

MACROECONOMIC IMPACT OF MOBILE PAYMENT SERVICES – A SURVEY OF RESEARCH EVIDENCE

Presented By
Dr. Iyabo Masha
IMF Representative for Sierra Leone
Freetown, Sierra Leone

at:

International Growth Centre / London School of Economics & Political Science Regional Workshop
Freetown, Sierra Leone
March 14, 2016



The views expressed herein are those of the author and should not be attributed to the IMF, its Executive Board, or its management.

Overview and Plan of Presentation

- Introductory Remarks
- Mobile Money: Definition and Key Issues
 - Research Evidence
- Some Emerging Policy Issues
 - Conclusion
 - References

Mobile Money: Definition and Key Issues

- Mobile Money and Payment Systems
 - Growth and Trend
 - Key Considerations

Mobile Money and Payment Systems

- *Mobile money*: Payments initiated and transmitted by access to devices that are connected to mobile communication networks.
- *Mobile banking*: The use of a mobile phone to access banking services and execute financial transactions. Refers only to customers with bank accounts.
- Banks vs. Nonbanks? Globally, banks continue to have an active role in mobile payments with over half of the countries surveyed in 2010 reporting mobile access to bank accounts (World Bank, 2014)

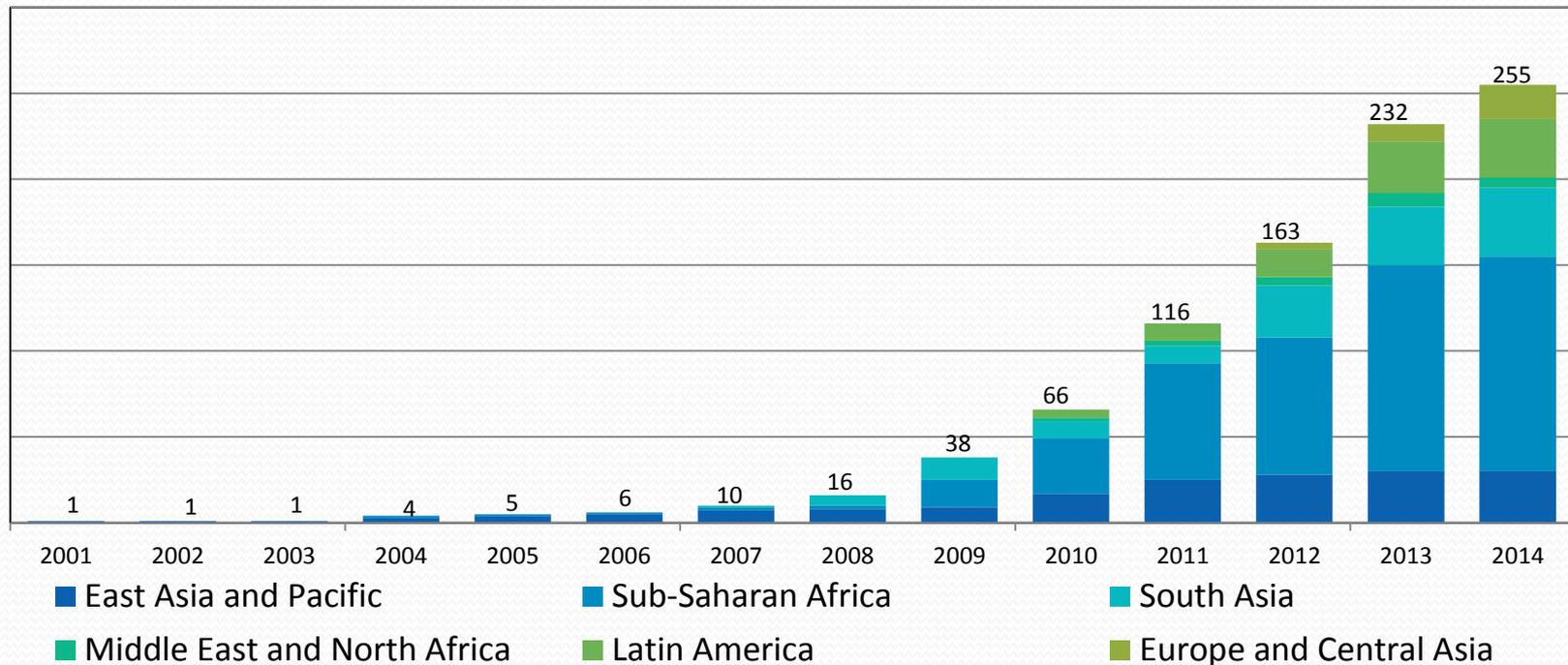
Key differences

- Funding for mobile banking payments is usually located at banks in the form of a deposit or credit account operated by customers.
- Mobile money is sourced from “customer stored funds” maintained by mobile network operators (MNOs).
- Central banks continue to be the regulator of mobile banking, while in many cases, mobile money transactions rely on existing business/company laws, since it is operated by MNOs, which are nonbank-based.

Global Growth

- According to data from GSMA, as of December 2014, there were 255 live mobile money services in 89 markets compared with 232 live services in 2013. Growth since 2010 is almost threefold.
- Registered accounts have also grown. The number of registered mobile money accounts grew to reach 299 million globally at the end of December 2014. In three-quarters of the markets where mobile money is available, agent outlets outnumber bank branches (IMF FAS, 2014).
- World Bank Findex Database (2014) reports that between 2011 and 2014, the global number of underbanked dropped by 20 percent to 2 billion people.

Live Mobile Money Services by Region: 2001-2014

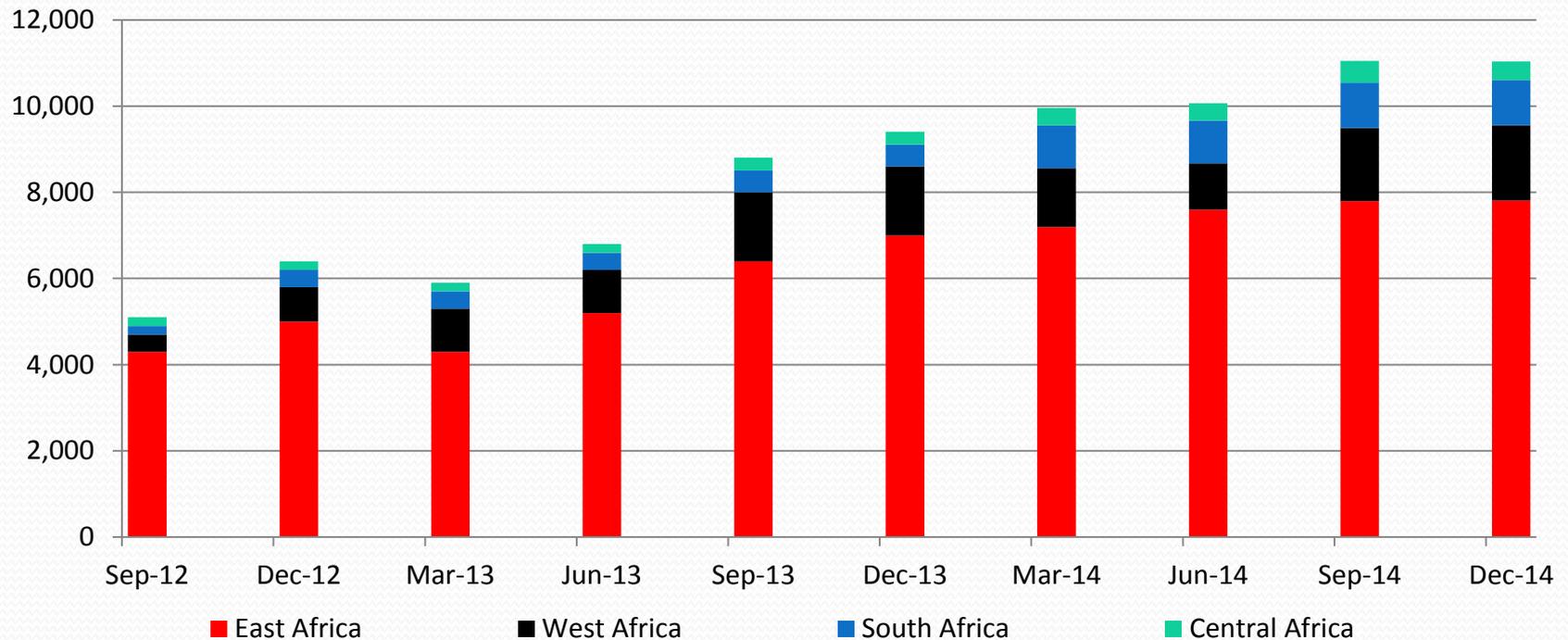


Data source: GSM Association (Grupe Spécial Mobile) Database, 2015

Growth in Africa

- South Africa was the first country to license a mobile money operating company in 2004. Mobile money services began in Kenya, the country with the most widespread use in 2007.
- By 2014, Sub-Saharan Africa recorded the highest level of mobile money penetration of any region: 23% of mobile connections in Sub-Saharan Africa were linked with a mobile money account. In addition, the region accounted for 53 percent of global live mobile money services.
- According to Findex Database, bank customers own 2 percent of mobile money accounts globally, but 12 percent in Africa.
- Regional mobile payments are also gradually evolving. In West Africa, by the second half of 2014, the value of cross-border remittances on Orange Money accounted for nearly one-fifth of all remittances reported by the World Bank between Ivory Coast, Burkina Faso and Senegal. In 2015, MNOs in East and West Africa signed agreements on interoperability.

Monthly Mobile Money Transactions: Africa Regional Breakdown

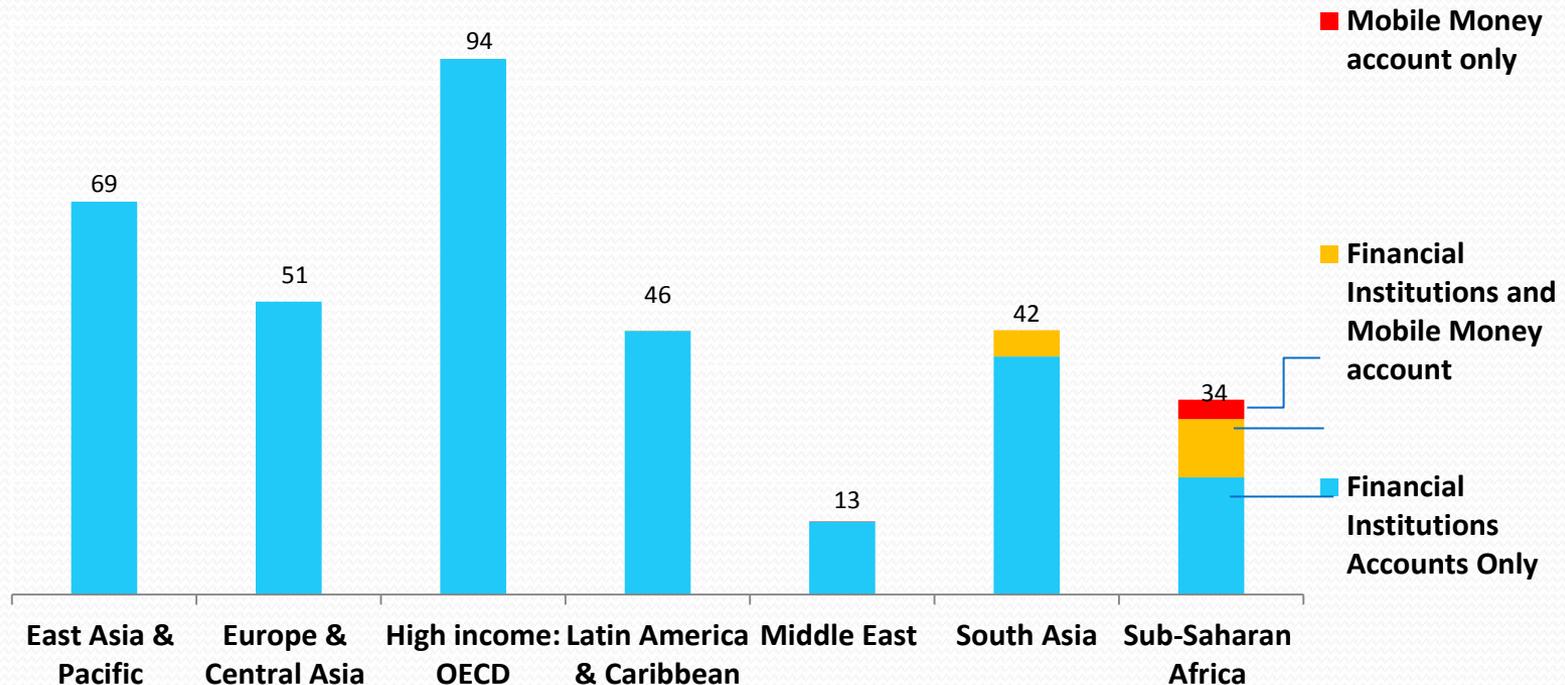


Source: GSMA Database

What is Different in Africa?

- Growth of MNO based services stronger than bank-based mobile money services. Bank based services focused on large institutional customers and individuals with regular incomes.
- People lacked access previously due to prohibitive costs, barriers to use, paperwork and market regulations. As a result, in many countries, growth of mobile money services was driven mainly by people who had no other form of bank account.
- According to the World Bank Global Findex Database (2014), 16 percent of adults in Sub-Saharan Africa used a mobile phone to pay bills or send or receive money. This compares with less than 5 percent in all other regions.

Adults with Accounts, (in percent)



Source: World Bank Global Financial Inclusion Database, 2014

Emerging Payment Landscape

More services are emerging in the payment landscape, though person to person payments remain the most dominant form of mobile money transaction

Government payments: Mobile Payments for health, education, transfers, targeted subsidies etc has taken off in some countries. For example, in Brazil, conditional cash transfer program that serves 12 million families bundles several benefits onto one electronic payment card (Lindert, Linder, Hobbs, and de la Brière 2007). Government transaction costs declined from 14.7 percent of total payments to 2.6 percent.

Mobile insurance services: was launched in 14 countries in 2014. More than 17 million policies were issued. MNOs and Banks also launched mobile credit services in 2014.

Savings: Some MNOs are now paying interest on stored values or “mobile wallet”.

In Summary

Mobile payments systems whether bank or non-bank based:

- Expands financial intermediation by increasing access to finance for a large segment of the unbanked population. It reduces transaction costs, and saving also help households manage cash flow spikes, smooth consumption, as well as build working capital.
- Allows firms to invest and build capital over time, fostering the creation of business.
- Allow for faster and more efficient government transfers
- Offer great potential for cross border economic linkage.

Results are Visible in Africa ...

- Mobile money system has jump started a wave of second-generation innovative businesses and uses on MNOs infrastructure, helping to address other development priorities.
- In Kenya, M-Kopa or Mobisol in Tanzania have created micro-leasing for off-grid, community-based solar power. Similar advances are being made with respect to water services to low-income households and communities.
- **In the East Africa region:** Vodafone M-Pesa and MTN Mobile Money announced in 2015 an agreement to allow customers to transfer funds between the two services. When operational, the deal will enable M-Pesa customers in Kenya, Tanzania, the DRC and Mozambique to transfer money to and from MTN Mobile Money customers in Uganda, Rwanda and Zambia.

In **West Africa region:** Orange Côte d'Ivoire and Airtel Burkina also signed a similar agreement in March 2015. Orange operates an international money transfer service that links Côte d'Ivoire, Mali and Senegal.

Research Evidence

- **Introduction**
- **Link to Financial Development Theory**
 - **Research Evidence**

Introduction

Expanded financial services, such as that provided by mobile money has important micro and macro economic impacts.

Research focused on the aggregate economy, usually based on cross country analysis, identify three key macroeconomic impacts:

- Impact on economic growth
- Impact on inequality
- Impact on financial system stability

Macroeconomic Impact: The Link to Financial Development Theory

The impact of mobile money at the macro level comes mainly from research that extends financial development theory in cross country context.

- The growth of mobile money services represents an expansion of financial intermediation, both in breath and depth.
- According to financial development theory, the degree of financial intermediation is not only positively correlated with growth and employment, it is generally believed to causally impact growth (Levine 2005 and Pasali 2013)
- Key channels: (i) lower transaction costs (ii) better distribution of capital and risk across the economy (iii) broader access to bank deposits can also have a positive effect on financial stability.

Impact on Growth

- Empirical evidence shows that expanded financial services is positively correlated with growth and employment. (Sahay et al, 2015)
- Studies found that lower transaction costs and better distribution of capital and risk across the economy increased reach, enabling new private-sector business models that help address other development priorities.
- In addition to the direct economic benefits, financial inclusion can improve the effectiveness and efficient execution of government payment of social safety net transfers (government-to-person payments), which improves the efficiency of government spending.

There are however some caveats, as the positive impact on growth is not universal

Research evidence also shows that:

- Positive relationship does not hold in economies with weak institutional frameworks (Demetriades and Law 2006), such as poor or nonexistent financial regulation, or in extremely high-inflation environments (Rousseau and Wachtel 2002).
- Positive long-run relationship between expanded financial services and output growth could co-exist with a mostly negative short-run relationship (Loayza and Ranciere 2006).
- More recent work following the global financial crisis also suggests that the relationship between financial depth and growth might not be linear, but shaped like an inverted “U”—i.e., at very low levels of financial intermediation and at very high levels, the positive relationship disappears (Cecchetti and Kharroubi 2012).

Impact on Inequality

Expanded access to financial services seems to relax the credit constraints on poor people, who lack collateral, credit history, and connections. At the macro level, the impact should, all things being equal be a reduction in aggregate income inequality.

The research evidence shows that:

- Inequality as measured by the Gini coefficient increases as countries progress through early stages of financial development (measured by private credit and bank branch growth), but it declines sharply for countries at intermediate and advanced stages of financial development (Jahan and McDonald 2011).
- There is a robust negative relationship between financial depth and the Gini coefficient (Clarke, Xu, and Zhou 2006). Moreover, financial depth was associated with increases in the income share of the lowest income quintile across countries from 1960 to 2005, and countries with higher levels of financial development also experienced larger reductions in the share of the population living on less than \$1 per day in the 1980s and 1990s.
- Controlling for other relevant variables, almost 30 percent of the variation across countries in rates of poverty reduction can be attributed to cross-country variation in financial development (Beck, Demirgüç-Kunt, and Levine 2007).

Impact on Financial Stability

The explosion of mobile financial services and payment usage impacts the financial system in a variety of ways. Cross country research suggest that:

- Broader financial inclusion can coincide with greater financial stability. Greater access to bank deposits can make the funding base of banks more resilient in times of financial stress. (Han and Melecky 2013)
- On the other hand, there are potential risks to financial stability from an unchecked broadening of access to credit. Financial buffers could decline with broader access to credit, and in countries with weaker supervision, the erosion of buffers is larger. (Sahay et al, 2015) . Expansion of noncredit access does not create risks.
- Countries with strong supervision could see some financial stability gains from expanded access.

Emerging Policy Issues

Policy efforts to enhance financial stability should recognize the positive effect of broader access to banking services that mobile money brings. Therefore improving the regulatory framework is paramount.

- To unleash the potential of mobile money, regulators must create an open and level playing field that allows both banks and non-bank providers to offer mobile money services.
- Regulation should mitigate the risk posed by MNOs and allow them meet customer demand to cash out electronic value.
- Regulations should allow agents to register customers and remote account opening based on identification systems. This addresses AML-CFT concerns
- Policymakers should enable market-led solutions, ensuring that interoperability brings value to the customer, makes commercial sense, is set up at the right time, and regulatory risks are identified and mitigated.
- Governments should encourage both payment and receipts using mobile money services

Conclusion

- Recent evidence using rigorous research methodologies appears to generally confirm that inclusive and efficient financial markets have the potential to improve the lives of citizens, reduce transaction costs, spur economic activity, and improve delivery of other social benefits and innovative private-sector solutions.
- Mobile money channels holds a lot of promise for West African countries, similar to what already obtains in East Africa.
- The major challenge with financial inclusion channels like mobile money is the need to take into account vulnerabilities and ward off possible unintended negative consequences.

Further Evidence

- In Ghana, a recent study found that the adoption of weather-based index insurance has strong positive impact on farmers because the assurance of better returns encouraged farmers to shift from subsistence to riskier cash crops (Cole, et al. 2013; Karlan, Osei-Akoto, Osei, and Udry 2014). Insured farmers bought more fertilizers, planted more acreage, hired more labor, and had higher yields and income.
- In Nigeria, an IMF study (Dabla-Norris et al, 2015) found that households with financial access who experience an unexpected negative income shock see consumption fall by 15 percentage points less than those without access. This result is mainly driven by households with informal financial access, and by household savings rather than borrowing.
-

References

- AFI (Alliance for Financial Inclusion). 2013. “Putting Financial Inclusion on the Global Map. The 2013 Maya Declaration Progress Report.” Bangkok: AFI.
- Beck, Thorsten, Asli Demirgüç-Kunt, and Ross Levine. 2007. “Finance, Inequality, and the Poor.” *Journal of Economic Growth* 12(1): 27–49
- Cecchetti, Stephen G., and Enisse Kharroubi. 2012. “Reassessing the Impact of Finance on Growth.” Working Paper No. 381. Basel: Bank of International Settlements, July.
- Clarke, George R. G., L. Colin Xu, and Heng-fu Zou. 2006. “Finance and Inequality: What Do the Data Tell Us?” *Southern Economic Journal* 72 (3): 578–96.
- Demetriades, P. O., and S. H. Law. 2006. “Finance, Institutions and Economic Development.” *International Journal of Finance and Economics*, 11(3): 245–60.
- Demirgüç-Kunt, Asli, and Leora Klapper. 2012. “Measuring Financial Inclusion: The Global Findex Database.” World Bank Policy Research Paper 6025. Washington, D.C.: World Bank, April
- IMF , 2014: Financial Access Survey <http://data.imf.org/?sk=E5DCAB7E-A5CA-4892-A6EA-598B5463A34C>
- GMAS Database, 2015 *The Mobile Economy*
- Jahan, Sarwat, and Brad McDonald. 2011. “A Bigger Slice of a Growing Pie.” *Finance and Development*, 66, September. Washington, D.C.: International Monetary Fund
- Han, Rui and Martin Melecky 2013 “Financial Inclusion for Financial Stability: Access to Bank Deposits and the Growth of Deposits in the Global Financial Crisis” Policy Research Working Paper 6577, World Bank Washington.
- Levine, Ross. 2005. “Finance and Growth: Theory and Evidence.” In Philippe Aghion and Steven Durlauf, eds, *Handbook of Economic Growth*, edition 1, volume 1. Amsterdam: Elsevier.

References (contd.)

- Lindert, Kathy, Anja Linder, Jason Hobbs, and Bénédicte de la Brière. 2007. “The Nuts and Bolts of Brazil’s Bolsa Família Program: Implementing Conditional Cash Transfers in a Decentralized Context.” Social Protection Working Paper No. 0709. Washington, D.C.: World Bank, May.
- Loayza, Norman V., and Romain Ranciere. 2006. “Financial Development, Financial Fragility, and Growth.” *Journal of Money, Credit, and Banking*, 38(4): 1051–76.
- Mankiw, Gregory, and Laurence M. Ball. 2011. *Macroeconomics and the Financial System*. New York: Worth Publishers
- Pasali, Selahattin Selsah. 2013. “Where Is the Cheese? Synthesizing a Giant Literature on Causes and Consequences of Financial Sector Development.” World Bank Policy Research Working Paper 6655. Washington D.C.: World Bank, October
- Rousseau, P., and P. Wachtel. 2002. “Inflation Thresholds and the Finance-Growth Nexus.” *Journal of International Money and Finance*, 21(6): 777–93.
- Sahay, Ratna, Martin Cihak, Papa N’Diaye, Adolfo Barajas, Srobona Mitra, Annette Kyobe, Yen Nian Mooi and Seyed Reza Yousefi 2015: *Financial Inclusion: Can it Meet Multiple Macroeconomic Goals?* IMF SDN 15/17
- World Bank, 2014. Global Financial Development Report: Financial Inclusion, Washington