



## **Will Informal Markets be a Path to Development in North Korea?**

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### **ABSTRACT**

Informal markets, operating outside of North Korea's government-controlled public distribution system, allow citizens to purchase food and consumer goods and provide supplemental income for vendors. The markets play an important role because many citizens would have limited access to food otherwise. This paper analyzes the role of informal markets on improving food security in North Korea and discusses the potential for increased trade in informal markets due to increased communication efficiencies and women's empowerment. This paper extends the literature by analyzing spatial/regional patterns, examining potential contributing factors to economic development.

### **1. Introduction**

Historically prices in North Korea have played a dampened allocative role compared to capitalistic economies. The most notable exception is the informal markets which exist throughout the country. Kim and Song (2008) present a survey of 675 former North Korean residents and find that 78 percent had participated in the informal economy, for example by tending private plots or vending street food. Informal markets, operating outside of North Korea's government-controlled distribution system, allow citizens to purchase food and consumer goods and provide supplemental income for vendors. These markets are important because many citizens would have limited access to food otherwise.

The agriculture sector has shown to contribute significantly to Asian economies, as discussed by Timmer (2004). Investments in agricultural productivity allowed the real price of rice on world markets to fall about five-fold from 1975-2004. He describes that increases in export-oriented companies helped economies in East and Southeast Asia become competitive in international markets. He emphasizes the contribution of rice production and rice prices on economic growth. Unfortunately, many of these productivity gains have not been realized by North Korea.

The popularity of market reforms in North Korea may hinge on the economic success of informal markets. If markets are perceived as beneficial, economic reforms may become more accepted. Other papers have focused on the role of markets in North Korea (Chung-gil and Chang-gon (2000), Haggard and Noland (2010)), without addressing regional differences. Chung-gil and Chang-gon (2000) analyze if the increased prevalence of markets in North Korea might eventually lead to widespread capitalism. They describe the operation of about 300 to 350 farmer's markets throughout the country around the year 2000. Markets operated in buildings or within open-air markets. While in the past only vegetables produced in family gardens could be traded, now many other consumer goods are traded, including goods imported from China. An important insight from the markets is how much their prices, loosely determined by supply and demand, vary from the state's dictated prices. For example, the farmer's market price of rice

was up to 90 times higher than the state regulated price. They conclude in finding that farmer's markets act as an introduction for many North Koreans to experience the capitalistic system.

This paper aims to show that informal markets in North Korea have been an economic gain and as such, further reforms, especially in improved communication efficiencies and women's empowerment, may lead to a path of economic development. My approach contributes to the existing literature in that I analyze the spatial/regional pattern of economic growth and the prevalence of informal markets in North Korea. My use of data on population sex ratios is motivated by the finding that women participate more heavily as sellers in the informal markets. While playing a relatively minor role in developed economies, self-cultivation of food is especially important in North Korea. This paper analyzes the extent that informal markets have improved access to food and identifies three potential paths to economic development including labor specialization between the agricultural sector and the urban sector, increased communication efficiencies, and productive jobs for well-educated women.

## 2. The Extent of Informal Markets

*"The proximity of urban households to markets, frequent visits to these markets by households to procure foods, as well as direct observations from the Mission suggest that market activity may be much more common in the DPRK than generally assumed."*

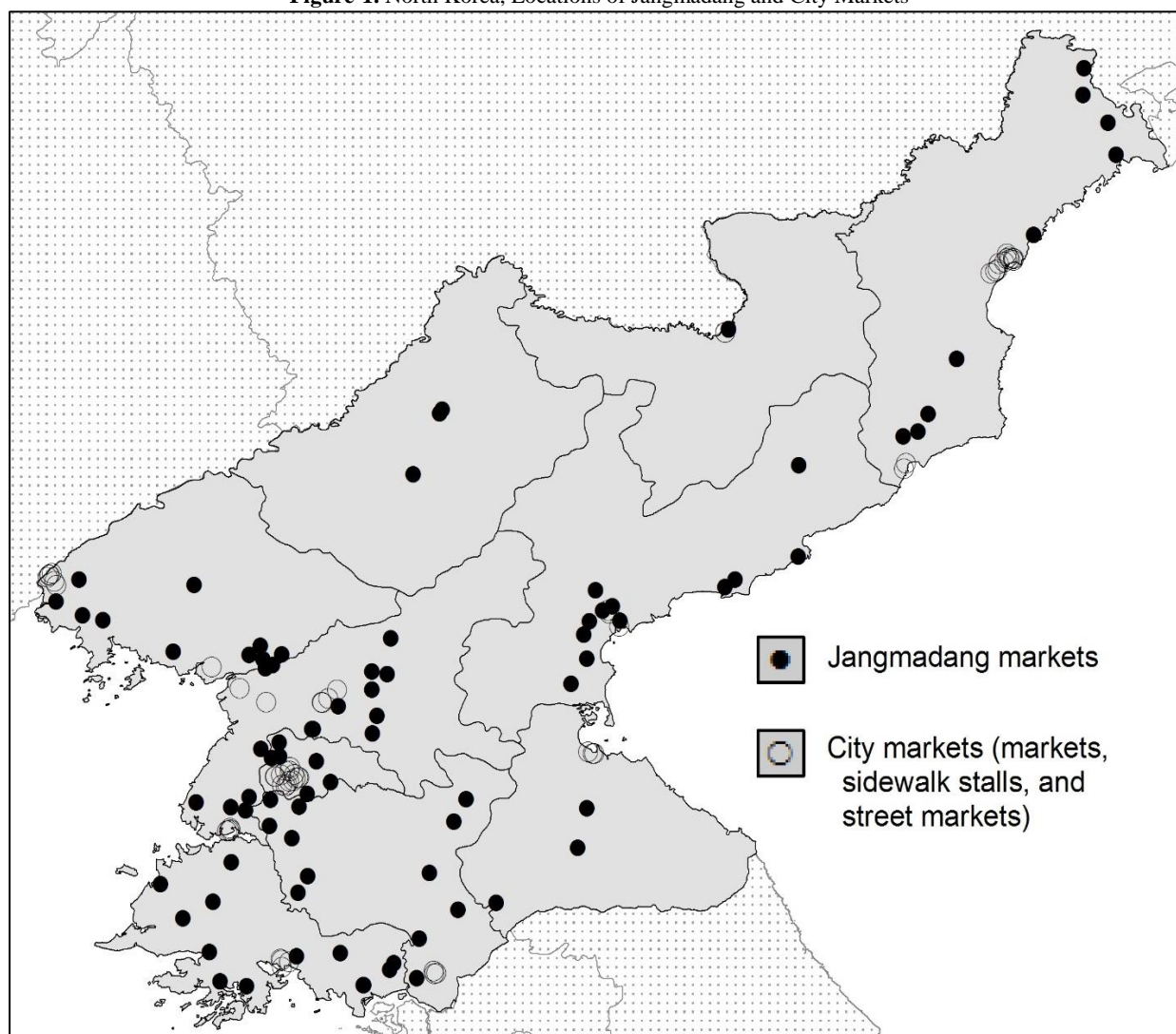
(FAO/WFP 2013)

Lacking a single consistent definition in the literature, I use the term informal markets to capture any meeting place with multiple vendors. Haggard and Noland (2010) mention the Korean word *Jangmadang* as a translation for general markets. The informal markets in North Korea make up a large section of the economy and I argue will continue to increase in their relative importance.

Informal markets are separate from formal shops and department stores. The markets face many regulatory actions. For instance, Haggard and Noland (2010) list that in 2008 the sale of shoes was banned in informal markets nationwide, and restrictions were placed on the types of food that could be sold. Also, in 2009 the Pyongsung market in Pyongan province was forcibly closed. However, the authors argue that closing the markets does not eliminate their demand. In some cases, "alley markets" have opened when organized informal markets face regulation, such as restrictions on the days which they can operate. They state, "traders undoubtedly bribe inspectors as well." Combined with formal shops/stores, the informal markets are bringing more opportunities for commerce to the typical North Korean.

*Figure 1* below maps current or one-time *Jangmadang* market locations confirmed via satellite imagery. From the figure we can see that each province in North Korea has been served by informal markets. The markets tend to concentrate near population centers, ports, and cities bordering China. However, substantial analysis is cautioned because the data provides location but not market size or activity.

UN workers estimated that, "The average distance to markets is ... approximately 4.7 km," and that, "almost all of the households interviewed by the Mission in urban areas live within ... approximately 2 km of the nearest market" (FAO/WFP 2013). Further insights into the relative importance of informal markets comes from North Korean refugees. For Chang, Haggard and Noland (2006) over 1,000 North Korean refugees residing in China were interviewed. Among the respondents, 3% strongly agree and 74% agree with the statement that individuals "can purchase goods with money" in North Korea. Motivating the interviews, the authors describe that in response to famine and unemployment many North Koreans looked to "emerging markets for food and other essential goods." Results were similar among a different set of refugees living in South Korea. Among the group residing in South Korea, Haggard and Noland (2013) ask what share of household income came from private business activities at the time the individual left North Korea. While admitting this is a biased sample, they find that "More than two-thirds of the respondents—69 percent—reported that half or more of their income came from such activities." Further, only 4 percent of respondents reported that none of their income came from the market. *Figure 1* together with the above discussion indicate that North Koreans live near markets and use them heavily.

**Figure-1.** North Korea, Locations of Jangmadang and City Markets

Further legend description in Appendix.

Data Sources: see Appendix

### 3. Food insecurity and informal markets (Jangmadang succeeds when the PDS cannot)

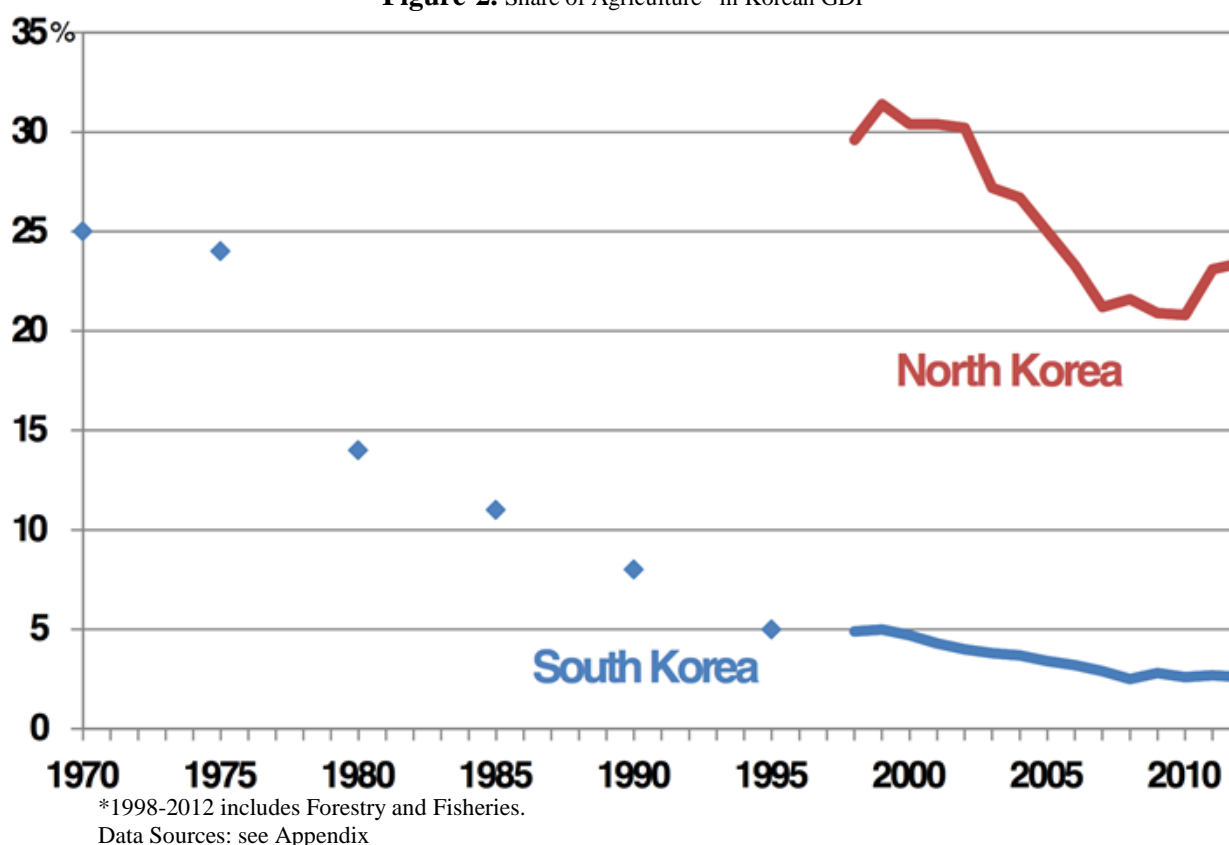
Informal Markets in North Korea provide an important supplement to the Public Distribution System (PDS) and self-cultivation of food crops. However, markets are where most North Koreans obtain food in one study. 27 percent of survey respondents in Haggard and Noland's (2013) study identified "bought it in the market" as their primary source of food. This was the most common method, seconded by "grew it myself" at 22 percent. The Public Distribution System was the primary source of food for just 11 percent of respondents.

The United Nations has sent several Rapid Food Security Assessment (RFSA) missions to North Korea and discovered spatial/regional aspects of hunger and food insecurity. Tackling these aspects will be paramount to achieving a path to the country's development. After its 2013 RFSA mission to North Korea, the UN believes that, "informal market mechanisms that developed during the PDS breakdown in the 1990s played a critical role in helping households to source cereal during the lean season in 2011, and they continue to ... provide an important source of food ..." The mission observed vegetables, potatoes and produce from kitchen gardens being sold in markets (FAO/WFP 2013). Self-cultivation is a widespread practice in North Korea. Under the supervision of the UN, the country conducted a nationwide census during 2008. From the 2008 census, 56 percent of North Koreans 16 years of age and above engaged in fruit/vegetable gardening. However, there were large gender and urban differences, for instance, 43 percent of urban males and 85 percent of rural women gardened fruits/vegetables. The capital region Pyongyang had by far the lowest percent cultivation with 24 percent of residents gardening edible

crops. Live animals was another source of food. Fishing/raising livestock and/or poultry was only a bit less prevalent than gardening, with 46 percent of all North Koreans aged 16 plus engaging in one of the activities (Central Bureau of Statistics 2009, pp 207-214). I argue the returns from each of these productive activities (gardening, fishing, and raising livestock and poultry) will be greater with informal markets because they allow for the specialization of labor.

In a cross-section of 112 countries, Lucas (2009) finds a negative relationship between employment share of agriculture and per capita GDP. He introduces a two-sector model where workers migrate out of the agricultural sector and into the city where output is increasing with the economy's knowledge level. He argues this case is recently relevant to South Korea, Hong Kong, Indonesia and Thailand. My *Figure 2* illustrates this pattern of declining contribution of agriculture in South Korea's economy. North Korea has not followed the same pattern; in 2012, nearly a quarter of the country's GDP came from the agriculture, forestry, and fisheries sector. Further specialization of labor and a productive urban sector could lead to a path of growth in North Korea.

**Figure-2.** Share of Agriculture\* in Korean GDP



St. Brown (2014) analyzes the determinants of internal migration in North Korea finding that citizens are drawn to provinces with relatively less prevalence of food insecurity. Diakosavvas (1989) argues instability in domestic food production can lead to food insecurity. This is problematic for flood-prone North Korea. The food insecure population in 2008/2009 in North Korea was estimated at 8.7 million (FAO/WFP 2008). Urban Pyongyang and some large cities have been relatively shielded from limited food access, but in general, the 2008 UN RFSM mission found that regions in close proximity to food cultivation have fared better; “The RFSM concluded that the rural population across the country was less vulnerable compared with urban households. Cooperative farm households were also less likely to have reduced food intake, less likely to eat only two meals per day, and less likely to have an extremely poor diet.” Two compelling observations from the RFSM mission are that urban households were negatively affected due to “increased restrictions on informal economic activities” and that in some cases “even officials ... appeared to face greater food security challenges than [households] whose members have full-time informal jobs.” It seems clear that informal markets are positively affecting economic outcomes in North Korea.

#### **4. Communication Efficiencies: Cell Phones and informal markets**

A centrally controlled economy may or may not have incentive to adopt new productive technologies, whereas sellers in the informal market will often welcome technologies that might provide them a competitive advantage. For this reason informal markets might be better than the public distribution system at innovating new ways to use cell phones to improve the transport of food. Cell phones have played a role in reducing market transaction costs. Kim (2014) writes, “The wholesale and retail traders at the informal markets are now able to collect market information at an unprecedented speed and respond to changing market conditions promptly.” While finding the best market benefits sellers, Kim (2014) also argues that consumers benefit because competition drives down prices. Geographic areas in North Korea with shortages in market goods can be identified through cell phone communications.

North Korea’s cell phone system, however, is small but growing. Kim (2014) describes that the service is available in geographic areas covering 94 percent of North Korea’s population but in May 2013 there were only two million subscribers, or about “one out of every ten North Koreans is using a cell phone.” But Kim cautions that this one in ten number may have been overestimated due to single users owning more than one cell phone. As comparison, in South Korea, there were 11.1 cell phones per 10 citizens as of 2013 (Wall Street Journal 2014). North Korea’s cell service, branded Koryolink, was possible through a joint venture with the Egyptian company Orascom. Orascom’s joint venture investment is the “largest non-Chinese, non-South Korean investment in North Korea” (Kim 2014). Koryolink was not introduced until 2008 and prior to then, traders identified the lack of national cell phone service as a difficulty. Haggard, Lee and Noland (2012) conducted a survey in 2007 of Chinese firms operating in North Korea. Of the 303 enterprises interviewed, 89 percent agreed with the statement, “Ban on cell phones has hurt my business.”

The benefits of cell phones on lowering transaction costs has been observed in other countries. Aker and Mbiti (2010) examine mobile phones impact on development in Africa. They summarize past research [Aker 2010] finding that in grain markets in Niger, the introduction of mobile phones reduced dispersion of grain prices across markets by 10 percent. There is also evidence that cell phones increase the number of farmers participating in markets. They point to [Muto and Yamano’s 2009] findings that in Uganda, cell phone coverage was associated with a 10 percent increase in banana farmers’ probability of market participation. Using data from Ghana, Zanello (2012) finds that receiving information on prices via cell phones increases households’ probability of participation in food crop markets. Reflecting on other country’s experiences, cell phones in North Korea can continue to increase market efficiency and encourage wider participation in markets.

#### **5. Women’s Empowerment: Gender in Informal Markets**

By choice or consequence, women participate more actively as sellers in North Korean markets. While serving as the UK Ambassador to the DPRK (2006-2008), John Everard “visit[ed] perhaps a dozen markets at some point, and regularly visited four.” From his experience, “...markets were staffed almost entirely by women” (Everard 2011). Haggard and Noland (2013) analyze the results of a 2008 survey of 300 North Korean refugees living in South Korea. These survey results also indicate a gender dimension in market participation; “women have been shed from the state-owned enterprise (SOE) sector in greater numbers than men and have gravitated to market-oriented employ.” In the survey sample, 76 percent of women reported involvement in trading, 13 percentage points higher than men in the sample.

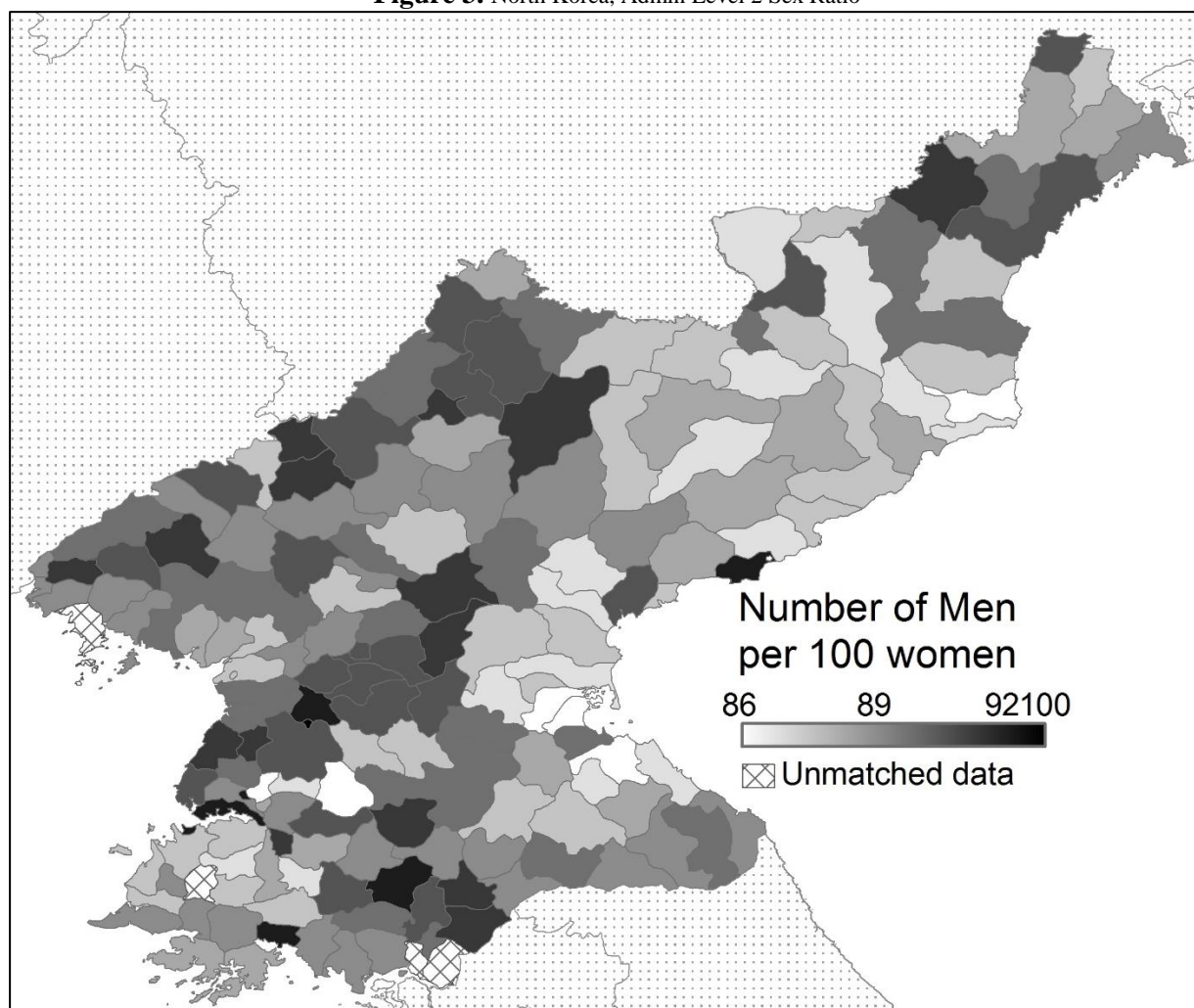
While it is suggested that women enter the market because they have been shed from state employment, Haggard and Noland (2013) also report that men may be punished more severely for market participation. Selling in some informal markets can be illegal and in the survey sample, “those involved in market activities are almost half again as likely to be incarcerated.” With such a great risk involved in market participation, it is useful to consider the perceived reward. The survey also asks respondents to identify the “easiest way to make money in North Korea” and an overwhelming majority selected “Engage in Market Activities.” Of women who departed North Korea after 2003, 69 percent identified engaging in market activities as the easiest way to make money, whereas 24 percent identified engaging in corrupt or criminal activities and just 1 percent identified working hard at assigned job (with 5 percent selecting other).

Such strict laws against practices in informal markets might be due to a fear that markets lead to political change. Haggard and Noland (2013) pose the question, “To what extent might the market itself become the locus of overt political conflict with the government?” (p. 16). Providing background,



Everard (2011) observed that “markets seemed to provide one of the least constrained environments for the exchange of news, information, and rumor,” whereas elsewhere the flow of information in North Korea is tightly controlled. Because women participate more heavily in markets, gender may matter for social and (albeit currently limited) political organization. *Figure 3* below displays North Korea’s gender by Admin Level 2: city/district/county. The figure demonstrates interesting spatial patterns, but care is needed in its interpretation because it might be a proxy variable for military population due to military personnel being excluded from this section of the Census<sup>1</sup>. Thus it might be that the more female weighted a county in *Figure 3* is, the more male military personal that are missing from that count.

**Figure 3.** North Korea, Admin Level 2 Sex Ratio



**Data Sources:** see Appendix

As women in North Korea amass money from the private market, they may pay bribes to achieve various goals; this process weakens the central government’s control. For instance, Kim (2014) page 13 also interviews former North Korean residents: “A woman who defected from Hoeryong says she managed to obtain a cell phone in 2009, when females were not permitted to subscribe to mobile service, by bribing security officials.” I argue that increased freedom of communication and mobility may become positive side effects of traders expanding business. Likewise, women in North Korea might gain better treatment as they succeed in business and collect financial resources. In essence, if money buys power, trading in the informal market can lead to better economic outcomes. This can even include moving to a better home by bribing housing officials (Park 2014). Market traders would also have greater incentive to politically organize to protect their interests.

<sup>1</sup> Specifically, page 14 of the Census document lists North Korea’s population at 24,052,231 but the population by sex data on page 18 are computed from a population of 23,249,859.

As discussed in section 3, labor transitioning from the agricultural sector and into a knowledge based urban sector is key for North Korea's economic development. According to the 2008 census data for the population 16 and older 25.6 percent of North Korean men living in an urban area have at least some post secondary education, as do 21.2 percent of rural-dwelling men. Thus the post secondary education rate decreases by 17 percent between urban to rural areas for men. However, well-educated females far disproportionately live in urban areas. The post secondary education rate for woman drops nearly in half from 21.3 percent of urban women possessing at least some post secondary education to just 10.9 percent of rural women (Central Bureau of Statistics 2009, p. 185). This disparity can be seen as an opportunity; North Korea needs more education for rural women and productive employment opportunities for urban women. Participation in informal markets might offer a potential solution to the latter problem, however to date, Haggard and Noland (2013) find that women in the market sector are preyed on by the state sector including being forced to pay bribes and threats of jail time.

## 6. Conclusion

This paper considered the spatial element of food insecurity, cell phones, and gender aspects related to informal markets in North Korea. Potential paths to economic development include labor specialization between the agricultural sector and the urban sector, increased communication efficiencies, and productive jobs for well-educated women.

A future path of research can include the potential symmetry of additional market reforms in conjunction with increased informal market activity. For example, news outlets have reported that agricultural policies in North Korea may be adjusted to allow farmers to keep more of their output, thus predicted effects of such a policy, as well as others aimed at boosting incentives to increase agricultural output, are needed (Lee 2012).

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## Appendix: Figure Data Sources

Figure 1 Sources: 1970-1995: MAF, Statistical Yearbook of Agriculture and Forestry, various years, Seoul - found on page 12 of OECD (2008) "Evaluation of Agricultural Reforms in Korea." 1998-2012: Bank of Korea, GDP of North Korea Press Release, various years.

Figure 2 Sources: Data as from the 38 North DPRK Digital Atlas, 38 North (US-Korea Institute at SAIS: Johns Hopkins University) accessed December 16, 2013. The locations classified as Jangmadang markets are shown as solid dots. The open dots locate city markets. For the city markets I include, as classified by 38North: markets, sidewalk stalls, and street markets. For the city markets I exclude, as classified by 38 North, department stores, shops, stores, and exhibitions (the Tongil market bike shed is also excluded to avoid double counting of the Tongil market). North Korean Provincial boundaries from UN OCHA (2014). South Korea, China and Russia boundaries from gadm.org data on Global Administrative Areas: "KOR\_adm1.shp," "CHN\_adm1.shp," and "RUS\_adm1.shp."

Figure 3 Sources: Population by Sex .xls data from UN OCHA (2014) as published in Central Bureau of Statistics DPR Korea (2009). This population data was joined to the map data based on the 165 matching Admin level 2 name entries. Additionally, the following eleven entries were matched by hand:

Map data	Assumed census counterpart
Chongjin City	Sum of: Sinam Dist., Chongam Dist., Phohang Dist., Sunam Dist., Songphyeong Dist., Ranam Dist., Puyun Dist.
Hamhung City	Sum of: Songchongang Dist., Tonghungsan Dist., Hoesang Dist., Sapho Dist., Hungdok Dist., Haean Dist.
Kowon	kowon
Sinpo City	Sinpho City
Yonggwon	Yonggwang
Pyongyang	Phyonggang
Pyongsong City	Phyongson City
Pyongyang City	Pyongyang Total minus Unjong Dist.
Unjong	Unjong Dist.
Kapsan	Kabsan
Kimh Yong Jik	Kim Hyong Jik

The following four entries in the map data remained "Unmatched data:"



Samchon
Kaepung
Panmun
Cholwan

North Korean City/District/County boundaries from UN OCHA (2014). South Korea, China and Russia boundaries from gadm.org data on Global Administrative Areas: “KOR\_adm1.shp,” “CHN\_adm1.shp,” and “RUS\_adm1.shp.”