ORGANIZATIONAL CHARACTERISTICS AND OFFENDING PATTERNS OF CHINESE DRUG TRAFFICKING GROUPS

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TABLE OF CONTENTS

ORGANIZATIONAL CHARACTERISTICS AND OFFENDING PATTERNS OF CHINESE DRUG TRAFFICKING GROUPS

Spencer D. Li[*] *Liu Jianhong*[**] *& Li Zhe*[***]

Limited research has examined the relationship between network structure and offending patterns among drug trafficking groups. The current study is an attempt to fill this gap. Through a network analysis of 144 drug trafficking groups adjudicated in the intermediate and high courts in several provinces of China, this study found that most Chinese drug trafficking groups were small and without a formal hierarchical role structure. Findings also related network characteristics to trafficking activities involved by the groups. Specifically, group density in the country of residence positively predicted cross-border drug smuggling. Density in education increased domestic drug trafficking while densities in gender and occupation decreased this offense. Moreover, groups composed of offenders from different provinces or countries trafficked greater amount of drugs than those formed by offenders from the same geographic area.

A number of studies have described the characteristics of individuals who were involved in drug trafficking networks.[1] However, few of these studies have examined the demographic and socioeconomic characteristics on the group level such as ethnic and gender composition of these groups. Furthermore, there has been scant evidence about how organizational structure and group-level characteristics influence drug trafficking patterns. This study is an attempt to narrow the gap in drug trafficking research. The objectives of this study are twofold. First, it identifies the characteristics of a sample of 144 Chinese drug trafficking groups in terms of size, organizational structure, and demographic and socioeconomic composition. Second, it examines how organizational structure and group-level characteristics are related to drug trafficking activities involved by these groups.

To our knowledge, this project is the first large scale study of drug trafficking networks in China. Since China emerged as a major illicit drug market in the world, much attention has been paid to the rampant activities of

* Chair and Associate Professor at the Department of Sociology of University of Macau.
** Professor at the Department of Sociology of University of Macau.
*** Assitant Professor at the Faculty of Law of University of Macau.

1 SCOTT H. DECKER & MARGARET TOWNSEND CHAPMAN, DRUG SMUGGLERS ON DRUG SMUGGLING (Temple University Press, 2008); Letizia Paoli & Peter Reuter, *Drug Trafficking and Ethnic Minorities in Western Europe*, 5(1) European Journal of Criminology, 13-37 (2008); Ellen Louise Eva Vale & Patrick John Kennedy, *Adolescent Drug Trafficking Trends in the United Kingdom: 10-year Retrospective Analysis*, 27 Journal of Adolescence, 749-754 (2004).

drug trafficking groups. Yet, there has been few empirical studies examining how individuals involved in drug trafficking activities in China are organized.[2] Drawing on the evidence collected from several Chinese courts, this study seeks to advance the knowledge of the organizational characteristics of Chinese drug trafficking groups and the predictors of their involvement in trafficking activities.

I. PRIOR RESEARCH ON DRUG TRAFFICKING NETWORKS

A. Organizational Structure of Drug Trafficking Networks

Group offending is a distinctive feature of drug trafficking. Because illegal drug dealing often requires multilevel operation involving producers, wholesalers, retailers and runners, it is quite common to find drug traffickers working with two or more other offenders to distribute illegal drugs and pursue profits. Most researches on drug trafficking groups have focused on the organizational structure of these groups. For a long time, offenders involved in drug trafficking were thought as members of criminal organizations with the chain of command and clear division of labor.[3] This version of drug trafficking network is increasingly at odds with the organizational characteristics of modern-day drug dealing groups.[4]

Recent studies indicated that most drug trafficking groups are small and lack a formal structure. Even very large drug dealing groups seem to be made of loosely connected independent entrepreneurs who sometimes collaborate but also compete with each other. *Ruggiero* and *Khan*[5] identified four types of drug dealing networks in the United Kingdom, including family network, mono-ethnic network, issue-specific network, and value-adding network. Across all these four types, the different actors involved in illicit drug dealing "do not share motivations, values or lifestyles, thereby inhabiting an economy based on fragmented roles and cultures rather than a homogenous

2 Zhang Sheldon X. & Chin Ko-lin, *Snakeheads, Mules, and Protective Umbrellas: A Review of Current Literature on Chinese Organized Crime*, 50 Crime, Law and Social Change, 177-195 (2008).

3 MARTIN BOOTH, THE DRAGON SYNDICATES: THE GLOBAL PHENOMENON OF THE TRIADS (Carroll & Graf Publishers, 1999). GERALD L. POSNER, WARLOADS OF CRIME (McGraw-Hill, 1988).

4 David A. Bright, Caitlin E. Hughes & Jenny Chalmers, *Illuminating Dark Networks: A Social Network Analysis of an Australian Drug Trafficking Syndicate*, 57(2) Crime Law and Social Change 151-176 (2012); Nicholas Dorn & Nigel South, *Drug Markets and Law-Enforcement*, 30(2) British Journal of Criminology, 171-188 (1990); Mark H. Haller, *Bureaucracy and the Mafia: An Alternative View*, 8 Journal of Contemporary Criminal Justice, 1-10 (1992).

5 Vincenzo Ruggiero & Kazim Khan, *British South Asian Communities and Drug Supply Networks in the UK: A Qualitative Study*, 17 International Journal of Drug Policy, 473-483 (2006).

social setting".[6] *Natarajan* distinguished between street level and upper and middle level drug trafficking groups. Despite the differences in size and level of involvement, the author found that as a whole drug trafficking organizations did not fit the traditional organized crime model.[7] These organizations could be best described as loosely structured networks of groups and cliques with little or no hierarchy. Through in-depth interviews with drug smugglers, *Decker* and *Chapman*[8] found that present-day drug trafficking generally lacked the strict and vertical organization that characterized earlier drug dealing groups. Instead, drug trafficking networks were mostly made of loosely tied cells or nodes consisting of players who were not connected or who had little knowledge of others. *Benson* and *Decker*[9] examined the common features of formal organizations, and contrasted them with characteristics of drug smuggling organizations recounted by a sample of high-level international drug smugglers. In comparison with formal organizations, they found that drug smugglers typically worked in horizontal, informal, and loosely connected groups. Informal associations that relied on personal knowledge, kinship ties, or common experiences characterized how most decisions were made in these groups. All of these research findings indicate that modern drug trafficking is a highly fragmented business, consisting of separate and loosely connected entrepreneurial groups engaged in exploiting the profit-making opportunities presented by the demand of drugs.

B. Demographic and Socioeconomic Composition

Surprisingly, the information about group-level demographic and socioeconomic characteristics of drug traffickers has been sparse. It is not difficult to find descriptions of characteristics of individual dealers involved in drug trafficking networks. However, we have found only a few studies that quantified the extent to which members of a drug trafficking network shared the same demographic and socioeconomic characteristics on the group level.

Prior research indicated that the age of members of drug dealing networks varied by type of groups in which they were involved. Dealers in the local street level trafficking networks tended to be younger, typically in

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6 *Vincenzo Ruggiero & Kazim Khan, supra* note 10, 481.

7 Mangai Natarajan, *Understanding the Structure of a Large Heroin Distribution Network: A Quantitative Analysis of Qualitative Data*, 22 Journal of Quantitative Criminology, 171-192 (2006).

8 SCOTT H. DECKER & MARGARET TOWNSEND CHAPMAN, *supra* note 1.

9 Jana S. Benson & Scott H. Decker, *The Organizational Structure of International Drug Smuggling*, 38 Journal of Criminal Justice, 130-138 (2010).

the range of late teens to late thirties.[10] The age of high-level international smugglers were older. *Benson & Decker*[11] found that the modal age of the 34 drug smugglers they interviewed standing at between 40 and 49 years old.

Kinships and ethnicity have been important factors that traditionally attract dealers or potential dealers to a drug trafficking network.[12] One of the motivations for a drug dealer to join a trafficking group is to hang around with people of the same family or ethnic origin.[13] This trend, however, is changing in recent years. New market conditions have emerged and have increasingly encouraged alliances among dealers with different ethnic background.[14] Partnerships among different ethnic groups are viable alternatives to traditional mono-ethnic organizations as they provide access to a variety of producers and to multi-commodity illicit markets. Partnerships are inevitable at the upper supply level. Just like some aspects of legitimate economies, big dealers and large-scale trafficking operators are not discriminatory on the basis of their partner's or customer's background. Driven by the profit-making, dealers at upper and middle levels increasingly go outside of their areas of residence to do business with all kinds of people, regardless of their ethnic background.[15] This trend suggests that there would be a reasonable number of drug trafficking groups with multiethnic makeup.

Few studies have systematically assessed the socioeconomic composition of drug trafficking groups although some studies have provided descriptive accounts of socioeconomic characteristics of individual drug dealers. In general, prior research found that street level drug dealers are mostly poor people who turned to drug dealing to make money when legitimate employment is not available or inadequate to meet the cost of living.[16] Dealers working in the upper and middle level networks are more diverse. Some worked as retailers and runners with limited and unstable income.[17] Others are sellers and brokers who have sizable income and possess effective infrastructures, including cars, mobile phones and financial resources.

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10 CHIN KO-LIN, ZHANG SHELDON X. & NATIONAL INSTITUTE OF JUSTICE, THE CHINESE CONNECTION: CROSS-BORDER DRUG TRAFFICKING BETWEEN MYANMAR AND CHINA (BiblioGov, 2007); Vincenzo Ruggiero & Kazim Khan, *supra* note 10. Lise-Marie Vannostrand & Richard Tewksbury, *The Motives and Mechanics of Operating an Illegal Drug Enterprise*, 20 Deviant Behavior, 57-83 (1999).

11 Jana S. Benson & Scott H. Decker, *supra* note 14.

12 GEOFFREY PEARSON & DICK HOBB, MIDDLE MARKET DRUG DISTRIBUTION (Home Office, 2001).

13 Vincenzo Ruggiero & Kazim Khan, *supra* note 10.

14 National Crime Intelligence Service, *Trafficking and Supply of Heroin and Cocaine by South Asian Groups*, Press Release (2003).

15 Vincenzo Ruggiero & Kazim Khan, *supra* note 10.

16 CHIN KO-LIN, ZHANG SHELDON X. & NATIONAL INSTITUTE OF JUSTICE, *supra* note 15; Vincenzo Ruggiero & Kazim Khan, *supra* note 10.

17 Mangai Natarajan, *supra* note 12.

C. Drug Trafficking Networks in China

Empirical studies of Chinese drug trafficking networks have been sparse. One of the earliest studies was conducted by *Dobinson*[18] who found that most of the heroin trafficking activities in the then British territory of Hong Kong were carried out by individuals who developed drug dealing networks through personal connections. The finding was corroborated by a case study of drug trafficking groups in southern China performed by *Tang* and *Zhao*,[19] who also found that drug traffickers were loosely connected individuals who built drug dealing networks through family ties and personal relationships.

To date, the largest empirical study of Chinese drug trafficking activities was a field study conducted by *Chin* and *Zhang*.[20] The study focused on drug trafficking activities in the cross-border region between Myanmar and China. Through observations and interviews with law enforcement officers, informants, drug traffickers and drug users, *Chin* and *Zhang* found that the majority of those who participated in the business of smuggling and distribution of illegal drugs in the border region were poorly educated, lacked employable skills, and had few alternatives to make a living comparable to their aspirations. The vast majority of the incarcerated drug trafficking offenders in their sample were residents of the rural areas from some of the poorest provinces in China, including Yunnan, Guizhou, Xinjiang, and Ningxia. Those offenders typically worked as mules whose main duty was to carry drugs for dealers. The networks they formed usually started with just a couple of people who were either relatives or acquaintances based on neighborhood or village ties. In the absence of a blood relationship, informal social networking often played a critical role in communication and illicit business operation. This type of organizations was more adaptable to changing market conditions and law enforcement activities. According to the law enforcement officials and drug traffickers the authors interviewed, the trafficking business in China became increasingly dichotomized, with the mules on one hand having little knowledge of whom they were working for, and the organizers on the other hand who coordinated trafficking operations behind the scene. Those organizers were also entrepreneurs who were typically in charge of a small scale operation with either family members or

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18 Ian Dobinson, *Prinning a Tail on the Dragon: The Chinese and the International Heroin Trade*, 39(3) Crime and Delinquency, 373-384 (1993).

19 Tang Dongbin & Zhao Liangjian, *The Destruction of a Kinship and Friendship Based on Drug Trafficking Group*, China Trial 18, 21 (2006).

20 CHIN KO-LIN, ZHANG SHELDON X. & NATIONAL INSTITUTE OF JUSTICE, *supra* note 15.

close friends. Most of the trafficking groups were small and were unaware of others in the region. As Chin and Zhang[21] observed, "Monopoly does not exist in the drug trade inside China. It is unlikely that any trafficking group will ever get to grow to any large size because the Chinese government will crack down immediately".

The Chinese drug trafficking groups studied by Chin and Zhang shared many of the same characteristics of drug trafficking networks in other parts of the world, that is, they were mostly small, loosely structured, and unstable. While cross-regional and cross-ethnic cooperation has increased in the last few years, drug trafficking networks to a large extent still relied on personal ties such as family members, relatives, friends and fellow villagers. It should be noted that Chin and Zhang's study had some limitations. First, the study focused on the cross-border region between China and Myanmar. The drug trafficking activities it observed might be unique to that region. Second, the study mostly relied on convenient samples, which further limited its generalizability. In a comprehensive review of published research on Chinese organized crime and drug trafficking since 1990, Zhang and Chin[22] lamented that few empirical studies were available to make definitive conclusions about the extent to which drug traffickers were organized in China. They called for more empirical researches to improve our understanding of Chinese drug trafficking networks.

II. CURRENT STUDY

While the studies reviewed in this section are informative, they do not provide a clear picture of the organizational, demographic, and socioeconomic characteristics of drug trafficking groups and the effect of these group-level characteristics on trafficking activities. Specifically, the following questions still remain: first, what is the organizational structure of the drug trafficking groups? Second, what is the typical demographic makeup of these groups in terms of age, gender, ethnicity, and place of residence? Third, what are the common socioeconomic characteristics of the drug trafficking groups with regard to education and occupation? Fourth, how are organizational structure, demographic composition, and socioeconomic characteristics of the drug trafficking networks related to drug trafficking activities? In this study, we attempt to shed some light on these questions through the analysis of a sample of Chinese drug trafficking groups.

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21 *Id.*
22 *Id.*, 44.

According to the social exchange theory of co-offending,[23] the primary motivation of co-offending is to obtain rewards through the exchange of goods that cannot be obtained by solo-offending. In general, people agree to exchange goods when they expect it to be profitable.[24] The same logic is applied to co-offending. *Weerman* identified three necessary conditions for co-offending: first, an offender is willing to co-offend on the perception that co-offending is profitable; second, one or more potential co-offenders are available or easy to contact; third, the co-offender is willing, driven by the perception that the offender has something to offer to make offending with him or her "profitable enough".[25]

The social exchange theory is particularly applicable to Chinese drug trafficking networks because of the nature of the co-offending. As Chin and Zhang[26] illustrated, the offenders involved in drug trafficking in China were mostly lower-class individuals with unstable occupation and income. They saw drug trafficking as a way of making quick money. At the same time, drug trafficking is a high risk business in China. The Chinese government has taken many tough measures against drug trade. If being caught, traffickers would face long prison sentences and even death penalty. Despite of these threats, risk takers and marginalized people such as poor farmers and unemployed urban dwellers were willing to risk their lives to strike it rich. However, many of them were either novices or had limited skills and connections in drug trafficking. They need one or more co-offenders to form a functional group for the illegal trade. The more experienced drug traffickers, on the other hand, needed people to work with them to fill various roles in illegal drug trade. They were willing to work with the less experienced offenders as along as the co-offending could bring in profits that they expected. It was this type of dynamic social exchange that enabled the formation of Chinese drug trafficking groups and defined their network characteristics.[27]

While drug traffickers have free choice to choose their partners for crime, their decisions to offend or co-offend are compromised by time, abilities, and availabilities of relevant information, as suggested by the

23 Frank M. Weerman, *Co-offending as Social Exchanges: Explaining Characteristics of Co-offending*, 43 British Journal of Criminology, 398-416 (2003).

24 Andy Hochstetler, *Opportunities and Decisions: Interactional Dynamics in Robbery and Burglary Groups*, 39 Criminology, 737-764 (2001). Jean Marie McGloin & Holly Nguyen, *It was My Idea: Considering the Instigation of Co-offending*, 50 Criminology, 463-494 (2012).

25 Frank M. Weerman, *supra* note 31, 407.

26 CHIN KO-LIN, ZHANG SHELDON X. & NATIONAL INSTITUTE OF JUSTICE, *supra* note 15.

27 *Id.* Tang Dongbin & Zhao Liangjian, *supra* note 27.

limited-rationality theory (LRT).[28] Like most criminal activities, drug trafficking generally does not require sophisticated information-handling skills and advanced planning.[29] The notion that drug trafficking is a form of organized crime has not been supported by recent research, which showed that drug trafficking networks were generally small, unstable, and loosely organized. Traffickers chose to work in a group because co-offending was an effective way to make quick money and to evade law enforcement attention. Few of these offenders had a comprehensive understanding of the drug trafficking market and the risks it brought. Because of their limited knowledge of drug trade and the lack of access to the broader illicit market, Chinese drug traffickers tended to work with people they had already known or those they could establish a contact with relatively little effort. It is our belief that the personal background of these traffickers, their specific life circumstances, and their limited social relations played the most important role in shaping the organizational structure of the Chinese drug trafficking networks and their involvement in drug trafficking activities.

Drawing on the existing empirical evidence and the theories of social exchange and limited rationality, we view drug trafficking as an event in which two or more offenders work together to achieve monetary gains through the distribution or sale of illegal drugs. To achieve the financial rewards more quickly and effectively, potential traffickers often find it necessary to work together to move drugs from producers to drug users. Most of these traffickers are lower-class individuals from impoverish regions.[30] Their lack of knowledge, skills, and social capital makes it more likely for them to rely on social exchanges with their family, friends, and neighbors to build drug trafficking co-offending groups. To the extent that Chinese drug traffickers draw most of their resources from close friends, relatives, and acquaintances, we expect a high level of homogeneity in terms of demographic characteristics and socioeconomic status in these groups. Based on previous research findings, we also expect that most of the Chinese drug trafficking groups to be small and short-lived, and that few of them have a hierarchical organizational structure characterized by the existence of a clear chain-of-command structure.

Further, we suspect that the organizational structure and demographic or socioeconomic characteristics of the groups would be related to their

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28 DEREK B. CORNISH & RONALD V. CLARKE, THE REASONING CRIMINAL: RATIONAL CHOICE PERSPECTIVES ON OFFENDING (Springer-Verlag, 1986). Bill McCarthy, John Hagan, & Lawrence E. Cohen, *Uncertainty, Cooperation, and Crime: Understanding the Decision to Co-offend*, 77(1) Social Forces, 155-176 (1998).

29 MICHAEL R. GOTTFREDSON & TRAVIS HIRSCHI, A GENERAL THEORY OF CRIME (Stanford University Press 1990).

30 CHIN KO-LIN, ZHANG SHELDON X. & NATIONAL INSTITUTE OF JUSTICE, *supra* note 15; Deng Zhenlai, *Drug Trafficking and Consumption in China: Two Case Studies*, 53 International Social Science Journal, 415-420 (2001).

involvement in trafficking activities. Although motivated to participate in co-offending activities in illegal drug trade, the Chinese trafficking groups composed of the predominately lower class individuals living in China have limited opportunities to engage in transnational drug trade because of their lack of access to cross-border drug trafficking networks and market information. We expect these groups to be more heavily involved in domestic drug trafficking. Cross-border drug smuggling, however, requires international cooperation. Drug trafficking groups with international members would be more likely to engage in this type of trafficking activities. The group-level factors might also be related to the quantity of drugs trafficked. We expect that the groups operated domestically are mostly involved in small distribution networks. They are composed of small entrepreneurs and the "mules" who work together to move small or moderate amount of drugs. The groups involved in international drug smuggling, on the other hand, run a high-risk and high reward business. They are responsible for bringing a large quantity of drugs into China. On average, the amount of drugs they smuggle should be significantly bigger than the amount dealt by domestic drug trafficking groups. We do not have a clear expectation about the relationship between organizational structure and drug trafficking activities. With few exceptions, modern-day drug trafficking does not require a vertically structured co-offending group. A hierarchical organizational structure can improve the operation of the organization by streamlining communication and facilitating division of labor. However, it can also impede its members' ability to adapt to fast-moving marketing conditions of drug trafficking. Since most drug trafficking networks may not be formally organized, they may not need a clear chain of command to function effectively.

III. METHODS

A. Data

The data for this study were collected from the sentencing files of Chinese high and intermediate courts with jurisdiction over drug trafficking cases in four Chinese provinces, including Yunnan, Guangdong, Guangxi, and Fujian. All of them are major provinces on the "Chinese route" from the Golden Triangle to major destinations of international drug trade such as Hong Kong and Taiwan. The data contained all 605 drug trafficking cases adjudicated in these jurisdictions in 2006 and 2007. Since the focus of this

study is drug trafficking group, we selected only cases with three or more offenders. Of the 242 cases that met this criterion, 98 of them did not have sufficient information on demographic and socioeconomic characteristics examined in this study. Those cases were further eliminated from the analysis. We conducted an analysis comparing the cases included in the analysis with the 98 cases excluded from the analysis in terms of place of court session, year of court proceeding, type of trial court, and number of offenders in the trafficking network. No significant differences were found between the two groups of cases. The final sample of 144 drug trafficking groups comprised a total of 697 individual traffickers.

The data on drug trafficking networks is difficult to obtain. This is especially true in China where official crime data is closely protected by the government. To our knowledge, the data used in this study is the largest and the most comprehensive drug trafficking data ever collected in China. The sentencing records, however, have some limitations that should be taken into consideration while interpreting them. First, the sentencing files may not cover all drug trafficking networks in the four provinces. The courts might have to dismiss charges against some drug trafficking groups because of the lack of evidence to persecute them. Second, the number of people in some of the drug trafficking groups might be smaller than the actual size of the group because some members might have escaped during the course of investigation and prosecution. If being rearrested, these offenders would be tried in separate cases at a later time.

B. Measures

Our analysis on this study included five sets of variables: demographic measures including gender, age, ethnicity, province of residence at arrest, and the country of residence at arrest; socioeconomic measures including education and occupation; the measure of prior drug offense; the measure of organizational structure; and measures of drug trafficking activities.

The gender was a dichotomous variable with 1 representing male. The age was measured by 5 mutually exclusive groups: 19 and younger, 20-29, 30-39, 40-49, and 50+. Ethnicity had eight categories covering all ethnic groups in China: Han, Hui (Muslim), Zhuang, Man, Yi, Chaoxian (Korean), Weiwuer (Uyghur), and so on. The province of residence at arrest covered all 34 provinces and provincial-level municipalities and regions in China. The country of residence at arrest measured the country in which the offender lived when arrested, including mainland China, Taiwan, Hong

Kong, Macau, Myanmar, Vietnam, etc.

Of the two measures of socioeconomic characteristics, education was an ordinal variable with seven levels: 1 = illiterate, 2 = elementary school, 3 = junior middle school, 4 = senior middle school, 5 = preparatory school, 6 = undergraduate, and 7 = graduate. Occupation had 13 categories including physician, engineer, scientific researcher, public administrator, businessperson, teacher, medical professional, factory worker, driver, security guard, fisherman, farmer, and the unemployed.

Prior drug offense was measured by a dichotomous variable indicating if the offender had an official record of drug offense prior to the current arrest. Each group member was assigned a 1 (yes) or 0 (no) based on the police and court records.

It also included a measure of organizational structure. The court records have limited information on the organizational structure of the drug trafficking groups. One piece of information relevant to this study is the designation of "principal offender" or "accomplice" to dealers in the trafficking groups. We used this variable to identify the number of principal offenders, if any, in each trafficking group and the relationships among the principal offender(s) and the accomplice(s). The groups with a principal offender were considered as having a hierarchical role structure. In the Chinese context of drug trafficking, there are generally two types of principal offenders. The one is an organizer who plans and organizes the trafficking activities. The other is a task leader who leads certain aspects of the operation, which is similar to the role of manger in the conventional business.[31] Small trafficking groups usually can have just one principal offender who is in charge of the entire operation. Large groups with more clearly defined division of labor may have more than one principal offender.

Drug trafficking activities were measured by three variables based on Chinese law. Cross-order drug smuggling refers to illegal import and export of illicit drugs across the Chinese border. Domestic drug trafficking was defined as distributing and selling illegal drugs for profit inside mainland China. These two variables were dichotomous measures with 1 for yes and 0 for no. Only three trafficking groups were involved in both cross-border drug smuggling and domestic drug trafficking. The number is too small to be treated as a separate category. We assigned 1 to these three groups on both dichotomous measures. The quantity of drugs was the amount of drugs the group trafficked in the offense for which the traffickers were arrested.

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31 David A. Bright, Caitlin E. Hughes & Jenny Chalmers, *supra* note 7.

IV. FINDINGS

The data analysis was conducted by using SAS in conjunction with UCINET, one of the most popular computer software packages used to do social network analysis. Unlike previous studies that focused on the attributes of individual drug traffickers, our analysis concentrated on the relationships among individual traffickers in a trafficking group. Thus, our primary unit of analysis was drug trafficking group rather than individual trafficker. The data extracted from the court sentence files, however, can at best be described as ego-centric data, which do not provide sufficient information for high-level social network analysis. We used UCINET to create measures of the extent to which members a drug trafficking group shared the same demographic and socioeconomic characteristics. Technically, these measures are called network density in the terminology of social network analysis, computed as the proportion of all members in a drug trafficking group who had the same attribute on a variable. We used the density measure as a method to describe group-level characteristics. We also enter these group-level measures in regression analysis to test the relationship between organizational characteristics and drug trafficking activities conducted in SAS.

A. Characteristics of the Drug Trafficking Groups

1. Size. — Most of the trafficking groups were small. There were 49 groups with 3 members, 32 groups with 4 members, 22 groups with 5 members, and only 5 groups with 10 or more members. The average group size was 4.84.

2. Demographic Characteristics, Socioeconomic Status, Criminal History, and Organizational Structure. — The second column of Table 1 shows the average density scores for country of residence at arrest, ethnicity, gender, occupation, province of residence, age, education, and prior drug offense in the 144 drug trafficking groups. The last four columns provide the percent of the groups with a network density of less than 0.50, between 0.50 and 0.75, between 0.76 and 0.99, or 1.00.

Table 1: Network Densities of Chinese Drug Trafficking Groups (N = 144)

Variable	Mean	Percent of groups in density of			
		< 0.50	0.50-0.75	0.76-0.99	1.00
Country	0.95	4.20%	4.20%	0.70%	90.91%
Ethnicity	0.84	18.88%	8.39%	0.00%	72.73%
Gender	0.78	19.58%	20.98%	1.40%	58.04%
Occupation	0.76	26.57%	12.59%	1.40%	59.44%
Province	0.68	37.76%	12.59%	1.40%	48.25%
Age	0.48	61.54%	20.28%	0.00%	18.18%
Education	0.40	74.13%	14.69%	0.00%	11.19%
Prior drug offense	0.05	93.01%	6.99%	0.00%	0.00%

On average, the variable with the highest density score is the country of residence at arrest (0.95) and ethnicity (0.84), followed by gender (0.78), occupation (0.76), province of residence at arrest (0.68), age (0.48), education (0.40), and prior drug offense (0.05). In a typical drug trafficking group, at least two thirds of its members shared the same characteristics in country of residence at arrest, ethnicity, gender, occupation, and province of residence. In contrast, only 48 percent of the group members were in the same age group and 40 percent were at the same level of education. Only 5 percent of the group members had an official record of a drug offense.

The far right column of Table 1 shows the percent of the trafficking groups with all of members sharing the same demographic or socioeconomic characteristic. As indicated in this column, 90.91 percent of the groups had members sharing the same country of residence at arrest (China), 72.73 percent of the groups had members sharing the same ethnic identity (Han Chinese), 59.44 percent of the groups had members with the same occupation (farmers), 58.04 percent of the groups had members sharing the same gender identity (male), and 48.25 percent of the groups had members sharing the same province of residence at arrest. Only 18.18 percent and 11.19 percent of the groups had all of its members in the same age group and with the same level of education respectively. None of the groups had all of

the members with an official record of a drug offense.

Overall, the results in Table 1 reveal a number of salient characteristics of the Chinese drug trafficking groups. The groups were very homogenous in terms of country of residence and criminal history. Only a small minority of the groups had an offender with an official record of a drug offense. None of the groups was composed of traffickers all with prior records. As expected, the offenders in those groups were predominantly residents of China when they were arrested. The groups were also highly homogenous with regard to ethnicity, gender, and occupation. The drug trafficking groups were mostly composed of Han Chinese, males, and farmers. However, these groups were far from being mono-sex or mono-ethnic. Ethnic minorities, women, and non-farmers also participated in drug trafficking although they were underrepresented. In terms of region of residence, most of the group members from China lived in the same province at time of arrest although only about a half of them had all members from the same province. In comparison, the drug trafficking groups were much more diverse in terms of age and education. Only a small minority of them had all of its members sharing the same level of education or belonging to the same age group. Heterogeneity in age and education appeared to be the common feature of the Chinese drug trafficking networks.

The court documents identified at least one principal offender in 65 of the 144 drug trafficking groups. The rest of the groups did not have a principal offender. Of the 65 trafficking groups that were officially identified with a hierarchical structure, 22 groups had only one principal offender, 20 groups had two principal offenders, and 23 groups had 3 or more principal offenders. The power structure in groups with two or more principal offenders had primarily two forms. In some groups, the principal offenders were equal rather than subordinate to each other. In other groups, one principal offender assumed the role of the final decision maker and had power over the other principal offender(s).

B. Relationships between Group Characteristics and Trafficking Activities

In this set of analyses, we examined how organizational structure, demographic composition, and socioeconomic characteristics were related to drug trafficking and quantity of drugs trafficked. We first performed logistic regression to test the relationships between group characteristics and the dichotomous measures of cross-order drug smuggling and domestic drug

trafficking. The results of these analyses are provided in Table 2. The nine independent variables in these logistic regression models were group's hierarchical structure and group density measures of age, gender, ethnicity, education, occupation, province of residence, country of residence and prior drug offense.

Table 2: Logistic Regression of Drug Trafficking Activities (N = 144)

Independent variable	Model 1: Cross-border smuggling			Model 2: Domestic trafficking		
	b	*Odd ratio*	*p*	b	*Odd ratio*	*p*
Age	-0.04	0.95	0.97	-0.09	0.92	0.92
Gender	1.32	3.75	0.36	-1.91	0.15	0.05
Ethnicity	-0.51	0.60	0.67	1.35	3.87	0.09
Education	0.06	1.07	0.96	2.20	9.05	0.05
Occupation	0.28	1.33	0.79	-1.66	0.19	0.04
Province of residence	-0.49	0.61	0.61	0.18	1.20	0.79
Country of residence	-5.52	0.00	0.00	2.09	8.07	0.12
Prior drug offense	0.99	2.69	0.56	0.52	1.69	0.71
Hierarchical group	0.84	2.31	0.20	0.42	1.53	0.35
R^2	0.13			0.13		
Max-rescaled R^2	0.25			0.19		

The regression coefficients, odd ratios, and p values of the independent variables predicting cross-border drug smuggling are shown in columns 2-5 of Table 2. The chi-square test of the overall model fit is significant at the 0.05 confidence level (p = 0.04). The R-squares (R^2 = 0.13; max-rescale R^2 = 0.25) for the model also indicates a good model fit.[32] The only variable

[32] The R2 statistic in SAS PROC LOGISTIC tended to be conservative as a measure of model fit. The true measure of model fit likely lay somewhere between the R2 and the max-rescaled R2; Ernest S. Shtatland, Sara Moore & Mary B. Barton, *Why We Need an R2 Measure of Fit (And Not Only One) in PROC LOGISTIC and PROC GENMOD*, SUGI' 2000 Proceedings, 1338-1343 (2000).

significantly related to cross- border drug smuggling is group density in country of residence. The odd ratio for this variable is 0.004, indicating that the odds of the group's involvement in import and export of drugs decreased substantially for one-unit increase in the density of country of residence. This result suggests that the trafficking groups with a higher proportion of members living in the same country (i.e., mainland China) were far less likely to participate in cross-border drug smuggling than the groups with members living in different countries.

The last three columns contain regression coefficients, odd ratios, and p values for the variables predicting domestic drug trafficking. The chi-square test of the overall model fit is significant at the 0.05 confidence level ($p = 0.04$). R^2 and max-rescaled R^2 of the model are 0.13 and 0.19 respectively.

The measures of group density in gender, education, and occupation are significantly related to domestic drug trafficking. While gender density and occupation density are negatively related to domestic trafficking, and educational density is positively related to the dependent variable. For one- unit increase in gender density and occupation density, the odds of domestic drug trafficking decreased by a factor of 0.15 and 0.18 respectively. Conversely, for one-unit increase in group density of education, the odds of involvement in domestic drug trafficking increased by a factor of 9.05 or about 800 percent. As indicated in previous analyses, higher density in gender meant that the trafficking group consisted of more males, higher density in occupation denoted a higher prevalence of farmers in the group, and higher density in education indicated a larger proportion of members with an elementary or middle school education. Assuming everything else stayed constant, the groups with a higher concentration of males or farmers would be less likely to participate in domestic drug trafficking than those with a higher level of diversity in the respective area. On the other hand, the groups with a higher concentration of offenders with an elementary or middle school education would be far more likely to participate in domestic drug trafficking than the groups composed of members with more varied educational background.

In the last analysis, we conducted an OLS regression to test the relationship between quantity of drugs trafficked and group characteristics. Before constructing the regression equation, we found that the distribution of the dependent variable was highly skewed. To address this problem, we transformed the variable by the logarithm function. The transformed variable approximated a normal distribution. We then regressed the transformed

variable on the 9 independent variables, including group hierarchical structure and the measures of group density in age, gender, ethnicity, education, occupation, province of residence, country of residence and prior drug offense. The results of the regression analysis are given in Table 3. The F test of the overall model fit is significant at the 0.01 confidence level. The R^2 is 0.20.

Table 3: OLS Regression of Quantity of Drug Trafficked (N = 144)

Independent variable	Dependent variable: quantity of drugs trafficked		
	b	*B*	*p*
Age	-0.20	-0.03	0.71
Gender	0.95	0.16	0.10
Ethnicity	-0.37	-0.07	0.50
Education	-0.57	-0.09	0.36
Occupation	-0.10	-0.02	0.83
Province of residence	-1.12	-0.23	0.02
Country of residence	-3.10	-0.27	0.01
Prior drug offense	-1.06	-0.12	0.19
Hierarchical group	0.18	0.06	0.54
R^2	0.20		

The measures of group density in province of residence and country residence emerged as the only two variables significantly predicting quantity of drugs trafficked. With everything else being equal, one-unit change in the density of country of residence was associated with 310 percent decrease in quantity of drugs trafficked. The density of province of residence also had a strong effect. With one-unit increase in this variable, quantity of drugs trafficked decreased by 112 percent. These findings suggested that groups composed of traffickers living in the different countries were most likely to

deal large quantity of drugs. Among groups composed of all Chinese residents, those formed by traffickers living in different provinces were more likely to deal larger amount of drugs than the groups formed by traffickers living in the same province.

V. DISCUSSION

One of the objectives of this study was to identify the organizational, demographic, and socioeconomic characteristics of the drug trafficking groups. Through empirical analysis of court records, our study yielded wealthy information about the group characteristics of the Chinese drug trafficking networks. In consistent with previous research, the drug trafficking group was usually small. It typically consisted of only about four dealers. Most of the groups were loosely structured without clear hierarchies. Ethnically, the dealers involved in the trafficking groups were predominantly Han Chinese, the largest ethnic group in China. However, more than a quarter of the trafficking groups had at least one minority member. Most of the traffickers in these groups were males, famers, or residents of the same province. Moreover, nearly 50 percent of the drug trafficking groups consisted of offenders living in the same province at arrest.

These results show that the Chinese drug trafficking groups maintained a high level of homogeneity in terms of ethnicity, gender, occupation, and province of residence. At the same time, however, they also demonstrated a reasonable level of diversity. For example, more than a quarter of the groups had at least one minority member and women made up more than 25 percent of the membership in about 40 percent of the trafficking groups. Furthermore, more than half of the groups had members from different geographical regions as represented by province of residence.

Drawing on prior literature and the theories of social exchange and limited rationality, we expected significant relationships between group-level characteristics and type of drug trafficking activities involved and quantity of drugs trafficked by the Chinese trafficking networks. Our multivariate analysis supported most of our hypotheses. As expected, country of residence at arrest emerged as a significant predictor of cross-border drug smuggling. Transnational drug smuggling is a complicated and risky business. The groups who were involved in this type of offense needed local residents on both sides of the border to identify sources and destinations of illicit drugs, deal with local and national restrictions and law enforcement, find ways to smuggle drugs out/in the borders safely, and deliver the drugs to the intended

buyers. Evidently, groups with members from both sides of the border would be more likely to engage in this type of trafficking activities.

Domestic drug trafficking, on the other hand, were related to a different set of predictors. Specifically, group density in education appeared to increase the group's involvement in domestic trafficking whereas group density in gender and occupation seemed to reduce the involvement. Education served as a strong indicator of socioeconomic status in this study. Higher density in education indicated that the group was composed of more poorly educated offenders who generally had unstable jobs and low income. These offenders had no or limited international connections needed for transnational drug smuggling. Groups with most or all members who were poorly educated, therefore, tended to concentrate on domestic drug trafficking inside the Chinese border. Groups with female members were more likely to engage in domestic drug trafficking as well. This gender effect probably reflected an emerging trend that an increasing number of females became involved in the distribution of illegal drugs as low-level sale persons. Oftentimes, female offenders could serve the roles better because they usually had more retailing experiences. Moreover, their low profiles could more easily escape the scrutiny of law enforcement officers. On the whole, women were still far less risk-taking than men. Compared to their role in domestic drug trafficking, women appeared no more likely to participate in highly risky cross-border drug smuggling.

Occupational density was also negatively related to drug dealing. The reason for this relationship is less clear. High density in occupation meant most or all of the members in a group were farmers. It is plausible that these offenders were less motivated than urban residents to participate in domestic drug trafficking activities. Although economically deprived, farmers were not as desperate as unemployed urban residents. In contemporary China, most farmers could still rely on farming income for subsistence living. They might choose to participate in drug dealing when presented with opportunities to strike it rich. The domestic drug trafficking market that farmers had access to, however, seldom provided this kind of opportunities.[33] Consequently, the drug trafficking groups composed of mostly farmers might have lower level of involvement in domestic drug trafficking.

The results also suggested that the groups composed of offenders from different countries or provinces were likely to traffic greater amount of drugs than those composed of offenders from the same geographical area. This finding is consistent with the limited rationality and social exchange theories.

33 CHIN KO-LIN, ZHANG SHELDON X. & NATIONAL INSTITUTE OF JUSTICE, THE CHINESE CONNECTION: CROSS-BORDER DRUG TRAFFICKING BETWEEN MYANMAR AND CHINA (BiblioGov, 2007).

Because of their limited access to market information and other drug trafficking networks, most Chinese drug traffickers selected family members, relatives, and fellow villagers as their co-offenders. Drug trafficking groups formed this way tended to engage in small-scale drug trade and deal smaller amount of drugs. Groups that drew members from different countries or provinces, however, had access to wider market information, which enabled them to identify sources and destinations of drugs as well as effective ways to deliver drugs from the producers to the consumers. These groups had more organizational capabilities and opportunities to traffic larger amount of drugs.

This study has important policy implications. In its attempt to prevent and control drug use, the Chinese government has relied on supply-side strategies aimed at stopping illegal drugs from coming into China across the border and distributing to vast illicit markets inside the country. Much effort in this area has concentrated on identifying and dismantling organized crime groups believed to mastermind transnational drug smuggling and domestic drug trafficking. Findings from this study demonstrated that the strategy that focused on the pursuit of trafficking networks as organized crime groups might not be an effective approach. Contrary to popular beliefs, Chinese drug smuggling and trafficking networks were mostly small, informal, and loosely organized groups. Few of these groups had a hierarchical structure with a clear chain of command. Members of the groups came together to form a co-offending network for some specific purposes and might part their ways quickly once the tasks are completed. This type of organizations is highly adaptable to changing market conditions and can easily evade conventional law enforcement activities. To effectively control drug smuggling and trafficking activities in China, law enforcement agencies need to adopt this new understanding of the organizational structure of the drug trafficking groups and readjust their strategies to target small, mobile, and elusive networks that have shown to be the main forces that moved illicit drugs across the border and inside China. Furthermore, this study found that the groups that trafficked the largest quantity of drug were those with international or regional ties. To get better results in controlling the amount of drug trafficked, law enforcement agencies should prioritize their efforts to prevent this type of drug trafficking groups from being organized and to detect and dismantle them once they come into existence. Again, it would be incorrect to treat most of these groups as organized crime groups. However, they do share some similarities with organized crime in that they are generally bigger and have more clearly-defined division of labor. Law enforcement efforts will be more effective if they can identify and target the

critical links in these networks before or shortly after they become established.

One should take caution when interpreting the results of the study. First, as discussed before, the court records drawn from the high and intermediate courts of the four provinces might not be fully representative of the Chinese drug trafficking groups. Second, a number of the cases in the original sample of court cases had missing data on the demographic and socioeconomic variables we examined. Although we did not find significant differences in the selected measures of the characteristics of the cases between the drug trafficking groups we included in the analysis and those we excluded, we cannot completely rule out systematic differences between the two subsamples. Third, the information on the identity of principal offenders might not be reliable. The courts did not always have the physical evidence to establish the responsibilities of individual offenders involved in drug trafficking. Sometimes the evidence was circumstantial or based on confessions gathered through criminal interrogation. The true mastermind or organizer might have escaped detection. For these reasons, we need more empirical research using data collected from China to validate the findings of the current study.

(Revised by Andrew G. R. Whyte)

中国贩毒团伙的组织特征和犯罪模式

内容提要 目前，我国对于贩毒团伙的组织结构和犯罪模式的研究十分有限，本文试图弥补这个领域的不足。通过对中国若干省份高级人民法院和中级人民法院宣判的144个贩毒团伙的关系网进行分析，发现中国大多数贩毒团伙都是小规模的，而且没有严格的等级架构。研究结果表明，贩毒团伙的贩毒活动与该团伙的组织特征具特定的关联性。具体而言，贩毒团伙成员的居住国家密度与该贩毒团伙是否从事跨境毒品走私相关；贩毒团伙成员教育水平的差异与犯罪数量正相关；贩毒团伙里男性的密度及就业率的高低与犯罪数量负相关。另外，罪犯来自不同省份或国家的团伙贩卖毒品的数量多于罪犯来自同一地理位置的团伙。