Maria Soledad Martinez Peria
Project Period	**06/15/2010 to 10/29/2012**	**Approving Manager**	Asli Demirguc-Kunt
Grant Amount	USD 60,000.00	**Disbursement**	USD 56,215.32

I. **Research Team** (with affiliations and country of origin for non-Bank members)
Maria Soledad Martinez Peria, World Bank
Inessa Love, University of Hawaii (on leave from World Bank)
Sandeep Sing, University of Maryland (previously World Bank STC) - Nepal
Diego Anzoategui, New York University (previously World Bank STC)- Argentina

II. Key indicators on **progress made since last progress report** (GRM), provide numbers only.
Working paper completed

1. Number of Outputs in this Fiscal Year							
Published journal article	Published working paper	Book chapter	Mimeo	Dataset	Tools	Surveys	Others(specify)
	1			1			1 blog
2. Number of conference/event organized in this Fiscal Year 1 seminar							
3. Number of developing country researchers/institutions substantively engaged in this Fiscal Year							
Developing country researchers				Sandeep Singh (Nepal), Diego Anzoategui (Argentina)			
Developing country institutions							

III. Completion Report

(To TTLs: The following Sections from 1 to 5 will be used as a short, non-technical note to summarize your research results and findings. This note will be shared widely with policymakers, regional colleagues, and donors.)

1. **Aims & Objectives (**Original aims and objectives of the research, along with any changes or deviations and their justification; note their consistency with Bank, and KCP objectives)**.**

[1] Albania, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Belarus, Benin, Bolivia, Bosnia-Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Cameroon, Chile, China, Colombia, Congo, Croatia, Czech Republic, El Salvador, Estonia, Georgia, Guatemala, Honduras, Hungary, India, Indonesia, Kazakhstan, Kenya, Latvia, Lithuania, Macedonia, Malawi, Mali, Mauritius, Moldova, Nicaragua, Peru, Philippines, Poland, Romania, Russia, Serbia and Montenegro, Slovakia, Slovenia, South Africa, Turkey, Ukraine, Uruguay, Vietnman, and Zambia.

The objective of this grant was to investigate how competition in the banking sector affects access to financial services and financial inclusion. The novelty of this project lied in using direct measures of competition, rather than measures of bank concentration, and in investigating the relative impact of competition across different types of firms.

In addition, the project proposed to produce a database of measures of competition around the world which can be used to benchmark countries against each other and over time. This data will be useful for other research on competition, as well as for Bank staff working on FSAPs and/or on other financial sector reports.

2. **Project Description** (Provide a short overview of the project including background/contextual information, implementation process, challenges & issues, difficulties or surprises, and important interventions or solutions. Please keep this section non-technical, you can elaborate on your methodologies in question 8.)

   The impact of bank competition on financial markets and firms is an important topic for policymakers and researchers alike. Interest on this subject intensified during the recent global financial crisis, as many questioned whether high bank competition was partly to blame. At the same time, the downfall of some institutions as a result of the crisis and the emergency measures taken by some governments to deal with this episode - such as mergers, bailouts, recapitalizations, and extension of guarantees- led to concerns about the future of bank competition and its potential implication for access to bank finance.

   Combining multi-year firm-level surveys with country-level panel data on bank competition for 53 countries, this paper provides new evidence on the link between bank competition and firms' access to finance.

3. **Results and implication for future research** (What have we learnt so far? Any significant achievements including innovations?)

   Our results indicate that higher bank competition, as measured by lower levels of the Lerner index, increases firms' access to finance, while commonly used concentration measures are not reliable or robust predictors of financial access. In addition, we find that the impact of competition on access to finance depends on the environment in which banks operate and some features of the environment, such as higher levels of financial development and better credit information, can mitigate the damaging impact of low bank competition, while other characteristics, such as high government bank ownership, can exacerbate the negative impact. Overall, our results suggest that there are benefits to promoting bank competition.

4. **Outputs** (examples of outputs include but are not limited to published working papers, published journal articles, book chapters, mimeos, research tools, databases, surveys, and conferences and seminars)

   1) Outputs

Name (please provide web links to output if available)	Output type	Status	Note (if status is not complete, please provide explanation, and the date it's expected to be completed)
How bank competition affects firms' access to finance[2]	Working Paper	Complete_please provide link	
Database with measures of competition across countries[3]	Database	Preliminary	
How bank competition affects firms' access to finance[4]	Presentation	Complete_please provide link	
The impact of bank competition on access to finance- All About Finance Blog[5]	Others_specify	Complete_please provide link	

Add more lines for additional outputs

2) If there are outputs that were dropped from the project's original proposal(GFR), please provide explanation

Not applicable.

5. **Impact & Development Policy Implications**

a. Please describe in detail any policy impact achieved, and/or identify specific policy areas to which the results of the project will influence, when and how.

The results from this paper show that competition is beneficial for access. This has implications for countries that have excessive restrictions for bank entry.

b. Indicate number of: 1) Bank policy documents (e.g. CPSs and CEMs); 2) Bank operations (e.g. DPLs, PRSCs, Investment Lending, and TAs); and 3) government policy documents, that explicitly inspired by the findings of the research, and how this has been/will be achieved?)

Number of policies in Bank policy documents (e.g. CPSs and CEMs)	

[2] http://econ.worldbank.org/external/default/main?pagePK=64165259&theSitePK=469372&piPK=64165421&menuPK=64166093&entityID=000158349_20120810085136

[3] Database is available upon request but has not been posted yet. We are waiting for the paper to be published.

[4] http://siteresources.worldbank.org/EXTGLOBALFINREPORT/Resources/8816096-1361888425203/9062080-1361888442321/Sole_Martinez_Peria_Competition_and_access.pdf

[5] http://blogs.worldbank.org/allaboutfinance/the-impact-of-bank-competition-on-access-to-finance

explicitly inspired by the findings of the research	
Number of Bank operations (e.g. DPLs, PRSCs, Investment Lending, and TAs) explicitly inspired by the findings of the research	
Number of government policy documents explicitly inspired by the findings of the research	

6. **Capacity Building**
   a. Describe whether and how the project enhanced local capacity building?
      Two of the consultants in this projects were researchers from developing countries (Argentina and Nepal).
   b. Indicate 1)number of developing country researchers and institutions substantively engaged with KCP research for the entire duration of the project, 2)breakdowns of resources used for capacity building out of total disbursements

Number of developing country researchers substantively engaged	**2**
Number of developing country institutions substantively engaged	
Breakdowns of resources used for capacity building out of total disbursements	

7. **Dissemination** (What dissemination activities have been conducted /planned to encourage knowledge sharing? What has been done /planned to reach policy makers or policy advisers)

Number of conferences/events organized	1
Number of conferences/events the project's results were presented at (in addition to the number of organized events)	1
Number of blog posts	1

8. **Methodology and Data**
   To evaluate the impact of bank competition on firms' access to finance, we estimated the following simple model:

$$Access_{i,c,t} = a_c + b_1\, Bank\ Competition_{c,t-1} + b_2 F_{i,c,t} + b_3 X_{c,t-1} + e_{i,c,t}$$

where *Access* is the indicator variable for whether firm i in country c at time t has a bank loan, line of credit, or overdraft; *Bank Competition* refers to either the Lerner index or to two measures of concentration: the share of assets held by the top three banks (*Concentration 3*) and the Herfindahl index. F and X represent firm-level (e.g., size, manufacturing, exporter, etc.) and country-level (e.g., inflation and financial development as proxied by private credit to GDP) control variables, respectively, described in the data section. We captured unobservable differences between countries by including country fixed effects (represented in equation 1 by a_c) and we cluster errors at the country-year level. Thus, our estimates represent within country variation in the relationship between bank competition and access to finance. We

assumed that country-level measures of bank competition are exogenous to the firm-level measure of access to finance. In other words, each individual firm is not large enough to affect country-level measures of bank competition. However, to further mitigate any possible reverse causality concerns, we use one year lagged values for bank competition, as well as for the other country-level control variables.

We used several weighting schemes in our estimations. First, because the Lerner index is an estimated variable, we weighted our regression by the inverse of its standard deviation. This takes into account the precision with which the Lerner index is estimated and gives less weight to those observations that are estimated with less precision (i.e., that have larger standard errors). Second, because the number of firms varies for different surveys, we weighted our regressions by the inverse of the square root of the number of observations (i.e., firms) in each country-year. This gives relatively less weight to countries with a large number of observations, which otherwise will be overrepresented in the sample. Third, we combined the two weighting factors in a product form (i.e., the weight equals the product of the inverse of the Lerner's standard deviation and the inverse of the square root of the number of firms in the country and year). Finally, we also reported regressions without any weights for comparison.

To conduct our estimations, we combined firm-, bank- and country-level data from various sources. The firm-level data came from World Bank Enterprise Surveys.[6] These data are collected in several waves and contain repeated cross-sections for the countries in our sample. Because our goal was to isolate within country variation in bank competition across time, we only focused on countries that have survey data for at least two years. We used firm survey data to construct our measure of access to finance and several control variables. A*ccess to finance* is an indicator variable that equals one when a firm has a loan, overdraft, or line of credit, and zero otherwise. We also included several firm-level variables that may influence the extent of firms' access to finance, such as firm size, measured as log of the number of employees, a dummy for manufacturing industry (the omitted category is service and other industries), a dummy for exporting firms, a dummy for foreign-owned firms, a dummy for government-owned firms, and the log of firm age in years.

The bank-level data came from Bankscope, a commercial database produced by Bureau Van Dijk, including annual balance sheet and income statement information for banks across the world. Only banks classified as commercial, cooperative, Islamic, savings, and bank holding companies were considered in the analysis. We left out central banks and investment banks, because they are not directly involved in providing loans to firms.

To construct the *Lerner index* we used annual bank-level data and estimate a translog cost function using all available data for each country. We then calculate the marginal cost equation (by taking the derivative of the translog cost equation) and finally the Lerner index for each bank, which we then average for each country and year.

[6] The data are available at www.enterprisesurveys.org

We also use bank-level data to construct two commonly used measures of concentration: *Concentration 3* is the share of banking system assets held by the three largest banks and *Herfindahl index* is the sum of the squared market shares of each bank.[7] In both cases, higher values indicate more concentration.

Our final dataset was limited to countries which have both firm-level data on access to finance from the Enterprise Surveys and bank-level data from Bankscope to calculate the Lerner index and the concentration measures. This dataset contains information on 53 countries for the period 2002-2010.[8]

Finally, we supplemented our dataset with annual country-level data from several sources. We obtained data on private credit to GDP (a proxy for financial development) and inflation from the World Bank *World Development Indicators* database. Data on the quality of credit information came from the World Bank *Doing Business* dataset[9] and information on government bank ownership (measured by the share of assets held by government-owned banks) came from the World Bank Survey of Bank Regulation and Supervision.[10]

9. **Additional Resources Leveraged and Project Expenditures** (please describe additional resources leveraged, and provide amount and briefly summarize the expenditures in the table below)

DEC paid for the time spent by researchers Maria Soledad Martinez Peria and Inessa Love.

Project Expenditures (USD `000)-Plan and actual

External Funds				**WB Funds**						**Total**	
KCP		**Others**		**RSB**		**BB-DEC**		**BB-Others**			
plan	**actual**	**plan**	**actual**	**plan**	**actual**	**plan**	**actual**	**plan**	**actual**	**Plan**	**actual**

Annex 1: Multimedia

*Please provide a **list of multimedia materials (photos, videos, ppts)** here with **caption** and **credit information**. Then submit materials as **attachments** along with this note.*

1 powerpoint. See http://siteresources.worldbank.org/EXTGLOBALFINREPORT/Resources/8816096-1361888425203/9062080-1361888442321/Sole_Martinez_Peria_Competition_and_access.pdf

[7] The Herfindahl index, calculated as $\sum_{i=1}^{n}\left[\frac{\text{assets}_i}{\text{total assets}}\right]^2$, gives a greater weight to larger banks.

[8] At the firm-level, we have over 68,000 observations.

[9] Data available at www.doingbusiness.org

[10] Data available at http://go.worldbank.org/SNUSW978P0

Annex 2: Geo-Reference[11]

Georesults (beta) (http://maps.worldbank.org/content/georesults**)**

If you would like to provide content for Georesults, please provide the following information:

(i) Locality of Project Activity (name of locality, longitude and latitude)

(ii) Description of Local Development Activity

[11] Georesults is an online space to view images, videos and results stories of World Bank projects. It allows you to easily orient yourself using maps to guide your navigation.