

TEN

FEDERAL RESERVE BANK OF KANSAS CITY

Fall 2006

Inside:

Card reward programs

Rural partnerships

**Strength of the
Federal Reserve**

Degrees of Innovation

Universities prompt high levels of development





TEN

FALL 2006

On The Cover

Degrees of innovation: Universities prompt high levels of development even in non-urban areas 12

Three professors' collaboration transformed an idea into a multimillion-dollar business just one mile from the small-town campus where it all began.

FEATURES



Charging toward rewards: Issuers offer cardholders incentives to entice loyalty 6

Like so many of her customers, shop owner Mary Carol Garrity now uses her reward program credit card for almost anything she can, including business expenses.



Africa: Geography and growth..... 18

The Federal Reserve Bank of Kansas City hosted its 30th annual Economic Symposium, a distinguished two-day forum of central bankers, policymakers and economists.



Thinking outside the flock: Regional partnerships help small, rural entrepreneurs succeed 22

For Kim Curtis, what started as making a few bars of floral-scented soap has since turned into producing thousands of batches in dozens of scents sold nationwide.



Update: Check 21 starts strong in the Tenth District, Kansas banks lead conversion 28

It's no juxtaposition that geographically isolated banks are on the forefront of electronic check processing. They are the ones that benefit most.



Show me the money: Cash Services Departments process millions daily 30

Stacks of bills and bags of coins go through a series of stages every day at the Federal Reserve Bank of Kansas City and its Branches.

DEPARTMENTS

1 PRESIDENT'S MESSAGE
32 NOTES

34 ABOUT...The Discount Window
37 FED DIRECTORY

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Twelve banks: The strength of the Federal Reserve

From time to time, the question is raised: “Does the Federal Reserve still need 12 regional banks?”

In a Wall Street Journal article earlier this year, a former vice chair of the Federal Reserve’s Board of Governors suggested the answer to that question is “no,” saying it is “very clear” 12 banks are no longer necessary and that as few as four might be sufficient.

While some might occasionally suggest a reduction in the number of banks is in order, the Federal Reserve believes in its own future as a 12-bank system. The Federal Reserve has invested in new facilities in Minneapolis, Atlanta and most recently Kansas City, where we will be moving into our new headquarters building in 2008.

However, with the changes occurring in the banking industry, it is understandable why some might raise the topic of the number of regional Reserve Banks and efficiency. The banking and economic structure of the United States obviously has changed in the decades since the Federal Reserve was created. Today, while currency remains in wide use, check writing is in decline, and credit and debit card use is becoming the standard payment means. These developments most certainly have affected Federal Reserve operations nationwide.

So, as a particular business changes, it is perhaps anticipated that some would ask whether a 12-Reserve Bank system is necessary. It is, in this narrow context, a fair question.

However, it is a question that fails to appreciate the founding purpose and structure of the Federal Reserve System. It is a question that, by its very asking, reflects a different understanding of value versus cost.

The Federal Reserve’s 12-bank system was not established as simply a check-processing system. It was designed to serve multiple interests across a variety of regions and financial institutions. It was designed to assure broad input to decisions and to provide a mechanism to build national policy consensus across broad regional, economic and cultural differences.

And it was designed as a public-private partnership, accountable to, and yet independent of, the government. To miss these connections is to incorrectly tie the Federal Reserve’s structure to its processing activities rather than to its efforts of assuring trust in the institution.

The 12-bank system reflects the vast economic differences among regions in the United States. It also reflects the need to provide a mechanism for input to banking and our important credit policy activity for each region.

Our nation’s regional differences are illustrated in a variety of forms. For example, some years ago, I spoke with a policy person from another sector of the country making his first visit to the Midwest. During the conversation he quite sincerely noted how impressed he was that the city had such a “full” skyline. Clearly he was surprised. Similarly, an East Coast reporter traveling to Cleveland once phoned and asked us if he could drive by and see the Kansas City Bank during the trip. He apparently thought Kansas City and Cleveland were





closer than the more than 800 miles that separate us. Being from Missouri, I have come to appreciate in a personal sense our regional differences. In my travels through the southern United States, I am often called a Yankee, while, in the north, I might be referred to as a Southerner. Most recently I took notice of a New York Times article pointedly titled “The Not-So United States.”

From an economic perspective, these regional variances can be even more striking. One need only look at the differences in average home prices between any Midwestern community and a similar community on either coast to get some idea of the diversity of our economy. Regional employment and manufacturing can also vary greatly.

The fact is that as homogenous as we like to think we are, we remain a country with large variances in regional perceptions, biases and economies.

The founders of the Federal Reserve were clearly addressing these differences when they created our decentralized system in 1913. Even then, decades before today’s high-speed technology, there was no compelling physical reason for having 12 Reserve Banks.

In fact, the nation previously had not one, but two monolithic central banks, both located in Philadelphia.

The first Central Bank of the United States was established in 1791 and was designed by Treasury Secretary Alexander Hamilton. It was controversial from the start. Some protested its constitutionality. Many were fearful of its influence.

When it came time for Congress to renew the Bank’s charter in 1811, the Bank’s

critics were able to stop it. The proposed renewal lost by a margin of a single vote in each house of Congress.

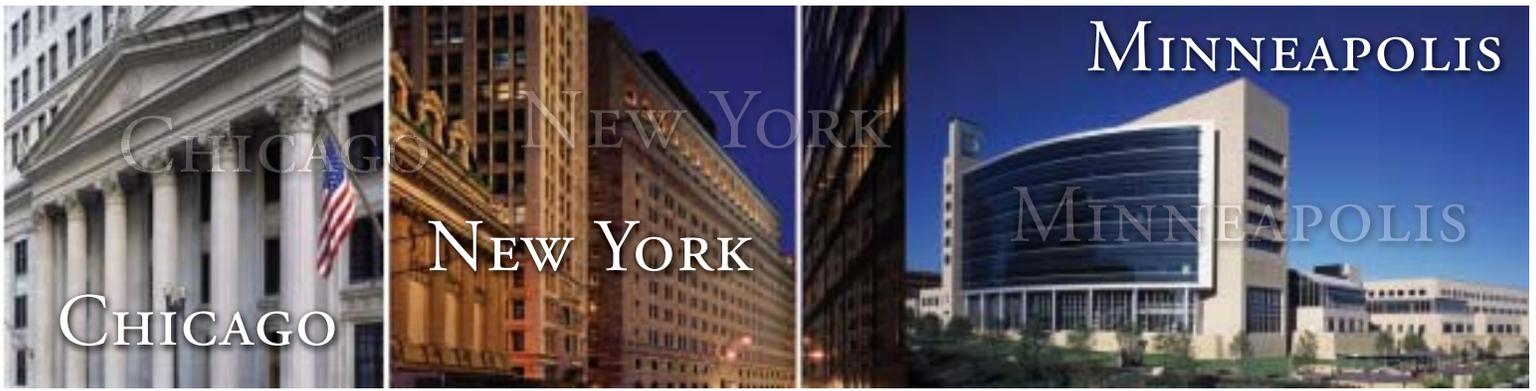
The issue of a central bank reappeared in 1816. For five years, the country had been without a central bank to regulate banking and credit. Meanwhile, the War of 1812 had thrown American finance into chaos. The Second Bank of the United States was chartered under President James Madison, and once again there was widespread public distrust.

In essence, neither the first nor second central bank of the United States was widely understood by the population at large. In each case, the central bank was structured as a single bank. It was central and I am sure, using today’s jargon, it was efficient—but mostly it was distrusted and even hated by some. Andrew Jackson, a populist president, vetoed the renewal of the Second Bank’s charter, bringing an end to central banking in the United States for the next eight decades.

Regional distrust and dissatisfaction crippled the nation’s first two central banks and contributed to their eventual demise.

Early in the 20th century, as the United States became a growing economic force, it was apparent the banking and financial system needed a “central bank.” During this period, the United States faced numerous instances of financial panic as commercial banks across the country suffered serious liquidity problems. Business credit collapsed, and the public suffered significant financial hardship.

But there were a few hurdles to overcome in chartering this third central bank. Among the most important was the question of whether the United States once again would



have a highly centralized institution with concentrated authority. Or would it be best to create a new system—a decentralized system that would share authority across the nation?

In his memoirs, Paul Warburg, one of the Federal Reserve's founders, lists the main objections to the establishment of the central bank:

First: The danger of political control,

Second: The danger of control by special interests,

Third: Hurtful competition with existing banks.

The debate regarding the structure of the central bank went on for some time, but in the end, "a system of centralized reserves and decentralized banking power is clearly the system that this country requires," Warburg said.

This time the founders better understood that to provide for a more durable institution they needed a structure that shared the institution's responsibilities and power across the country, not just with the central government and in Wall Street. It was concluded our central bank should reflect the value we Americans place in shared control of some of our more important institutions.

Each Reserve Bank has a board of directors from the region where it is located. These directors not only provide oversight of the Reserve Banks, but also information regarding their industries and communities. As was noted to me some time ago, "through these 12 Reserve Banks, the Federal Reserve has roots that run deep within our communities, which enables it to garner broad public knowledge and support, and to function far more effectively than if it was located in only a few places."

The 12 regional banks flanking the Board

of Governors keep the Federal Reserve from becoming insulated from Main Street America.

They interact with the public and financial institutions at a local level. In doing so, the central bank demonstrates it is something other than a cumbersome bureaucracy counting its money. The board offers the public unprecedented direct access to the thinking of policymakers. Each bank is part of the basic fabric of its community, providing a connection between the community and its business and policy roles. This has been a critical element of the Federal Reserve's long-run success.

This structure and these principles are as important today as they were in 1913, perhaps more so. The Federal Reserve System remains a powerful institution. Its ability to gain and hold a broad base of trust and support is fragile, yet crucial to its success and, even more importantly, to the success of our national economy.

In terms of its overall operations and policy, the 12-bank system has consistently shown itself to be efficient and adaptable to change.

During the recent decades, it is hard to name another organization that has been systematically more effective in carrying forward its missions, whether in providing services to the public or conducting day-to-day policy.

Just as important, the 12-bank system has performed superbly across the nation during numerous crisis situations, ranging from the banking crisis of the 1980s, through the Y2K millennium experience, the tragedy of 9/11, and most recently during the aftermath of Hurricane Katrina.

Of course, it may be argued that the issue isn't so much about a centralized or decentralized structure but about whether the System



should have fewer than 12 banks. That debate also occurred at the Federal Reserve's founding. There was considerable, and often heated, discussion regarding the number of Federal Reserve Banks. Some wanted as few as five while others wanted more.

Even after the System was established with 12 banks, the debate continued for a time. It is interesting to recall that within about two years of the formation of the Federal Reserve, there was a serious confrontation among the members of the Board of Governors about reducing the number of Districts. In the end, the Attorney General of the United States wrote an opinion stating, in essence, that the Board did not have the authority to unilaterally reduce the number of operating Reserve Banks. Senator Carter Glass, one of the lawmakers who helped create the Federal Reserve, said those wanting to reduce the number of Banks were ignoring the will of the Senate.

A system of reserve banks was seen as an essential element to building trust in so powerful an institution, one that would have enormous influence over our economic lives.

It was also Paul Warburg who suggested one strength of the Reserve System lies in one of its weaknesses: protection against the dangers of an autocratic central administration. In this respect, the Reserve System was preferred to a more centralized system. There is no doubt that such a system, if enacted, might have been more efficient, but it certainly would have offered easier and more tempting targets for political attacks. This political superiority of the Reserve System was of immense importance, although it is, at the same time, a weakness.

Obviously, many things have changed

during the past eight decades. We have experienced exceptional changes in technology, banking structure, banking products and a greater national and international scope of business and banking. But, the fundamentals that drove the United States toward a 12-bank system are as real today as they were then.

Today, concern for centralized and concentrated financial power understandably remains important in the minds of the American public. The trends in consolidation have only heightened concerns in this regard.

At the same time, although there has been significant consolidation within the financial system, there remain thousands of regional and community banks which continue to play an important role across the nation. Banking activities vary across the nation and are greatly affected by their regional economies.

For example, about 25 percent of New England's banks failed in the early 1990s after local real estate values collapsed. In our own Tenth District, anyone involved in business or banking can recall vividly what happened in this region after the collapse of values in agriculture, energy and real estate. While it would be nonsense to suggest that these crises could not have been addressed in a centralized banking system, it is fair to say they were well addressed in a decentralized, although coordinated, manner.

Knowledgeable working relationships with regional and community banks are critical to understanding change and perhaps even discovering these types of problems in a timely fashion. The 12 Reserve Banks give us a broad distribution of contacts and means of interaction with commercial banking that is crucial



for understanding and responding to local banking markets. Such interaction might be accomplished with fewer than 12 Reserve Banks but, I would argue, not as effectively.

On the justification for having fewer rather than more Reserve Banks as it relates to cost, I would note a couple of points.

The System has been diligent in controlling its costs. Inflation-adjusted expenses for the 12 banks, as reported in the System's budget documents, have increased on average about 1.5 percent a year since 1970, showing actual declines in real terms in recent years.

Moreover, the Federal Reserve has consolidated some of its operations where the opportunity to improve efficiency was apparent. Check processing is one such area. Others include wire transfers, retail electronic payments and support activities. All these actions have served to contain costs.

Yes, there is every reason to pursue cost savings when it makes sense to do so. Certainly repetitive processes often benefit from new technology that simplifies operations.

But there is another side to consolidation where costs can rise and performance can decline. When the consolidation withdraws authority for local decision-making, it can lead to cumbersome bureaucracies, slower decision-making and loss of local incentive and performance.

All consolidations involve cost-benefit trade-offs. Balancing the difficult-to-measure benefits of access, communication, broad regional representation and operational delivery against any hard-dollar savings that might come from having fewer banks requires an understanding of bottom-line accounting and organizational

purpose. In this context, the value over the cost of our 12-bank system is considerable.

Finally, the value of this structure has been recognized by others. In 1998, the 16-bank European Central Bank was established and modeled closely to the Federal Reserve. Like our nation's central bank, the ECB is responsible to a diverse population across a broad region with varying economic and banking conditions. As with the Federal Reserve, a broad base of support is necessary for the ECB to succeed in its mission.

Robert Bremner, in his biography of Chairman William McChesney Martin, referred to a quote which described the Federal Reserve System as "America's greatest contribution to the science of government."

While this may be hyperbole, looking in the past, this structure has served us well. And looking to the future, it is designed to last.

THOMAS M. HOENIG, PRESIDENT
FEDERAL RESERVE BANK OF KANSAS CITY

TOM HOENIG, President of the Federal Reserve Bank of Kansas City, delivered this speech September 15 at the annual convention of the Independent Bankers of Colorado.



Mary Carol Garrity, owner of Nell Hill's Home Emporium and two other shops in Atchison, Kan., is affected by card reward programs as both a merchant and a consumer.



Charging Toward *Rewards*

ISSUERS OFFER CARDHOLDERS INCENTIVES TO ENTICE LOYALTY

Like so many of her customers, Mary Carol Garrity now charges almost anything she can—including business expenses for her three upscale furniture, home décor and giftware shops in eastern Kansas—to either her Visa or American Express credit cards.

As a shop owner of 25 years, Garrity has seen an increasing number of patrons opting to pay with their credit cards. She supposes the incentives, such as the cash-back or travel rewards tied to both credit and debit cards, is one of the reasons driving this trend.

“I know it motivates me personally,” says Garrity, who just recently started using two airline reward cards.

Her enticement: “My girlfriends who own businesses get to fly first-class to Europe.”

A long-time cardholder but recent reward card loyalist, Garrity is just the kind of consumer that card networks are hoping to attract. Research shows those with reward credit and debit cards use them more exclusively than cards that don't offer rewards, and reward card transactions often replace cash, check and non-reward card transactions, says Fumiko Hayashi, a senior economist with the Federal Reserve Bank of Kansas City.

Hayashi recently analyzed the effects of credit and debit card rewards on consumers'

payment choices along with Andrew Ching, assistant professor of marketing at the University of Toronto.

“Capturing new cardholders is becoming difficult because most consumers already have both credit and debit cards,” Hayashi says. “Payment card issuers, therefore, are trying to stimulate their existing customers' card usage by providing rewards. It's an incentive for consumers.”

And it appears to be working.

Enticing loyalty

Deborah Hamilton starts every day with a reward, in addition to her coffeehouse latte.



Her morning wake-up is Hamilton's first credit card purchase of the day followed by, "Everything! Everything goes on the card," she says, which gets her that much closer toward another Southwest Airlines ticket.

With the exception of her mortgage and car payments, although she tried, Hamilton pays for all purchases big and small with her Visa. And as a result, the single, 55-year-old grandmother in Kansas City, Mo., racks up five or six plane tickets a year. She's traveled to Napa Valley, Mexico, the Caribbean and the Bahamas, among other places.

A "fanatical" reward credit card holder of 15 years, Hamilton says only death will part her from her card. And then her kids will fight over her airline points, she jokes.

It's this loyalty that card issuers are striving to achieve in hopes of gaining users who would have otherwise paid with cash, check or another card.

It's been reported that many card issuers that launched new rewards programs have seen increases in spending on their cards. However, it is unlikely reward receivers are simply spending more, but are using their reward card in lieu of other payment methods, Hayashi says.

Footing the bill

Reward card issuers target middle- to high-income consumers rather than low-income earners, who don't qualify for high credit limits, or possibly cards at all. As a result, low-income earners may be affected beyond just rewards.

Card programs and the merchant fee structure may distribute income from low-income to high-income consumers, Hayashi says.

This is due to many merchants paying

higher fees to card issuers if their customers use a reward credit card instead of a non-reward credit card or other payment methods. Merchants aren't allowed to reject reward card payments if they accept the network's non-reward card, nor can merchants price-discriminate based on the payment method used.

"As a result, the more customers who use reward credit cards, the higher the merchants may mark up their retail prices in order to offset higher fees," Hayashi says. "Although reward credit card holders are partly compensated for higher retail prices through rewards, other consumers aren't."

Compounding the cost of reward credit card fees on merchants, and possibly their customers, Visa and MasterCard recently introduced interchange fees that apply only to reward credit cards. These fees, which are a percentage of each transaction that the merchant pays to the card issuer, are higher than non-reward

credit card interchange fees. The fees are the same for reward and non-reward debit cards.

Accepting credit cards is increasingly challenging for a smaller business whose volume of sales can't easily offset additional interchange fees like a chain merchant could, says Scott Baird, manager of Georgetown Furniture, a family-owned and operated furniture store in the western Missouri city of Liberty.

"It doesn't benefit the merchants at all," Baird says. "It's kind of a deterrent. We appreciate the business ... but I would rather see someone use a check or the (store's) finance plan."

The majority of the store's customers do pay with a credit card or via the store-offered finance plan, Baird says. It's tough to say, though, how many of those card purchases are

Deborah Hamilton starts every day with a reward, in addition to her coffeehouse latte.



Her morning wake-up is Hamilton's first credit card purchase of the day followed by "everything!"



TO ACCUMULATE REWARDS, Deborah Hamilton (right) of Kansas City, Mo., uses her credit card for every purchase possible. It's this kind of loyalty that card issuers hope results from reward programs.

tied to rewards and exactly how much that costs Georgetown Furniture.

“One percent here and 1 percent there—it’s small, but they can add up,” Baird says.

But Baird, an avid fly fisherman, loves his personal card: a Visa with Cabela’s rewards. He recently redeemed points for tackle from the outdoor recreation mega store.

“It is difficult to say who actually pays for these rewards,” Hayashi says.

Even if reward card use is fully funded by interchange fees, that doesn’t mean the actual rewards are paid by merchants.

Merchants may impose the cost of the interchange fees on their customers by raising prices. If that’s the case, the customers are actually paying for the rewards. And how merchants and their customers share the costs of interchange fees depends on price elasticity of supply and demand for goods and services, Hayashi says.

If credit card rewards are funded by interest

or finance charges, those card users are paying, at least in part, for the rewards. For debit card issuers, revenue is generated from both interchange fees and account holders.

Just like consumers, merchants and card issuers are motivated by reward cards. Their enticement: customer loyalty.

‘Cost of doing business’

The average consumer in the United States has five to seven credit cards, says Ben Woolsey, marketing director of CreditCards.com, a website for consumers to research and compare offers from leading card networks in the United States.

Reward programs are driven by card competition. By offering incentives, card issuers build loyalty and extend the lifespan of the card, which may offset the expenses of offering the program.

To ensure consumers reach for their card versus another form of payment, issuers are offering countless reward programs as incentive.

“Rewards have become a cost of doing business” for the credit and debit card industries, Woolsey says.

Beyond airline miles and cash-back

options, these days, rewards range from merchandise (Disney products and Starbucks coffee, for example) to gasoline rebates (like the Chase PerfectCard Platinum MasterCard) to savings in a child's college fund (like the Citi Upromise Card.)

Rewards have increasingly become an expectation by cardholders, who are more savvy about receiving value in each transaction, says Jennifer Schulz, vice president of consumer credit products for Visa USA.

"(Visa strives) to create reward programs that are relevant to their customers' interests and lifestyles and ultimately foster customer loyalty," she says.

In the early 1980s, Visa introduced one of the first mainstream reward programs, the AAA Visa card. It wasn't until about a decade later that Visa, and other issuers, began

Many reward cards are co-sponsored by merchants in an effort to offset the added expense of accepting this type of payment method while building customer loyalty, Hayashi says. Often rewards are greater when the card is used at the co-sponsor merchant's location. Additionally, the cardholders may receive discounts or free merchandise from the sponsoring merchant, such as Target. Both incentives may cause cardholders to shop there rather than at competitor stores such as Kmart or Wal-Mart.

Small merchants might not be able to issue co-branded cards, but may join issuers' reward programs by offering discounts on their merchandise to increase sales and gain customer loyalty.

Because all merchants who accept cards pay higher fees for reward cards anyway, it may be advantageous for individual merchants to partner with a card issuer, Hayashi says.

Collecting rewards

Cars with license plates from states all around the Midwest circle the block surrounding Mary Carol Garrity's main store in downtown Atchison. Shoppers—mostly women—are eager to get inside Nell Hill's, the eclectic "home emporium" Garrity named after her grandmother.

Inside, customers make their way to the cash register, knickknacks in one hand and their plastic card in the other.

After his wife, Jo, selected a few things for their kitchen back home in Topeka, Ken Edwards paid for her purchases, like he does for the majority of their purchases, with a Discover reward credit card.

When choosing their credit card, one feature was most important to the Edwards couple: Discover's cash-back reward program.

"Well, you can always use cash," Ken says, adding that as long as it's convenient and Discover offers this reward, he'll use the card.

There are several factors to consider when choosing a reward program debit or credit card, Woolsey says. Cardholders need to consider terms of the rewards, interest rates, annual fees and other member benefits.



MARY CAROL GARRITY (LEFT) helps customers make furniture selections for their homes. As a seller of large-purchase items, Garrity sees most of her customers pay with credit cards.

partnering with merchants, which has resulted in significant growth in the reward card market. Now, roughly half of consumers in the United States have at least one reward credit card of some type.

Many cardholders don't realize some conditions of reward programs can negate the rewards the cardholder receives, Woolsey says, adding it's the reward aspect that often affects



PHOTO BY SCOTT INDERMAUR

Rewards have increasingly become an expectation by cardholders, who are more savvy about receiving value in each transaction.



consumer behavior. As a result, cardholders use their cards exclusively in hopes of maximizing their purchases.

Hayashi's research shows reward programs entice both credit and debit card holders alike. The choice to use a reward credit card versus a reward debit card is often a matter of preference, just like the type of reward program chosen. A possible determinant of consumer payment choice is using a debit card to avoid carrying a balance on a credit card, or reduce interest costs on a credit card balance.

Consumers who carry a balance on their credit cards use debit cards more often, and those who don't tend to use credit cards more often.

Regardless of whether a debit or credit card is used, consumers with either a reward debit or reward credit card use this card more exclusively. And consumers who receive rewards from both debit and credit cards distribute their transactions more equally between the cards.

There are distinct groups, in addition to income levels, who most use reward card programs, according to Hayashi's research.

Generally, female consumers tend to use debit cards more frequently than male consumers, while Asian-Americans use credit cards more exclusively. Younger consumers use both

KEN EDWARDS OF TOPEKA, Kan., pays for his wife's purchase with his cash-back reward card. He says as long as he gets rewards, that card will be his preferred payment method.

credit and debit cards more often than older consumers, as do those with higher education.

The credit card market will eventually reach a saturation point—again. After a large number of high-income earners hold reward cards, issuers will target first middle- and then low-income earners, Hayashi predicts.

“Right now, issuers are competing for consumers,” Hayashi says. “And this will keep increasing rewards.”

T

BY BRYE STEEVES, SENIOR WRITER

FURTHER RESOURCES

PAYMENT CARD REWARDS PROGRAMS AND CONSUMER PAYMENT CHOICE

BY FUMIKO HAYASHI AND ANDREW CHING

www.KansasCityFed.org/TEN

COMMENTS/QUESTIONS are welcome and should be sent to teneditors@kc.frb.org.



Bruce Golden had an idea. The long-time professor of animal genetics and breeding at Colorado State University in Fort Collins was often recognized for his innovative research, but what he calls “an interesting bit of kismet” turned an inkling in the back of his mind into something that would be utilized worldwide.

Years ago, a flood on campus resulted in different departments sharing undamaged office space, and Golden found himself talking biometrics with the philosophy professor next door. More conversations followed and eventually included a professor from the business department.

Soon their collaboration transformed into a patent, and then a multimillion-dollar business just one mile from the campus where it all began.

Golden’s concept is now Optibrand Ltd. LLC, the originator of the only retinal scanning system for livestock. The device, called OptiReader, is a handheld computer and digital camera that electronically “reads” an animal’s eye for future identification, like human fingerprinting. The scan is combined with information, such as what the animal has eaten and its transport history, to create a database for tracking and source verification.

“We’d all sit there and wonder why doesn’t some company take this patent and make something of it,” Golden says, adding that was when the three professors decided to



DEGREES OF INNOVATION

UNIVERSITIES PROMPT HIGH LEVELS OF DEVELOPMENT EVEN IN NON-URBAN AREAS

THE OPTIREADER is a handheld retinal scanning system for livestock identification. The invention, and its parent company, was born from research conducted at Colorado State University. The device is now used worldwide for animal tracking and verification.



(FROM LEFT) BRUCE GOLDEN, RALPH SWITZER AND BERNARD ROLLIN founded Optibrand after collaboration and research as professors at Colorado State University. Their company is based in Fort Collins, Colo., just a mile from campus.

take one step farther and form a business. “I’d always been a little entrepreneurial.”

Today, the OptiReader is used around the globe, including to combat the spread of disease and to prove authenticity in livestock competitions.

Golden can’t think of any other place where the OptiReader could have developed. The small city of about 127,000 in northern Colorado can’t offer the high concentration of people and resources like large metropolitan areas, such as Denver just 70 miles south.

But, Fort Collins is home to CSU and its 25,000 students, 1,400 faculty members and \$220 million in annual research funding.

“It’s not only the big cities that are innovative,” says Michael Orlando, an economist and the Denver Branch executive of the Federal Reserve Bank of Kansas City. “Rates of innovation are strongly tied to university presence, including those located in small cities and rural areas.”

Orlando recently researched the relationship between universities, population and regional innovation in the Tenth Federal Reserve District along with Stephan Weiler, formerly an economist and assistant vice president with the Bank, and Michael Verba, a research associate.

The District includes western Missouri, Kansas, Nebraska, Oklahoma, Wyoming, Colorado and northern New Mexico—all states with rural, yet innovative universities.

Campuses and communities

Innovative activity is typically correlated with population—the higher the population, the higher the rate of innovation. This is a result of characteristics of highly populated areas that enhance innovation. These attributes, such as availability of specialized goods and services, well-developed transportation and infrastructure, and opportunities for learning through knowledge spillovers, are also

common near institutions of higher learning.

“In comparison to areas of similar size,” Orlando says, “areas with universities have a high number of educated workers, thick markets for the goods and services used by such workers, and a strong communications infrastructure. In a way, universities may substitute for greater population.”

Nationwide, universities play a large role in innovation, conducting about 14 percent of the country’s research and development, according to the National Science Foundation. A significant jump in county patent productivity occurs with the presence of at least one university, Orlando says.

Without controlling for the effect of population, areas with universities produce 73 percent more patents per capita than areas without universities. This suggests universities may affect knowledge creation in ways beyond bringing together large numbers of people, Orlando says.

In the most heavily populated areas, with a population larger than 1 million, university counties are 20 percent more patent-productive than non-university counties.

This university advantage is even greater in less-populated areas where places with at least one university produce 41 percent more patents per capita than similar-sized areas without universities.

As a result, in the vicinity of a university, innovation may be disproportionately high compared to that area’s population, like Fort Collins. But it’s no surprise the revolutionary OptiReader and its parent company were born there.

“The presence of universities, much like an area’s population, is an important factor related to the level of regional innovative activity,” Orlando says.

Higher education, innovation

Although university counties typically have a higher patent per capita ratio than non-university counties, the relationship between university presence and county innovation appears to vary with the level of degrees offered.

Counties with doctorate-degree-granting universities have some of the highest rates of

innovation regardless of whether they are located in a high- or low-populated area. In sparsely populated counties with less than 200,000 people, the average annual rate of innovation is 112 percent higher than in similar-sized counties hosting only a bachelor-degree-granting institution.

A similar relationship can be observed in more populous counties where doctorate-degree-granting universities are 94 percent more patent-productive than bachelor-degree-granting universities.

Overall, the average patent per capita rate of counties where doctorate degrees are offered

TIFFANY WEIR, a student at Colorado State University, is researching plant disease. Areas surrounding a university are highly innovative, even if they are rural or sparsely populated.





UNIVERSITY STUDENTS make up nearly a quarter of Fort Collins' 127,000 residents.

“The presence of universities, much like an area’s population, is an important factor related to the level of regional innovative activity.”

What Brown describes as a “technology incubator,” the center is a 7,000-square-foot facility on the RSU campus that houses business and technology training offices as well as research labs. Its primary goal is to provide services and resources that will result in financially viable entities in the community.

Most remarkable, Brown says, is the effect RSU and the center have on innovation in the city of just 17,000 or so. A recent survey conducted by RSU shows the university had a roughly \$40.5 million impact statewide in 2004, which includes both direct expenditures by the university and the indirect impacts of researchers and students who live in the state.

“There’s a lot of research going on,” he says. “We certainly are trying to be innovative. ... I’m not saying we’re going to rival Silicon Valley or anything like that, but we think there is a lot of potential (at RSU).”

Strength in numbers

“The impact of a university at any level of degree offering is related to the size of the population where it’s located,” Orlando says. “Overall, highly populated urban areas with doctorate-degree universities tend to be the most innovative.”

This appears to be the case in Albuquerque. The northern New Mexico city of more than 700,000 is home to the University of New Mexico and the Sandia National Laboratories, and is in close proximity to the Los Alamos National Laboratory.

is 229 percent higher than non-university counties. Areas where the highest degree offered is a bachelor’s degree have only a slightly higher (26 percent) patent productivity rate than non-university counties.

Even so, this minor rate increase can mean big innovation, such as in the small, northeastern Oklahoma city of Claremore, home to Rogers State University and its student body of about 3,000.

RSU was a community college until 2000 when it became an accredited university, now offering both associate’s and bachelor’s degrees. The university also recently opened its Innovation Center—something not typically found at small universities, says Ray Brown, the center’s director and RSU vice president for economic and community development.

Both labs work for the U.S. Department of Energy, primarily conducting nuclear defense research. Both also have “a pretty tight relationship” with the university, says Sul Kassicieh, associate dean for research and economic development, and chair in economic development at UNM.

The university has a student population of more than 26,000, plus branch campuses, and offers degrees through the doctorate level. The university also houses research units including the High Performance Computing Center, Cancer Center, New Mexico Engineering Research Institute and Center for High Technology Materials.

UNM’s varying research as well as partnerships with premier national security labs result in a highly innovative, patent-rich area, Kassicieh says, benefiting both the university and beyond through the exchange of ideas, research and funding. This attracts new ideas and perpetuates more innovation.

“It’s a circular effect,” Kassicieh says.

Benefits

More than the university where for 19 years he conducted research and developed ideas, Colorado State University enabled Bruce Golden to form partnerships with fellow professors who would become co-founders of Optibrand, and also recent graduates who make up much of his 15-person staff.

Optibrand is one of many ideas sparked within the university that has grown into a community presence, says Hunt Lambert, associate vice president of economic development at CSU.

“We’re full of innovative people,” Lambert says. “A number of their ideas become companies.”

CSU’s research ranges from infectious diseases to clean energy. Companies, like Optibrand, born at the university range from a charitable organization to a road bike store.

“We have smart people with good ideas and the infrastructure to start businesses,” Lambert says, adding that a dozen or so area companies were started in the last five years by alumni.

CSU innovation has a “dramatic impact”

on the community, Lambert says. But without the community, it’s likely the innovation would be taken elsewhere, he acknowledges.



CAMELIA STAN works in the Center for Rhizosphere Biology at Colorado State University. Research at universities is critical to an area’s level of innovation.

The rich environment of Fort Collins draws research and innovation to CSU. And the university’s innovation in turn feeds that environment, Lambert says.

Such was true for Optibrand.

“It takes that kind of blending,” Golden says. “That university stage is real critical.”

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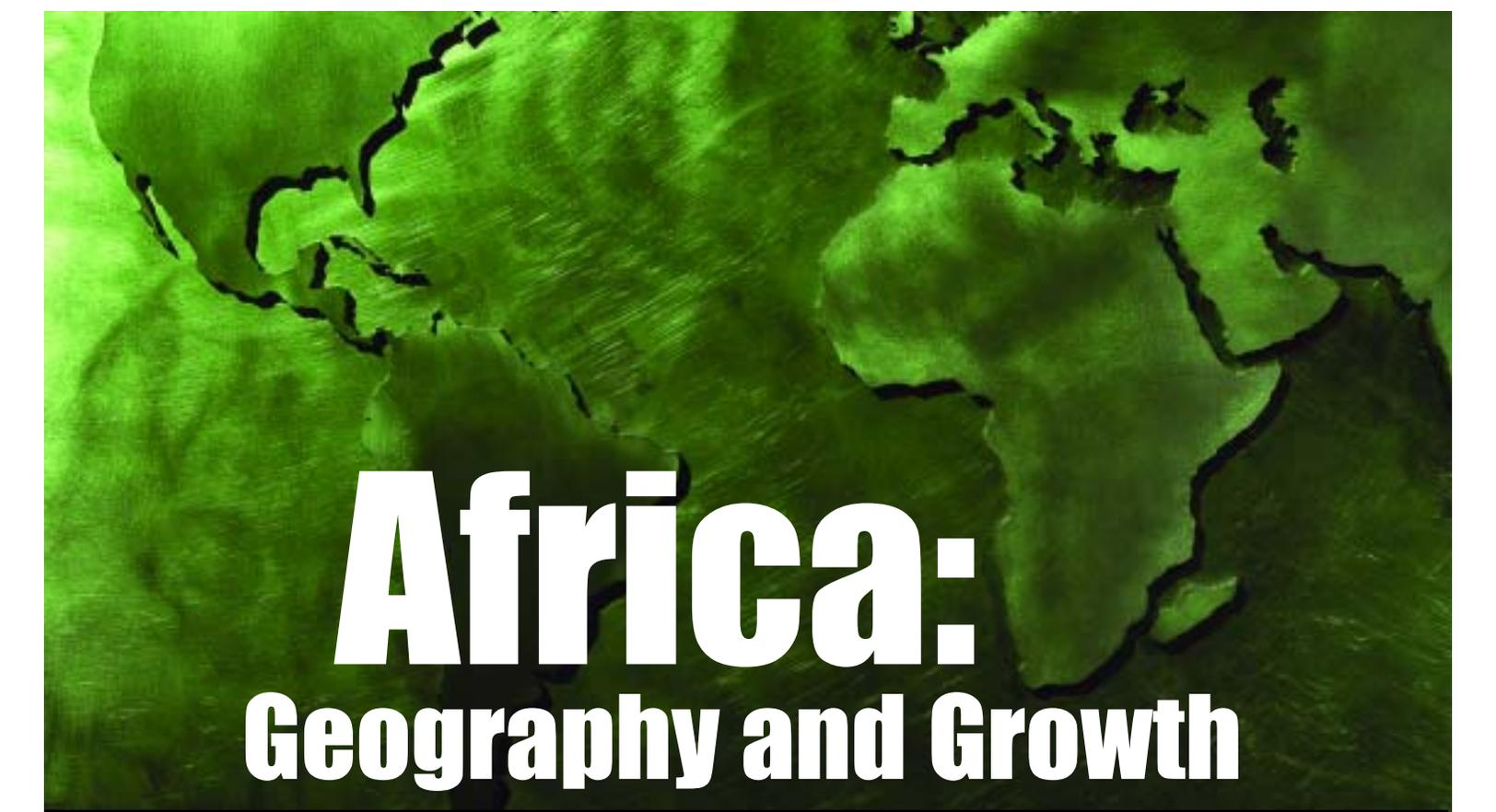
BY BRYE STEEVES, SENIOR WRITER

FURTHER RESOURCES

UNIVERSITIES, POPULATION AND REGIONAL INNOVATION, BY MICHAEL J. ORLANDO, STEPHAN WEILER AND MICHAEL VERBA

www.KansasCityFed.org/TEN

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Africa: Geography and Growth

The Federal Reserve Bank of Kansas City recently hosted its annual economic policy symposium in Jackson Hole, Wyo. with the theme “The New Economic Geography: Effects and Policy Implications.” This presentation by Paul Collier, professor of economics at Oxford University, was one of several during the event. To read Collier’s paper, as well as others presented, visit www.KansasCityFed.org/TEN. To learn more about the annual symposium, see the Fall 2005 edition of TEN, also available online.

For the last three decades, Africa as a whole has stagnated. Because per capita income is effectively constant, there is accelerating divergence with other developing countries. Herein is Africa’s economic problem: divergence, not poverty itself.

For the last several years, African economic performance has improved. The largest single driving factor is the commodity booms. The last time Africa had a similar phase was the late 1970s. After those commodity booms, Africa crashed—the current challenge for Africa’s leaders is not to repeat that history.

Peace settlements generally prompt a

rebound effect after times of conflict. In Africa, post-conflict recoveries are now spurring rapid growth. Additionally there are delayed—but significant—economic reforms, which may be persistent. The best indicator of those economic reforms is macro performance. With the notable exception of Zimbabwe, Africa’s macro performance is now remarkably better than one or two decades ago.

Africa is often dismissed, as if it was special, odd or sad. Contrarily, Africa is intelligible and understandable in terms of global patterns. Africa is unique, both in its physical and human geography. Given those distinctive features, its behavior conforms to global patterns. This is the crux of the argument.

There are two pieces of Africa's physical geography that are characteristically important. It is land-abundant and dirt-poor, and therefore natural resources are crucial. They loom large relative to other income. But the natural resources are unevenly distributed, so parts of Africa are resource-rich while others are resource-scarce.

The second distinguishing feature of Africa is the enormity of the continent relative to its population. When a large area is split into many countries, some of them will be landlocked.

These two features allow analysis. If an area is resource-rich, it doesn't matter whether it is landlocked or coastal, therefore the continent can be examined in three categories. The most distinctive: landlocked and resource scarce.

One-third of Africa's population lives in landlocked resource-scarce countries. In developing areas elsewhere, such areas have seldom become sovereign countries for good reason.

There is no plan to elevate these countries to middle income, let alone develop them. This would depend upon doing things like Switzerland, Austria and Luxembourg—piggy-backing on your neighbors' growth. For such countries, neighbors are not in the way of the market—they are the market.

To be successful, two things must happen. The first is integration. Globally, that has happened for landlocked areas. The average country, landlocked or not, grows an additional 0.4 percent if its neighbors grow 1 percent. For landlocked countries excluding those in Africa, that spillover is 0.7 percent, while in Africa it's 0.2 percent.

In other words, African landlocked countries have not integrated into their sub-region. To date it hasn't mattered: there hasn't been any growth to spill over.

Step 1 is "fix the more fortunate countries." The critical path to development in Africa's landlocked resource-scarce countries to develop is, first, growth in more fortunate countries.

Let's take the resource-rich, which make up another one-third of Africa's population,

compared with the 11 percent elsewhere. If you are resource-rich, you are inevitably going to have a big government, because resources are going to be taxed by the government. It then has to be spent.

At one point the International Monetary Fund was keen on future generations' funds—the Norway model. That is crazy for Africa in two senses. First, Africa is capital-scarce, unlike Norway. So at some stage, Africa needs to absorb that money in domestic capital formation, not in financial assets in New York.

Second, and more important, Africa does not have the political institutions to defend a future generations' fund. In practice, a future generations' fund is a transfer from a rare, prudent finance minister to a less rare, not-very-prudent finance minister a few years down the line. Future generations' funds in Africa are for the birds.

Also, they are the wrong issue. Savings is a second-order issue. The first-order issue is how public money is spent. That is a matter of government accountability. Globally, resource-rich countries do this rather poorly. The main mechanism for better accountability should be democracy.

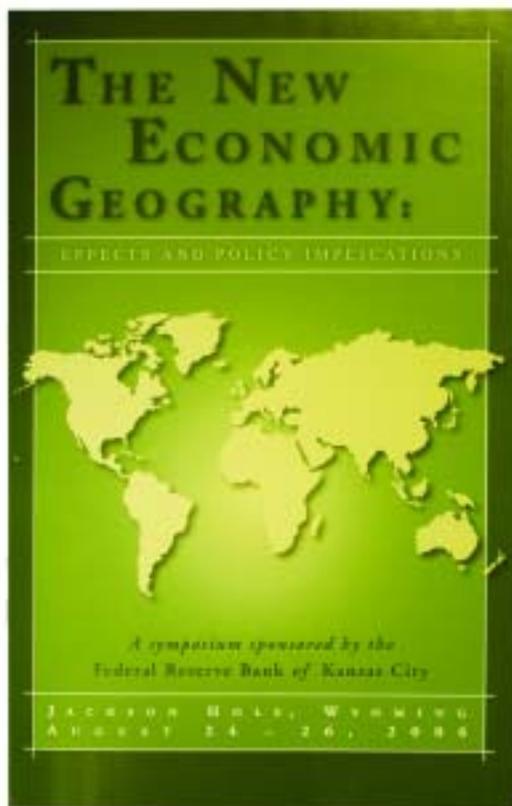
I've looked at this statistically around the globe; resource-rich countries are distinctive. Outside of these countries, democracy actually accelerates growth. Within them, democracy reduces growth. But, if you separate democracy into two different components—electoral competition, and checks and balances—electoral competition is distinctively bad in the resource-rich countries and checks and balances are distinctively good. So the resource-rich countries need a distinctive form of democracy. They need a lot of checks and balances, but usually get the opposite.

In Africa, the contrast is between Botswana and Nigeria. Botswana, although a democracy, can't reasonably be described as intense electoral competition. The government has never gone so far as to lose, but it does have a lot of checks and balances, especially on how money is spent.

Nigeria is the opposite. It has had intense electoral competition. In the last election, 80 percent of senators lost their seats and there

have been no checks and balances at all. So democracy is undermined by resource riches, partly because in these environments, resource rents turn into patronage politics.

Turning to the coastal, resource-scarce areas, globally they are countries that have been most successful. They are the countries that have had fast growth. That is the game plan we really know about—the game plan T.N. Srinivasan was talking about. Nowhere in Africa has that happened, except Mauritius. Something went wrong in the 1980s. There was a window of opportunity, but for various reasons, all of Africa's coastal resource-scarce economies were fouled up with poor policies or conflict. Tony Venables says they missed the boat because Asia has now built up these agglomeration economies. Asia still has cheap



labor, so Africa can't out-compete Asia on wages, but Asia can out-compete Africa on agglomeration economies. That is the physical geography.

Let me turn to the human geography before pulling the two together. There are two distinctive features of African human geography. First, political geography: The region has a smaller population than south Asia, but it is divided into 44 countries.

Small countries imply three things. Again, I rely on global statistic relationships. If you start with poor policy, reform is much harder if your population is small. Africa started with poor policy. So did India. And so did China. Africa started no worse, but the process of reform requires a critical mass of educated people, and a scale economy in having things like a financial press, an informed media, and an informed society. Africa just doesn't have these things.

Although its strategy was disastrous, China had a critical mass of educated people. The Central African Republic doesn't. There is nobody there with education. So the process of reform has been long delayed. That is one feature of a small population.

Second, there is a much greater level of insecurity. If you divided India into 44 countries, no one country would have the scale to provide adequate internal security. The overall regional incidence of violent conflict would go up, which is what happened in Africa.

The third feature of a small population is obvious: being more prone to shocks. The other feature of African human geography is, despite being small, the typical country is radically more ethnically diverse than other societies.

What do we know about ethnic diversity globally? Two things. First, collective action is much harder and therefore the provision of public goods is much less effective. A diverse society should have a small state, shifting more things into private activity.

Second, diverse societies need democracy. Globally, autocracy seems to be fine for growth. Look at China. But it does not have ethnic diversity.

If you have autocracy and ethnic diversity, you hit disaster, like Africa. There is a simple economic reason for that. Splitting a society into ethnic groups and giving autocratic

power, that power goes to one group. If the group is fairly small, it has an overwhelming incentive to benefit itself by redistribution rather than by the public good of growth.

Until recently, Africa did not have democracy. It had predatory, minority autocracies. That is the human geography of Africa. Putting together physical and human geography points at two critical problems for Africa's future growth.

The first is the resource-rich countries. The big story at the moment in Africa is resource riches. Commodity prices are going up. Discoveries are spreading. That is the opportunity for Africa. But, its resource riches are in ethnically diverse societies.

Big public sectors don't work in ethnically diverse societies because of the collective action problem, and the need for democracy. Democracy and resource-rich countries don't work, turning patronage into politics. That is the dilemma. You have to run a big state, because inevitably the state has a lot of money. But collective action for spending public money is going to fail. If you need to make democracies work, impose accountability on the government, but with resource wealth democracy corrupts so easily into patronage politics. Then the challenge in that case is building accountable democracies.

To his credit, Nigerian President Obasanjo has tried to do that during his second term. It's what he started to do, putting in place checks and balances, and it's precisely the right agenda. Obviously, a hugely important check and balance is the central bank. In societies where you don't have an informed press, the central bank is potentially the only domestic respected authority that can deliver a message of accountable government.

Also, outsiders play an important role. The British government, to its credit, launched something called the Extractive Industries Transparency Initiative, trying to get on a voluntary basis some basic standards of governance into managing resource rents. That is a hugely important thing to take forward. EITI was a modest step. We need to scale it up. But that is the right thing for the international

community to do to make sure that Africa's new wave of resource rents is more successful than its old one. This is a growth challenge.

The other growth challenge is that Africa's coastal resource-scarce economies have missed the globalization boat. We somehow have to bring that boat back. How do we do it? If we don't bring it back artificially, it will come back naturally once Asia's wages are as high, relative to Africa's wages, as Europe's wages were relative to Asia when Asia broke in. That will take a long time.

To its credit, America actually has developed such a way—the Africa Growth and Opportunity Act (AGOA). There are many respects in which this is a flawed mechanism, but it gets the basics right. It has a temporary preference for Africa versus Asia in American markets. It's worked, raising African exports to America by more than 50 percent.

Europe has a supposedly similar scheme, Everything But Arms, which is totally hopeless. The devil with all trade agreements is in the detail. Everything But Arms fails on all the details. The challenge is to somewhat improve the AGOA scheme, and in particular give it a slightly longer horizon than it has now.

At the moment, the critical feature of the scheme has to be renewed annually in Congress. A one-year horizon is too short for investment. What I would like to see is an AGOA-plus that is scaled up across the Organisation for Economic Co-operation and Development.

Those are the two challenges: Breaking the growth bottleneck in the coastal resource-scarce economies, and trying to ensure that Africa manages the present resource boom better than it did in the past. Africa is not a mysterious, *sui generis*-type of place. It has distinctive features, which generate two distinctive problems, both of which the international community has a role in resolving.

BY PAUL COLLIER,
OXFORD UNIVERSITY PROFESSOR

COMMENTS/QUESTIONS are welcome and should be sent to teneditors@kc.frb.org.

Kim Curtis makes soap in the basement of her Nebraska farmhouse, where Shepherd's Dairy Soaps & Lotions is based. Working in the country doesn't hinder her business, but rather fosters her creativity.



PHOTOS BY SCOTT INDERMAUR

Thinking outside the flock:

Regional partnerships help small, rural entrepreneurs succeed

A few years ago, Kim and Larry Curtis hit a dry spell.

Thankfully their 115 sheep were still producing the eight tons or so of milk each month that the Curtises ship to Wisconsin and New York to be made into gourmet cheese. But demand was down and milk soon was overflowing at Shepherd's Dairy, which sits just

outside of Anselmo, a town of less than 200 people in rural central Nebraska.

"I think we probably filled every freezer in the county" with the excess milk, Kim says. "We thought maybe we should come up with our own idea."

With wool offering only a small supplement, the couple tried—unsuccessfully—making their own cheese.

And butter.

And ice cream.

Then, a friend gave Kim a book on homemade soap.

“The first batch worked.”

What started as making a few bars of floral-scented soap handed out for free to hook customers has since turned into producing thousands of batches in dozens of scents, including a men’s line named after the Curtis’ sheepherding dogs Brutus and Toby, to sell nationwide in hundreds of stores and online.

After six years, the Curtises now use all the milk their ewes produce and Shepherd’s Dairy Soaps & Lotions grosses more than the dairy operation.

The secret of the products’ popularity is the high butterfat content of sheep milk (twice that of cows’), which is a good moisturizer for skin. The secret to launching Kim’s business success: GROW Nebraska—a nonprofit organization that helps entrepreneurs statewide overcome obstacles of rural geography and isolation from commerce to run successful businesses.

Partnering with GROW (Grassroots Resources and Opportunities for Winners) Nebraska helped the Curtises with marketing, packaging, pricing, networking and product evaluation—business aspects Kim readily admits she knew nothing about when she concocted that first batch of soap in her farmhouse kitchen. Increased sales are proof of the partnership’s worth.

“GROW Nebraska is the one that got me going,” Kim says.

Urban areas have the advantages of larger amounts, concentrations and blends of human and physical assets. Rural communities often lack agglomerative assets, which are the advantages that emerge from the proximity of groups of people and similar firms.

Lack of agglomeration may limit access to resources needed to seize economic opportunities or confront new challenges. Labor pools, entrepreneurs, firms, innovation, infrastructure and financial capital generally are much more

limited in rural communities while production costs are often higher.

However, regional partnerships can help rural communities offset the disadvantage of their smaller scale and greater isolation by leveraging and pooling resources to build agglomerations and reduce costs. Such is the case with GROW Nebraska’s partnerships, including Shepherd’s Dairy, Annies Jellies & Jams, and Bullseye Beef Jerkey, among other homegrown entrepreneurs.

“Regional partnerships can turn new economic advantages back toward rural areas, offsetting twin obstacles of size and remoteness,” says Stephan Weiler, formerly an assistant vice president and economist at the Federal Reserve Bank of Kansas City. Weiler along with Jason Henderson, assistant vice president and Omaha Branch executive, and Katie Cervantes, former intern, recently researched innovative regional partnerships in the rural Tenth Federal Reserve District.

“Regional groupings can cross traditional boundaries and create new networks that blend complementary assets and shared interests,” Henderson says. “These groupings can also help rural economies compete more effectively against more urbanized areas.”

While broad regions already exist, often through administrative boundaries such as county lines, the most promising new regions evolve organically from the communities themselves.

“These new regions combine the unique individual features and shared interests of its people and landscape,” Henderson says, “creating a whole that is greater than the sum of its parts.”



Wanted: Regional partners

The rural American economy is defined by its small, isolated and often fiercely independent communities and businesses, Weiler says.

In the 19th century, rural residents plowed, mined and ranched their way to self-sufficiency. The rural economy of the 20th century was defined by the development of broad swathes of commodity production across the landscape.



The secret to Shepherd's Dairy Soaps & Lotions' success: sheep milk and business partnerships. Developing these products started as a solution to use excess milk from the Curtis family's dairy, but has quickly grown into a booming product line nationwide and online.

However, toward the end of the century, American competitive domination in such agricultural and manufacturing production eroded as lower cost alternatives became increasingly available in a globalizing economy.

As a result, rural communities are now seeking narrower economic niches in the beginning of the 21st century to orient their limited resources toward creating products and services that focus on creating new value for a global marketplace.

Today, roughly two-thirds of all counties in the United States are rural. But in the last decade, rural counties accounted for less than 3 percent of the growth in employment, income and population while the top 10 percent of U.S. counties accounted for roughly 75 percent of that growth.

It's clear that urban areas have a wide economic lead in the global economy because of the large blends of people, assets and resources in metro areas.

"The rapid pace of globalization has put rural communities in an extremely difficult situation," Weiler says. "Regional partnerships are critical to rural areas. Overcoming disadvantages such as small populations and isolated rural locations requires an unusually innovative and compelling cooperation."

It can be done. Successful regional partnerships are found throughout rural America. Creating new networks; crossing county lines; and blending public, private and nonprofit organizations, these partnerships were created to address collective interests and solve common problems.

"Regional partnerships are springing up across the rural countryside, taking a variety of forms and crossing many boundaries," Weiler says.

For example, Prairie States Center for Entrepreneurial Leadership was initially born from the need to protect the prairie chicken, which was designated as an endangered species in parts of Colorado. Subsequently, farmers and ranchers there and in Oklahoma, Texas, New

Mexico and Kansas formed a coalition to preserve the bird without hindering their agricultural operations. This effort was the beginning of what became a much broader regional collaboration.

Although the birds brought them together, participants ended up forming an economic partnership based on their mutual needs that extended well beyond protecting the prairie chicken.

Spanning a lesser geographic area but with the similar goal of regional partnership, the Twin Cities Development Association evolved in western Nebraska to combine and increase resources in the small, neighboring towns of Scottsbluff and Gering to collectively further economic development.

Also in Nebraska, GROW emerged in the late '90s—a time when the state's rural entrepreneurs faced tough marketing and training challenges because of broad geographic dispersion, says Janell Anderson Ehrke, founder and director.

"The businesses need to be able to sustain themselves," Ehrke says. "What we stress is they can live anywhere in Nebraska and make a living."

GROW shows them how.

GROWing beyond obstacles

"By pooling our resources," Ehrke says, "we create an impact."

The GROW staff works one-on-one with the businesses, and, perhaps most importantly, facilitates a network among entrepreneurs around the state, Ehrke says.

"Marketing is our thrust," she says. "They (Nebraska businesses) have to look outside their area."

This means being Web savvy and traveling to showcase products at multimerchant sale events. The more than 200 GROW business members are featured on the nonprofit's website, along with links to the individual businesses' sites. Additionally, the nonprofit touts the businesses collectively through news



Janell Anderson Ehrke founded the nonprofit GROW Nebraska to help the state's entrepreneurs overcome geographic challenges.

releases, chambers of commerce, economic development organizations and word-of-mouth, Ehrke says.

Research shows it's partnerships like these that can help rural entrepreneurs succeed beyond their small, isolated communities while maximizing the benefits of the area, which is often the biggest obstacle these businesses face.

"Thinking regionally allows rural communities to focus on the natural complements between otherwise independent communities—cooperative assets often overlooked and underappreciated," Henderson says.

As world markets grow, connecting to new markets and resources is more vital now than ever before, he says. But it may not be easy for those in isolated areas—unless they have help.

Breaking down barriers

Research shows more rural leaders recognize forming regional alliances as critical to the success of their communities. While innovative partnerships can take a variety of forms in rural places, Weiler says the primary feature is the crossing of traditional boundaries of networks, institutions and space.

"The spark that ignites innovative regional partnerships comes when neighboring local leaders agree on shared interests," he says.

Partnerships often are issue-driven or may form around a new business opportunity or

common economic policy. Participants also may differ, linking private businesses and higher education institutions or local governments and philanthropic organizations. A single community or business may be part of multiple regional partnerships with focuses on different strategic concerns ranging from health care to education to economic development.

Perhaps the greatest challenge in rural partnerships is creating new networks that stem from shared interests, Weiler says. Already diverse groups often are divided, blinding them to the benefits of regionalism. Additionally, many rural regions must create partnerships across the barriers of city, county and state lines.

In the late '90s, the state of Wyoming created seven Basin Advisory Groups that successfully have both linked diverse groups and crossed physical boundaries.

Each of the seven groups' members represent water users statewide, including local government, agriculture, recreation, industry and environmental sectors. The goal is to collaborate to identify and prioritize water use, says Phil Ogle, supervisor of the River Basin Planning Section, which is a part of the state's Water Development Commission.

In total, the seven groups have about 100 active members who meet as often as every month, or just a few times a year. Thus far, the groups have developed plans for their particular area of the state, which may include one or more rivers. In the near future, all input will be compiled to form one comprehensive plan for the state to review and implement, Ogle says.

However, this doesn't mean the groups will disband. They will continue to meet and evaluate water use because managing the state's resource is a continual and ongoing process, he says.

Although members may have differing or competing interests, the partnership has been successful, Ogle says.

"It's like any collaborative process," he says. "Everybody has to give up a little to work together."



Bonding through a common interest, along with the rural attributes of independence and self-sufficiency, has benefited this partnership and allowed it to thrive, Ogle says.

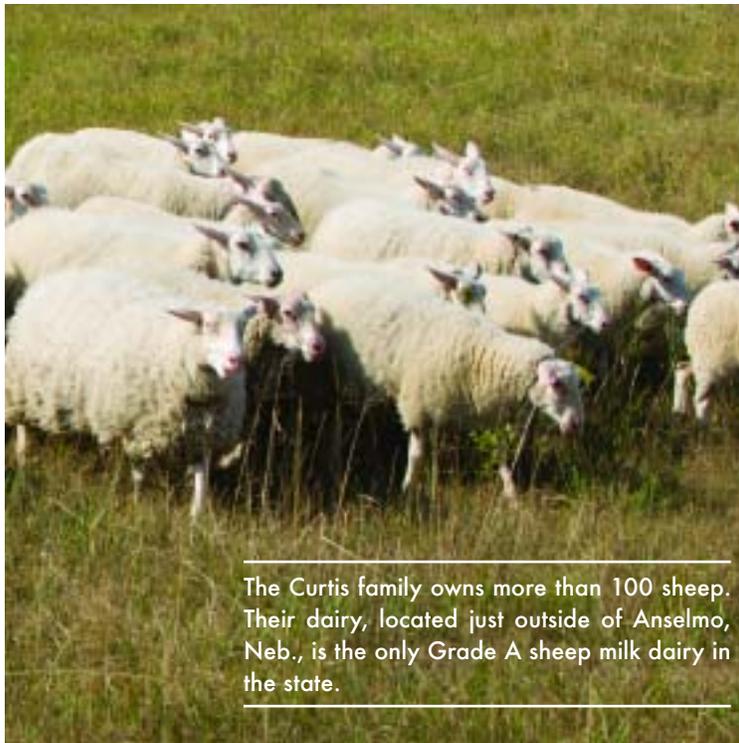
"We're not large enough to have lost rural character," he says.

Weiler and Henderson say regional initiatives require that the unique resource of individual communities be valued, and that the benefits of acting regionally must match the contributions of individual participants. Partnerships must allow flexibility in working together while still acting independently.

Ultimately, forming rural partnerships may build a broader base of support among public, private and philanthropic institutions that recognizes the importance of regions while creating new leaders who can see across traditional boundaries and champion new initiatives.

Success stories such as these underscore the importance of forging productive partnerships, Weiler and Henderson say. However, it is important to look beyond traditional boundaries to realize broader opportunities of regional partnerships, they say.

Benefits, such as jobs, income and wealth, are not confined to the local area, but spill over into neighboring communities. This overflow is increasingly recognized as vital to economic growth, Weiler says.



The Curtis family owns more than 100 sheep. Their dairy, located just outside of Anselmo, Neb., is the only Grade A sheep milk dairy in the state.

Rural success

The Curtis family members, including the couple's youngest child, 17-year-old Luke, don't notice anymore the soft, clean soap scents that float through their farmhouse.

Kim and Larry have lived on that farm, where Larry was raised, for 16 of their 34 years of marriage. Larry's grandparents bought the land in 1910.

It's the kind of living Kim always hoped for. Growing up the daughter of a career Air Force airman, Kim moved from base to base as a child. She remembers her mother telling her with a laugh, "We should live in a dairy!" because of Kim's love of milk.

"I was always drinking it," Kim says.

Her father retired in Nebraska, where Kim met and married Larry. She would live on a dairy farm after all, but one where the milk is too expensive to drink, the family jokes. Although they live in cattle country, the Curtises run the only Grade A sheep milk dairy in the state.

Like the milk, the premium cheese—which can sell for as much as \$19 or more per pound—isn't a staple in the Curtises' kitchen.

"Honestly, Velveeta is my favorite," Kim says.

Instead, she mixes the creamy milk in kettles with oils and lye. As the volume of soap

production increased, and as she ran out of counter space, Kim moved her operation into the basement and hired two women to help her part-time.

In addition to milking the ewes twice a day and helping Larry run the dairy, Kim makes soap a couple of times a week, mixing and molding a dozen or so batches—upward of 700 bars—in an afternoon.

Milk-based soap must be kept cool; ingredients can only be heated enough to combine them, which Kim does in a blender rather than stirring. She then pours the mixture into Victorian-style molds and freezes the bars so they pop out of the casings easier. The bars must cure for a month before they are artfully packaged and distributed.

Orders ebb and flow, usually peaking around the holiday season, Kim says.

Although she's never felt restricted by working from the farmhouse, Larry and Luke are building her a facility to continue expanding. She hopes eventually all the dairy's milk will be used to make bath products.

But regardless of how large Shepherd's Dairy Soaps & Lotions grows, Kim would never transplant her business in a larger metropolitan area. She can't think of any reason to.

Working from the remote farmhouse doesn't disconnect her from the marketplace. Her rural business headquarters fosters her creativity while offering a sense of security and peacefulness, Kim says.

"I love being in the country."

T

BY BRYE STEEVES, SENIOR WRITER

FURTHER RESOURCES

INNOVATIVE REGIONAL PARTNERSHIPS IN THE RURAL TENTH DISTRICT

by Stephan Weiler, Jason Henderson and Katie Cervantes
www.KansasCityFed.org/TEN

COMMENTS/QUESTIONS are welcome and should be sent to teneditors@kc.frb.org.



PHOTO BY SCOTT INDERMAUR

CHECKING IN:

Check 21 starts strong in Tenth District, Kansas banks lead conversion

The few thousand residents in Norton, Kan., may not know it, but their banks are leading technological advances in the nation's check clearing system.

The three banks in this small, rural town near the northwest corner of the state have been among the first to take full advantage of the Check Clearing for the 21st Century Act, known as Check 21, to electronically convert manual paper check processing.

The Check 21 legislation implemented two years ago authorizes a new legal document, called a substitute check. The substitute check is created from a digital image of the original check if it's needed to complete the funds collection process. As long as the bank whose customers write checks agrees to accept digital images instead of the original, the manual handling and physical transportation necessary to clear billions of paper checks each year can be eliminated.

The volume of checks processed electronically through the Federal Reserve System continues to grow. In November 2004, an average of 40,000 check images was deposited each day. By July 2006, an average of 6.2 million items (\$20 billion) was processed daily. And now, almost 15 percent of the checks cleared through the Federal Reserve are deposited as electronic images by about 1,300 banks and credit unions, says Korie Miller, assistant vice president of financial services for the Federal Reserve Bank of Kansas City.

Banks in the Tenth Federal Reserve District—especially those in Kansas—make up a relatively large percentage of early adopters of Check 21, Miller says. The Federal Reserve Bank of Kansas City receives check images from about 179 financial institutions, second only to the Federal Reserve Bank of Chicago, which receives check images from 212 banks.

"If you think about those numbers, it's pretty amazing," Miller says. "I would say it's a huge success so far."

The Federal Reserve is taking an industry leadership role to help all banks transition to electronic processing, although the legislation does not mandate a deadline for this conversion.

Because Check 21 is still in its inception stage, it will take time for banks to adapt. Barriers associated with end-to-end check image exchange include changing back office systems and customer readiness.

"It's a bank-by-bank conversion," Miller says. "Industry collaboration is a must. Exchanging images requires willing partners."

Making the move

Until just a few months ago, The (Norton) Bank, a community bank with 10 branches in Kansas, had to cut short business hours every day.

Because customers' checks were physically transported by courier, The Bank had to hand over checks their customers deposited by mid-afternoon and any deposits customers made later would wait 24 hours until the next pickup. Meanwhile, courier and fuel prices have surged.

“The costs (of time and money) are just going to keep going up,” says Don Bolt, senior vice president of The Bank. “By doing this electronically, we can eliminate that.”

In early June, The Bank joined “this paperless society” of Check 21 and has saved time and money since, Bolt says.

It’s really not a juxtaposition that small banks in rural areas are on the forefront of this advancement. The majority of his customers are farmers whose preferred payment method is still checks, Bolt says, adding that remote banking locations are the ones most in need of fast

Subtle differences

Many banking customers may not have noticed Check 21 even went into effect, Miller says. Some might receive a substitute check in lieu of the original check, or a mixture of canceled-original and substitute checks.

A substitute check is a slightly larger copy of a standard check and is printed under specific guidelines so that it can be used as the original check would be, such as for proof of payment.

Substitute checks assist in the transition from paper to electronic processing, so that banks could send check images for collection

“ When you put a pencil to it, you realize you can’t afford not to do it. It’s just a win-win situation. ”

connections with other banks.

“Check 21 overcomes the disadvantages from geography,” Miller says. “It eliminates those barriers and gives rural banks an opportunity to provide cutoff hours and reduce transportation costs to be in line with banks in larger metropolitan areas.”

While there are startup costs for most institutions, such as system upgrades and new hardware and software, it will eventually be cost prohibitive for banks not to be Check 21 enabled, Miller says.

Bolt says The Bank will recoup expenses in less than two years—and it’s worth it.

It’s the benefits of Check 21 that Joni Hopkins of the Federal Reserve Bank of Kansas City attributes to early and widespread adoption throughout rural areas.

“Kansas banks are pretty much on the forefront,” says Hopkins, who along with a team of others from the Federal Reserve helps banks set up for Check 21. “It just became a windfall. They knew, ‘this is the direction we need to go.’”

As the largest provider of Check 21 services, the Federal Reserve acts as a middleman of sorts, facilitating the electronic movement of check images from one bank to another.

“The Federal Reserve has an objective to electrify payments for efficiency,” Miller says. “Check 21 is in line with this objective.”

even though not all banks were ready to receive them. The Federal Reserve is working with customers to encourage the use of electronic end-to-end processing so the substitute check becomes obsolete.

Customers should be aware that electronic check processing is faster and may mean money is deducted from accounts quicker. However, the interest paid on funds deposited via check isn’t affected. Banks generally begin crediting interest no later than the business day that they receive credit for the funds.

Joe Herman, executive vice president of First Security Bank & Trust, says his customers both in Norton and at the bank’s nearby branch are receiving enhanced customer service since First Security began creating images of checks and sending them to the Federal Reserve for clearing about a year ago.

“And that’s really what we’re here for,” he says. “When you put a pencil to it, you realize you can’t afford not to do it. It’s just a win-win situation.”

BY BRYE STEEVES, SENIOR WRITER

COMMENTS/QUESTIONS are welcome and should be sent to teneditors@kc.frb.org.



Show Me the Money

CASH SERVICES DEPARTMENTS PROCESS MILLIONS DAILY

More money — millions more— than most will ever have in a lifetime flows in and out of the Federal Reserve Bank every day in stacks of ones, twos, fives, 10s, 20s, 50s, 100s and bags of coins.

In an average day, a combined total of about \$87 million is paid out and about \$72 million is deposited at the Tenth District's three Cash Services Departments in Kansas City, Denver and Omaha. Additionally, shipments of newly printed currency typically arrive each month.

And the Cash Services Department staff handles it all. It's their responsibility to distribute and receive money to and from Federal Reserve Bank customers (banks and credit unions), circulate new coins from the U.S. Mint and new currency from the Bureau of Engraving and Printing, plus detect suspected counterfeit notes.

Above all, the staff follows a process so the money is always accounted for and secure.

DID YOU KNOW...

- Generally you only need to have 51 percent of your note for it to be accepted.
- The average lifespan of a \$1 note is 22 months, five years for a \$100 note and 25 years for a coin.
- Unfit currency is shredded into pieces smaller than a 3/8-inch square.
- If the machine can't destroy a note because it is too dirty or mangled, it must be shredded manually. An "independent witness" from within the Federal Reserve Bank is called to verify the destruction.
- Cash Services employees are required to be certified to detect counterfeit money. The Federal Reserve Bank gives all suspected counterfeit notes to the Secret Service.

Source: *Federal Reserve Bank Tenth District Cash Services Department and the Bureau of Engraving and Printing.*

To read recent testimony from the Federal Reserve on its coin- and currency-related activities, go to www.KansasCityFed.org/TEN.

TEXT BY BRYE STEEVES, SENIOR WRITER
ILLUSTRATIONS BY CASEY MCKINLEY,
SENIOR GRAPHIC DESIGNER

THE FEDERAL RESERVE BANK

CASH SERVICES DEPARTMENT

Money comes from the Bureau of Engraving and Printing, and customers (banks and credit unions) send their excess cash here for deposit. Roughly 2,400 financial institutions in the Tenth District are served by the Federal Reserve Bank, which receives about 200 deposits a day.



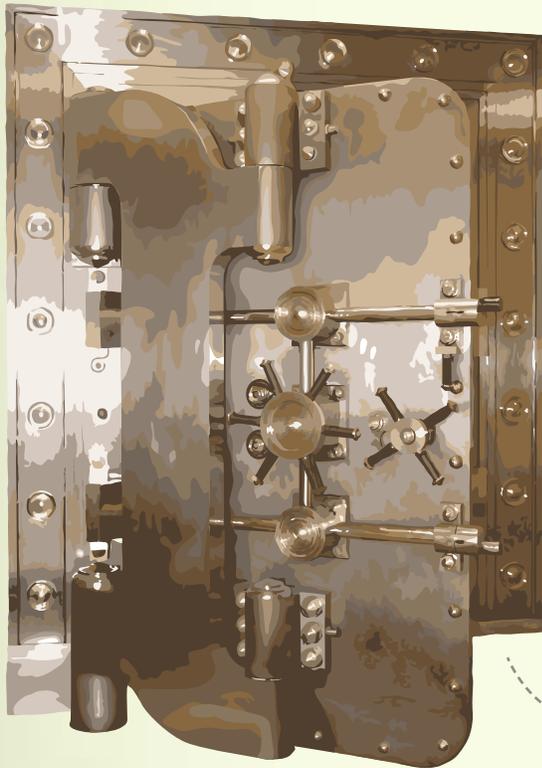


RECEIVING UNIT:

Currency shipments arrive via armored carriers at the dock. The money, sealed in bags, is then delivered to designated rooms where staff accepts the deposits.

HIGH SPEED UNIT:

Notes are run through a high-speed currency processor to count deposits and shred unfit currency. Sensors determine which notes to prepare for payout and which to reject. In the Tenth District, an average of 80,000 notes are counted and sorted per hour.



THE VAULT:

Money then goes to the vault where it is stored until it's needed for payout.

UNFIT MONEY:

Dirty, defaced, worn or torn notes are shredded. Last year, about \$2.5 billion was destroyed in the Tenth District.



PAYING UNIT:

Every day customers place currency and coin orders here to replenish their supply. The Tenth District receives about 500 orders a day. Armored carriers hired by the Federal Reserve Bank's customers pick up orders and make the deliveries.



Notes

Federal Reserve Bank's new headquarters



Summer marked one year of construction for the Federal Reserve Bank of Kansas City's new building, and this fall brings more progress toward its 2008 completion.

Currently, about half of the floors of the 14-story building are finished. Meanwhile, the podium, which is made up of the lobby on the first floor, and the second floor, such as the employee cafeteria and conference center, is nearing completion.

The cash vault ceiling and walls are now finished and interior work continues. Placement of the building's exterior stone façade, using limestone from a quarry in Kansas, is progressing as is work on the adjacent parking garage.

The 620,000-square-foot building—the Federal Reserve System's headquarters for the Tenth District—sits on nearly 16 acres at 29th and Main streets near Penn Valley Park. The Liberty Memorial, a pinnacle in the skyline, rests to the north.

The building will replace the Bank's current facility at 925 Grand Blvd., in downtown Kansas City. The 85-year-old building has been sold to a private developer.

The two newest head offices in the System are in Minneapolis, built in 1997, and Atlanta,

built in 2001. Branch offices in Houston and Detroit were constructed in 2005.

Omaha Branch executive appointed



Jason Henderson has been appointed assistant vice president and branch executive of the Omaha Branch of the Federal Reserve Bank of Kansas City.

A former senior economist in the Center for the Study of Rural America in Kansas City, Henderson will continue to contribute to the Bank's rural and agricultural research. The position of branch executive provides a regional economist for each of the Kansas City Bank's three branches, which also include Denver and Oklahoma City.

Henderson first joined the Kansas City Bank in 1996 as a research associate in the Economic Research Department. He left in 1998 to earn a doctorate degree in economics from Purdue University, and returned in 2001 as an economist.

His research focus is regional and agricultural economics; recent work includes entrepreneurship, affects on farm real estate values, and new technology adoption and development.

Two senior position changes announced



Gordon Sellon has been appointed senior vice president and director of research at the Federal Reserve Bank of Kansas City.



In his new position, Sellon now serves on the Bank's Management Committee. He has a doctorate degree in economics from the University of Michigan and joined the Bank in 1979 as a research

economist.

Sellon replaces Craig Hakkio, who has been named a special advisor on economic policy. Hakkio served as the Bank's director of research since 1997; he retains the title of senior vice president. He holds a doctorate degree in economics from the University of Chicago.

Oklahoma Branch building sold



The Federal Reserve Bank of Kansas City sold its Oklahoma City Branch building this fall after 84 years of ownership, but will continue to use one floor.

The Bank no longer needed the facility in its entirety to meet operational needs. As part of the agreement with the new owners, GenOne Real Estate Group, Randy Allen and the MIDCON Companies, the Bank is leasing the third floor for its roughly 40 employees of the Regional, Public and Community Affairs Division and the Examination and Inspections Department. The Bank also has financial services staff in Oklahoma City.

The new owners plan to preserve the historical character of the 81,000-square-foot,

four-story building that's located in the heart of the city's business district.

It is one of the three branches of the Federal Reserve Bank of Kansas City, in addition to Denver and Omaha.

Fourth Quarter Bank Anniversaries: Bank Milestones (year 1, 5, 10 and 20 or more) as Federal Reserve Members:		
BANK OF VERSAILLES	Versailles	Mo. 87
FIRST BANK OF NEWCASTLE	Newcastle	Wyo. 76
CENTENNIAL BANK OF THE WEST	Fort Collins	Colo. 69
FARMERS STATE BANK	Fort Morgan	Colo. 68
GRANT COUNTY BANK	Medford	Okla. 66
STOCK EXCHANGE BANK	Caldwell	Kan. 66
FIDELITY STATE B&TC	Dodge City	Kan. 63
BANK OF CMRC	Wetumka	Okla. 61
FIRST STATE BANK	Fairfax	Okla. 61
FIRSTIER BANK WYOMING	Upton	Wyo. 59
FARMERS STATE BANK	Pine Bluffs	Wyo. 40
BANKERS' BANK OF THE WEST	Denver	Colo. 26
CITIZENS STATE B&TC	Ellsworth	Kan. 26
CITIZENS STATE BANK	Miltonvale	Kan. 10
AMERISTATE BANK	Atoka	Okla. 10
CORNERSTONE BANK	Overland Park	Kan. 5
FARMERS BANK	Ault	Colo. 5
GREAT AMERICAN BANK	DeSoto	Kan. 5
INTERBANK	Elk City	Okla. 5
BANK OF NEWMAN GROVE	Newman Grove	Neb. 1

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BY BRYE STEEVES, SENIOR WRITER

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About...

Banking on the Federal Reserve *Discount Window*



Once cast as the lender of last resort for troubled institutions, the Discount Window has emerged through new credit programs that have recast its role in providing funding and liquidity for depository institutions.

The Discount Window, as it historically has been referred to, is a source of temporary funding for eligible financial institutions. Each of the 12 Reserve Banks has a Discount Window and is responsible for lending within its area.

While the “Discount Window” name still is commonly used, it bears little resemblance to

the days when banks “discounted” their notes at the Federal Reserve and borrowing required other sources of funding had been exhausted.

Today, the process is electronic but, more importantly, the programs have changed. And the Federal Reserve is working to ensure any stigma associated with borrowing from it is left behind, says Kevin Moore, vice president of Supervision and Risk Management at the Federal Reserve Bank of Kansas City.

“The perception is changing because the Window is now more suited to the needs of financially sound institutions,” he says. “Every bank is encouraged to incorporate the



Discount Window into their liquidity plans. That may mean borrowing to meet an unexpected need, or simply including it in their contingency plans and testing its availability.”

There are three Discount Window lending programs: primary (short-term funds for sound financial institutions); secondary (similar, but available to most depository institutions not eligible for other credit); and seasonal (smaller institutions with cyclical funding needs, usually tied to agriculture or tourism).

How it works

The Discount Window is available to depository institutions, regardless of whether they are a member or have a Federal Reserve account. Interested institutions contact the Federal Reserve Bank in their district to obtain the necessary borrowing documentation and pledge collateral—all Federal Reserve lending must be secured, says Lisa Klose, manager of Credit and Risk Management at the Federal Reserve Bank of Kansas City.

“Once borrowing documents are signed and collateral is made available, all it really takes is a phone call from the banker for us to advance the funds,” Klose says.

Most often used by financial institutions to prevent an overdraft or a deficiency in meeting reserve requirements, the Discount Window also may serve to stabilize the markets during times of crisis.

The day after the 9/11 terrorist attacks, the Federal Reserve loaned about \$46 billion to financial institutions, Moore says. In a typical day, lending totals about \$150 million.

“Our goal is to provide Discount Window funding in an efficient manner to relieve tight

liquidity for individual institutions,” he says. “We strive to maintain financial stability, and we try to work with institutions on preparedness as part of their contingency planning.”

Depository institutions decide to borrow from the Discount Window based on the lending rate and their own liquidity needs. Lending rules are established by the Federal Reserve Board of Governors, and the interest rates are set by the Federal Reserve Banks and approved by the Board.

Borrowing from the Window

Primary credit is available to any institution in sound financial condition. The program became available in 2003 and serves as a tool for ensuring adequate liquidity in the banking system, Moore says.

Generally, primary credit is granted on an overnight basis and is made available through a “no-questions-asked” streamlined process.

Because the interest rate is set above the target federal funds rate, the higher rate serves as an inherent credit administrator in rationing funds, and goes

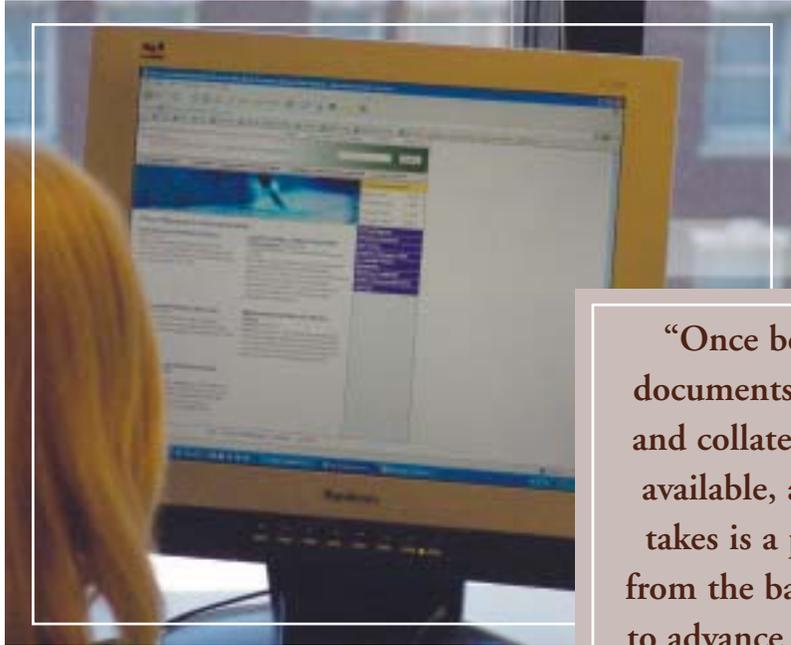
hand-in-hand with the Federal Reserve asking few questions when an institution requests a loan.

Primary credit differs considerably from the previous program, which required the Federal Reserve to ensure an institution exhausted all other funding options before turning to the Discount Window. This is why it previously was known as the lender of last resort.

James C. “Pat” Thompson Jr., divisional executive vice president of UMB, an \$8 billion financial institution in Kansas City, Mo., says the Discount Window’s primary credit has been a part of UMB’s contingency-funding plan from the beginning.

Most often used by financial institutions to prevent an overdraft or a deficiency in meeting reserve requirements, the Discount Window also may serve to stabilize the markets during times of crisis.

ALTHOUGH THE NAME IS THE SAME, borrowing from the Federal Reserve "Discount Window" is now an electronic process. More importantly, the programs have changed and the old stigma is being left behind.



"Once borrowing documents are signed and collateral is made available, all it really takes is a phone call from the banker for us to advance the funds."

"It's critical," Thompson says, adding UMB looks at the Discount Window for liquidity purposes. This is its primary goal. The Discount Window can serve as a critical player in a contingency situation when other funding sources aren't available, Moore says. Less dire circumstances also may dictate the need for an institution to access primary credit. An institution may discover an internal accounting error at the end of the day that results in a potential overdraft or reserve-requirement deficiency. In July 2003, the Federal Reserve and other supervisory agencies issued the Interagency Advisory on the Use of the Federal Reserve's Primary Credit Program in Effective Liquidity Management, which supports consideration of the primary credit program in institutions' liquidity contingency plans. The advisory supports testing the institution's ability to borrow at the Discount Window to prevent

complications if it needs to be used. For Montezuma (Kansas) State Bank, the Discount Window is also vital. In fact, for this \$50 million bank in southwest Kansas, the seasonal credit program is the backbone of its short-term funding sources.

That's how the bank meets its agricultural loan demand, says Doug Moore, Montezuma vice president and cashier, adding the bank is stronger and more stable as a result.

Montezuma grants loans predominately to farmers. Because the loan volume coincides with area crop growth and harvest cycles, customers are borrowing at the same times each year. The Discount Window ensures the bank has funds available to meet its customers' demands during peak times.

For smaller financial institutions (those with deposits less than \$500 million), funding options may be limited and the seasonal credit program offers a dependable source of funding, which benefits their customers, Klose says.

In the District, institutions with agricultural cycles lasting up to nine months often qualify for and benefit from the seasonal loan program. Additionally, tourist areas may also find the seasonal program helpful in meeting cyclical funding needs.

"I do think a lot of banks could benefit from the Discount Window," Doug Moore says. "It's definitely working for us."

"It fits perfectly with our needs."

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BY BRYE STEEVES, SENIOR WRITER

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Tour the Fed

Available
for just
a limited
time

Visit one of the Federal Reserve System's oldest Banks

Free guided tours are offered for high school age and older groups at the Federal Reserve Bank of Kansas City, built in 1921.

See exhibits and operations before the Bank moves to its new headquarters in early 2008.

Tours will be given through Dec. 14, 2007.

For more details, visit www.KansasCityFed.org/tours, or call (800) 333-1010 x2683.

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