Interest Bearing Notes **Vol. 21 No. 2**

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The next issue of Interest Bearing Notes will appear in May 2018 so please send comments, suggestions (such as your own or others? interesting research), and requests to be added to our distribution list, to Bob Cull (mailto:rcull@worldbank.org) by May 9th.

IBN is a product of the Finance and Private Sector Development Team in the World Bank's Development Research Group. Our working papers and descriptions of research projects in progress can be found, along with a list of forthcoming seminars and conferences, on our web page (http://www.worldbank.org/en/research/brief/finance-private-sector).

I What's new on our website

Do management interventions last?
In 2017, our own **David McKenzie** together with **Nicholas Bloom**, **Aprajit Mahajan**, and **John Roberts** returned to Indian textile firms that were the subject of a management intervention in 2008-10 to look at what happened in the long-term. They

find lasting effects of the management intervention on productivity: http://documents.worldbank.org/curated/en/997401518703102725/Do-management-interventions-last-evidence-from-an-experiment-in-India

For a more detailed description of the long-term follow-up study see their recent working paper: http://documents.worldbank.org/curated/en/346001518549616744/Do-management-interventions-last-evidence-from-India

II World Bank research

Man vs. machine in predicting successful entrepreneurs

Business plan competitions are increasingly used in both developed and developing countries in an attempt to spur high growth entrepreneurship. These competitions typically attract contestants with growth prospects that are much higher than the average firm in the economy. But then the key question is whether one can predict which firms from among these applicants have better growth prospects. Our own **David McKenzie** together with **Dario Sansone** use data from applicants to Nigeria's YouWiN! program, the world's largest business plan competition, to answer this question. David and Dario compare the relative performance of three different methods for identifying which firms will be most successful: (i) the standard approach of relying on expert judges, (ii) simple ad hoc prediction models used by researchers that employ a small number of variables collected in a baseline survey like gender, age, education, and ability, and (iii) modern machine learning methods. Using data on more than 1,000 winners and more than 1,000 non-winners, they find that the business plan scores from judges do not significantly predict survival, employment, sales or profits three years after entry. Some observable characteristics of entrepreneurs do help predict future success. For example, older males with high ability do better. Nevertheless, the overall accuracy of these models is still low. These results are then contrasted with out-of-sample predictions from three modern machine learning approaches that use data reduction techniques and highly nonlinear functions to make predictions starting with nearly 400 possible predictors. Disappointingly, the overall accuracy of these models is like that of the simpler ad hoc models, and thus also low. Although machine learning is unable to beat simple models from economists when it comes to predicting average performance, the authors do find some role for machine learning, and sometimes judges, in identifying the top tail of performance. But, even their best models are only able to ex ante identify 22 percent of the firms that will end up in the top decile of the outcome distribution.
http://documents.worldbank.org/curated/en/968231513116778571/Man-vs-machine-in-predicting-successful-entrepreneurs-evidence-from-a-business-plan-competition-in-Nigeria

Bank ownership: Trends and implications

IBN co-editor **Bob Cull**, together with **Sole Martinez** and **Jeanne Verrier**, document the share of banking sector assets held by government-owned banks and foreign bank subsidiaries over time. Across most regions, declines in foreign bank presence in the wake of the global financial crisis (GFC) were modest, or foreign banks maintained (East Asia, South Asia) or even increased (Sub-Saharan Africa) their shares of banking assets. Even in Europe and Central Asia, where retrenchment was most pronounced, ownership of banking sector assets by foreign banks had largely rebounded by 2012-2013. In that sense, the pullback by foreign banks in the wake of the GFC was more muted than many observers had feared. But that does not imply that there were no important structural changes in the banking sectors of developing countries. Subsidiaries of international banks headquartered in high-income countries accounted for most bank exits during this period, while entries were concentrated among subsidiaries of banks headquartered in developing countries, and their destinations tended to be neighboring developing countries. Thus, the increase in so-called South-South entry has coincided with greater regionalism in banking. With respect to government-owned banks, gains in market share tended to be modest and short-lived. While the authors note that government-owned banks played a key role in shoring up faltering banking sectors with liquidity and capital during the GFC, particularly in Europe and Central Asia and advanced economies, those interventions tended to be ad hoc and one-off. As such, they are not likely to signal a shift to greater reliance on state ownership to ensure stability in banking.
http://documents.worldbank.org/curated/en/810621515444012541/Bank-ownership-trends-and-implications

Are international banks different? Evidence on bank performance and strategy

In an interesting and related paper, our own **Ata Can Bertay** and **Asli Demirguc-Kunt**, together with **Harry Huizinga**, investigate how banks' degree of internationalization affects their strategies and performance. They measure internationalization two ways: the share of a bank's overall liabilities contracted by its foreign subsidiaries or the number of foreign host countries where the bank operates at least one subsidiary. Perhaps surprisingly, they find that internationalization was associated lower bank valuation (Tobin's Q, market-to-book value of equity) for the period 2000-2013, though it did rebound somewhat in the years after the financial crisis. They also find that international banks overall were undercapitalized relative to domestic banks, which shifted risk to taxpayers since their large size, complexity, and difficulty in winding down implied greater reliance on safety nets. But there are striking differences in performance and strategy between international banks headquartered in developed versus developing countries. For example, international banks in developing countries displayed higher valuations, lower risk, and higher return on equity than domestic banks. This likely reflects that banks from developing

countries tended to expand into countries in the same region (as documented in the previous paper). Because those neighboring host countries were at a similar level of economic development, those entrants were more likely to exploit comparative expertise than if they had entered host countries located farther away and with higher levels of development. In addition, the authors find that international banks headquartered in developing countries tended to play a stabilizing role in the developing countries that they entered. Specifically, bank internationalization reduced the sensitivity of domestic credit growth with respect to domestic GDP growth in those countries. In contrast, they find that the lending of international banks headquartered in high-income countries was relatively procyclical in developing host countries.
http://documents.worldbank.org/curated/en/908851513693366704/Are-international-banks-different-evidence-on-bank-performance-and-strategy

Measuring the effectiveness of government service delivery: Evidence from India
In a new paper, our own **Asli Demirguc-Kunt** and **Leora Klapper** along with **Neeraj Prasad** study the government's capacity to deliver goods and services using a new survey of 13,000 adults in India. The authors measure the capacity to deliver using metrics such as coverage, equal access, and quality of service delivery. They find variation in these indicators both across and within Indian states. The main reported findings show that access in general is very low as nearly 60 percent of the survey respondents are unable to apply for goods and services. Their measure of access correlates with some known measures of governance such as teacher absenteeism and doctor absenteeism, as well as with outcome indicators such as literacy rates and the percentage of hospital births. The analysis further finds that women and poor households are more likely to report these access constraints. Even among respondents who receive services, more than two-thirds report the application process to be cumbersome. On average, it takes more than two months to process an application for a good or service, and one in four respondents find the application process to be too costly? These findings have practical implications on areas for improvement in service delivery, specifically reducing application costs and processing times, and simplifying the application process itself.
http://documents.worldbank.org/curated/en/785091506521681988/Measuring-the-effectiveness-of-service-delivery-delivery-of-government-provided-goods-and-services-in-India

Social mobilization, health service delivery, and health outcomes in rural Pakistan
Our own **Xavier Gine**, together with **Salma Khalid**, and **Ghazala Mansuri** assess the impact of citizen engagement on the quality of public health delivery in rural areas of Pakistan. Their analysis exploits exogeneous variation in a community development program that was randomly assigned, with an emphasis on strengthening

women's participation in collective action. While the program did not result in improvements in service delivery by supra-village public providers, it did substantially increase the quality of service provision by village-based skilled female health workers. The analysis shows significant and economically meaningful improvements in pregnancy and well-baby visits by female health workers, and an increased utilization of pre- and post-natal care by pregnant women. These results suggest that community collective action can be effective in improving aspects of service delivery where community members have enforcement and monitoring capacity, and that the active engagement of women in efforts to improve collective action can lead to improvements in services for women and young children. http://documents.worldbank.org/curated/en/141781516720103213/The-impact-of-social-mobilization-on-health-service-delivery-and-health-outcomes-evidence-from-rural-Pakistan

III "FYI": Our eclectic guide to recent research of interest

Mobile phone usage data predicts loan repayment

Daniel Björkegren and **Darrell Grissen** collaborated with a telecom in a middle-income South American country to test whether indicators of behavior derived from mobile phone transaction records are predictive of loan repayment. The telecom transitioned subscribers from prepaid to postpaid plans, which entailed an extension of credit. The authors have data on each subscriber's mobile phone transaction history prior to the extension of credit, and whether the credit was repaid on time. Their measure of loan repayment is an indicator for whether a subscriber paid their bill within 15 days of the due date. The authors set out to predict who ended up repaying their loan, based on how they used their mobile phones before taking the loan. From the transaction records, they created a method to extract approximately 5,500 behavioral indicators that have some intuitive link to repayment. For example, a responsible borrower may keep their phone topped up to a minimum threshold in case of emergency, whereas one prone to default may allow it to run out and depend on others to call them. Or, an individual whose calls to others are returned may have stronger social connections that allow them to better follow through on entrepreneurial opportunities. With their method, the authors are indeed able to predict loan default. Individuals in the highest quintile of risk by their most conservative measure are 2.8 times more likely to default than those in the lowest quintile. They also find that their method outperforms models using credit bureau information, which may be the case because most of the individuals in their sample have thin credit bureau files, i.e., few reporting accounts. http://dan.bjorkegren.com/danbjork_grissen_creditscoring.pdf

Resources, conflict and development in Africa

Armed conflicts severely hinder development, and a key determinant of those

conflicts is resources. **Achyuta Adhvaryu**, **James Fenske**, **Gaurav Khanna**, and **Anat Nyshadham** offer theory and evidence that both own and neighbors' resources should be considered in assessing the likelihood of conflicts. When a region is rich in resources, the owner of those resources has more to defend (the endowment effect?) and its rich neighbors provide more resources for them to loot (the rapacity effect?). Thus, when both parties have limited resources, peace prevails. In contrast, when a region has substantially more resources than its neighbor, one-sided uncontested attacks are more likely. When both are rich in resources, conflicts are likely, and can be originated on either side. To provide empirical evidence for their theory, the authors first partition sub-Saharan Africa into a 0.5×0.5 degree grid, and collect data on nighttime lights (as a proxy for local development) and resources (i.e., whether the region has oil or natural gas reserves, and deposits of lootable diamonds, gold, zinc, and cobalt). Neighbors are defined as regions within a given radius. Relying on cross-sectional regressions, they find that both own and neighbor resource endowments are significant determinants of the spatial distribution of conflicts in sub-Saharan Africa. Their results are robust to many alternative specifications such as controlling for spatial fixed effects of various sizes. Interestingly, when the institutional quality of own and neighboring grids is higher, the own and neighboring resources effects become stronger. Potential effects appear to be large: back-of-the-envelope calculations show that moving from the bottom to the top end of the interquartile range of the probability of conflict is associated with a reduction in GDP of 33 percent.
http://www.nber.org/papers/w24309

Women outcompeting men in the market for high-skilled labor
While gaps persist, women are catching up with men on many labor market outcomes. **Guido Matias Cortes**, **Nir Jaimovich**, and **Henry E. Siu** offer a theory and some evidence that, in recent decades, women have made gains relative to men in the high-skilled labor market. Between 1980 and 2000, a period of pronounced increase in the demand for high-skilled labor, the authors show that gains in this market were unequal across genders. For example, among male college graduates in 1980, 66.2% obtained cognitive jobs (the other categories being routine jobs, manual jobs, and not working) compared to 63.3% in 2000; for female college graduates, the share in cognitive jobs rose from 54.2% in 1980 to 58.8% in 2000. The paper argues (and offers supporting evidence) that this was partially attributable to increasing demand for so-called female-oriented skills, in particular social skills. Past research has demonstrated that women tend to have a comparative advantage in social and interpretational skills. The authors document that the demand for social skills has risen over time, and that in occupations where the demand for social skills rose more quickly, the female employment share also rose. Those results are robust across occupations. Their evidence also shows that the return to social skills has risen over

time.
http://www.nber.org/papers/w24274

IV Upcoming events and miscellanea

Call for Papers: FDIC/JFSR 18th Annual Bank Research Conference

The FDIC's Center for Financial Research and the Journal of Financial Services Research (JFSR) invite submissions for the 18th Annual Fall Research Conference to be held in Arlington, Virginia on September 6-7, 2018. The program committee invites theoretical and empirical papers on issues related to the performance and regulation of the financial sector including deposit insurance, systemic risk and financial system resilience, regulatory capital and liquidity requirements, trends in financial products, services, and technology (including Fintech), market structure, and bank scope economies.

Selected papers may be invited for submission to the JFSR for a special conference issue. Expenses for travel, food, and lodging will be reimbursed for paper presenters. Papers must be received by June 14, 2018. Authors will be notified about the status of their papers by July 15, 2018. Papers can be submitted here through the conference website.

Happy reading!

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