

United Nations Conference on Trade and Development

National Workshop on

**Fostering Integration of the Lao People's Democratic Republic
Downstream Value Chain of Maize into Regional Value Chains**

13 October 2020, Vientiane, Lao People's Democratic Republic

The Maize Value Chain in Lao PDR

By

Rodrigo Càrcamo, Economic Affairs Officer, UNCTAD

The views expressed are those of the author and do not necessarily reflect the views of UNCTAD.



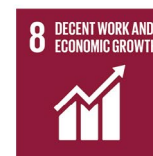
Analysing the **Maize Value Chain** for Export in **Lao People's Democratic Republic**



Rodrigo Cárcamo
Economic Affairs Officer, UNCTAD

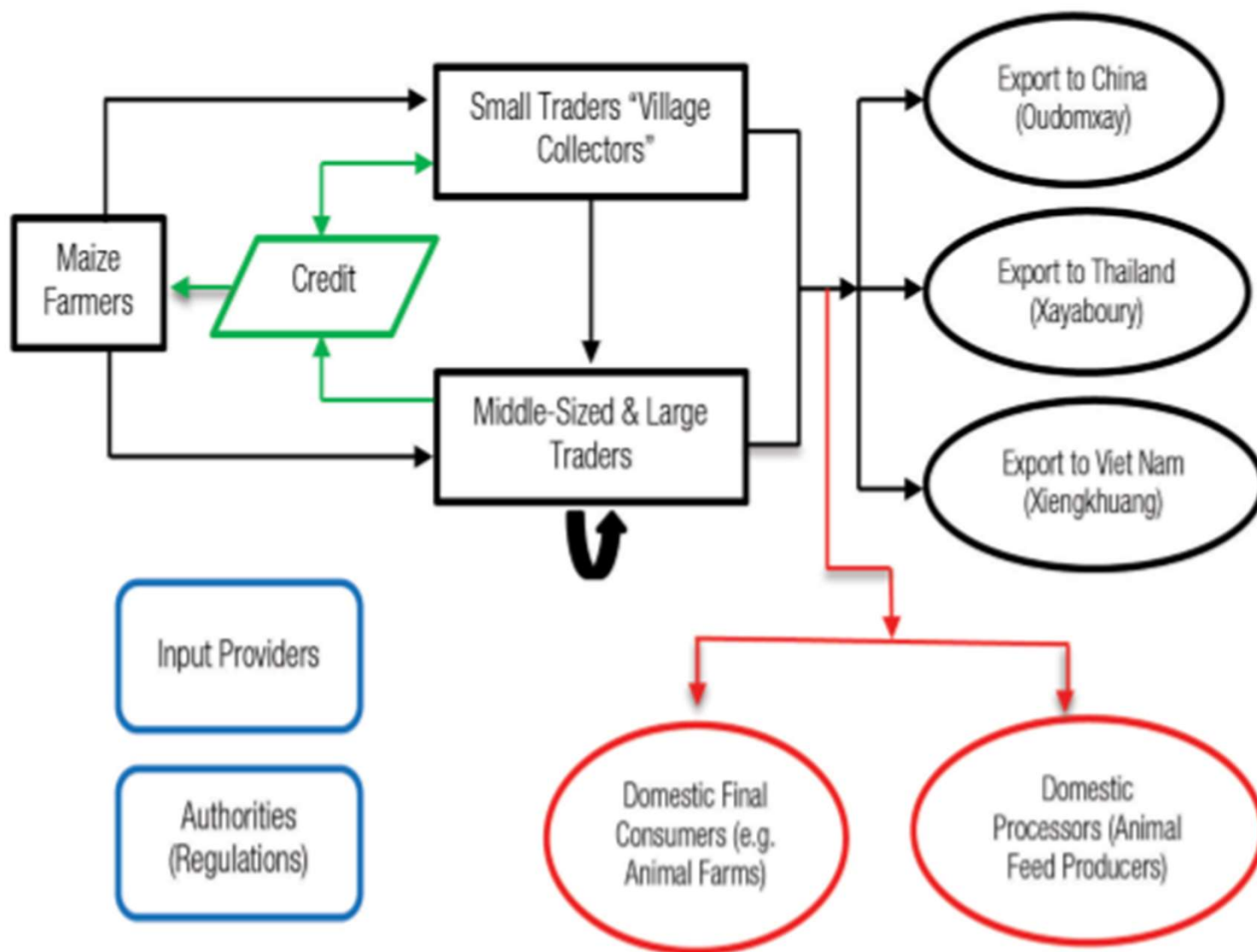
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Integrating **Landlocked**
Commodity Dependent Developing Countries
into **Regional and Global Value Chains**



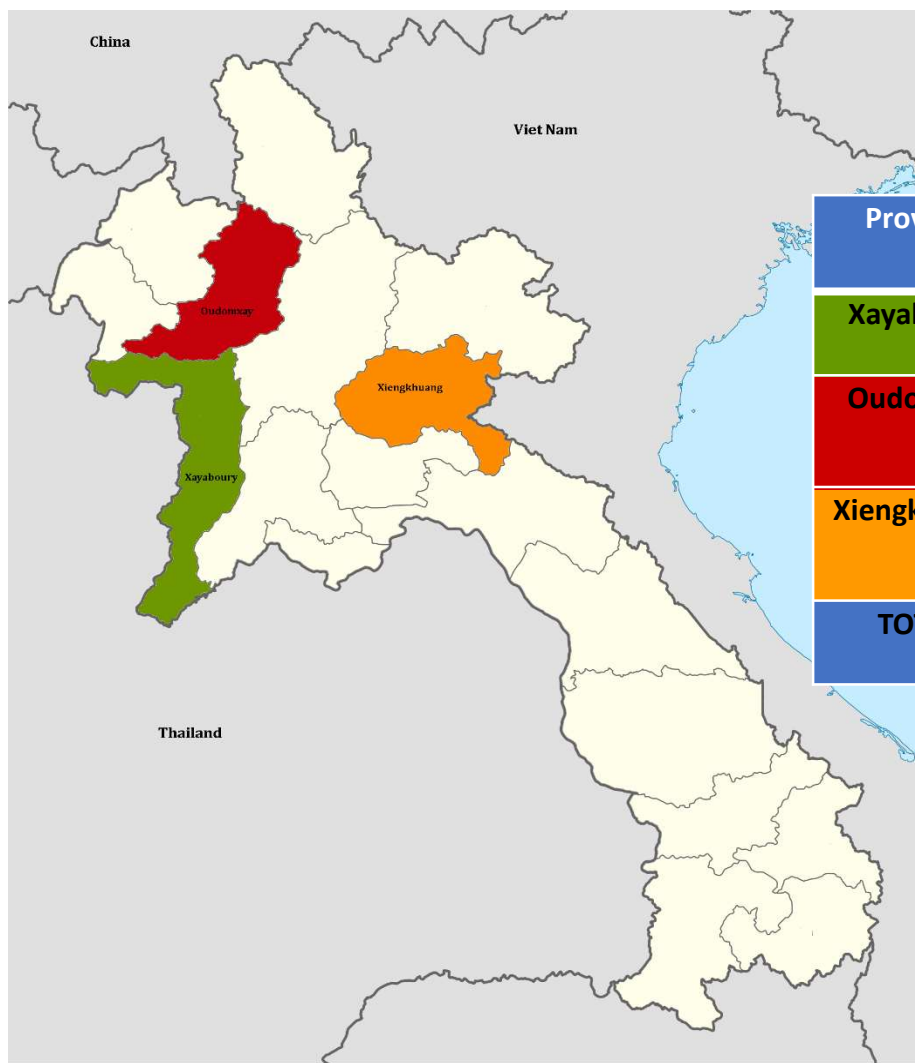
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The Maize Value Chain in Lao PDR



Source: Author.

Survey Sample Size and Geographical Coverage

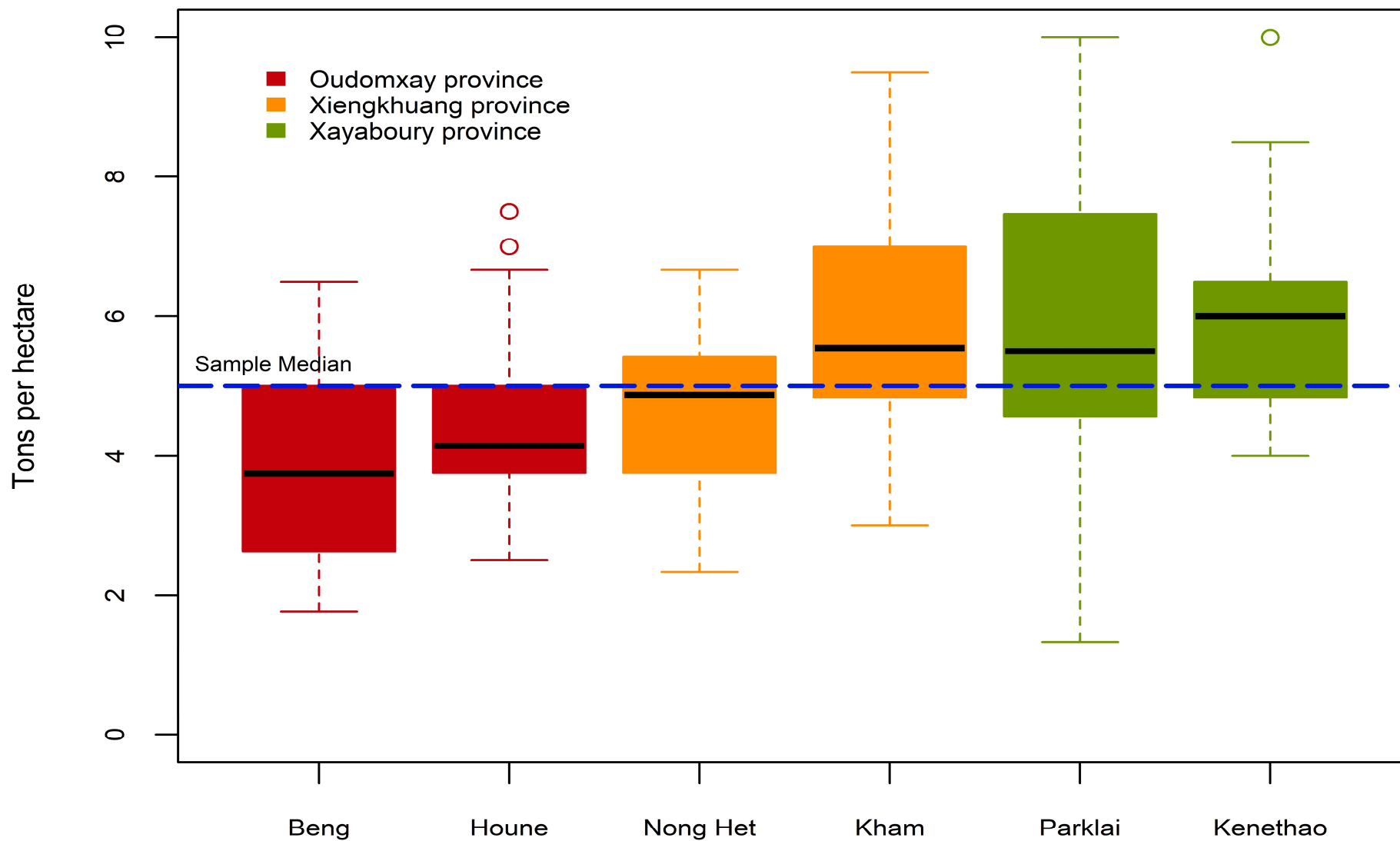


Province	No. of villages	Farmers	Traders	Governmental Organizations	Border Crossings
Xayaboury	8	61	52	6	2
Oudomxay	6	60	58	6	0
Xiengkhuang	4	60	57	6	1
TOTAL	18	181	167	18	2

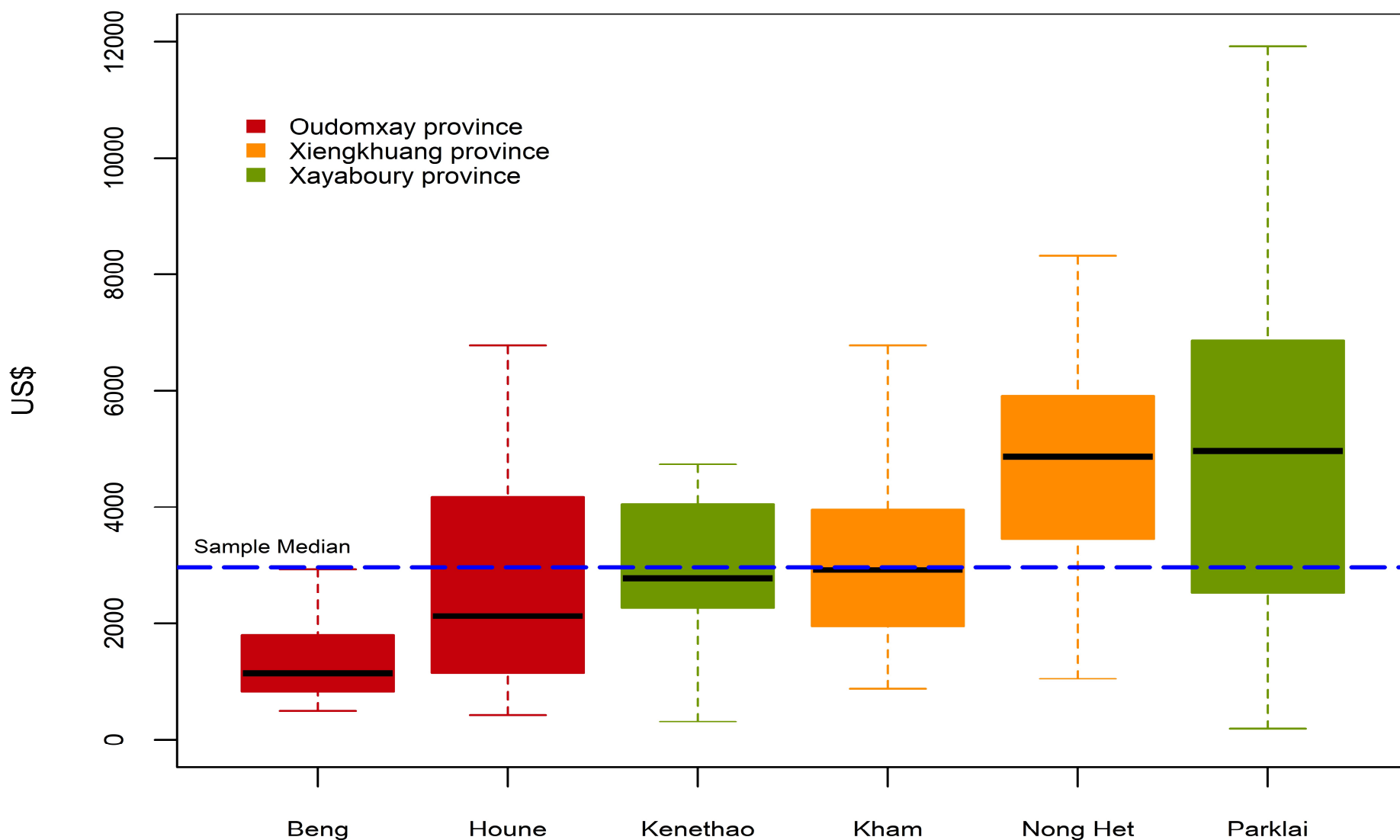
Surveyed Maize Farmers: Size and Income

- The median **farm size** was **3.7 Ha**.
- The median **maize planted area** was **2.8 Ha**.
- Estimated median **agricultural income** was **LAK 25.6 million (US\$ 2,963)**, but heterogenous across districts due to differences in farm size, products grown, maize yields, income from livestock sales and other reasons.
- While mean **dependence on maize for agricultural income** is very high (median 94.5%, mean 81%), farmers in OD province and Nong Het district (XK) are more vulnerable than those in XY province and Kham district (XK).
- **Vulnerability** to maize shocks **increases** with **price volatility** and with the risk of occurrence of **pests, restrictions**, or other events that affect maize production or demand.

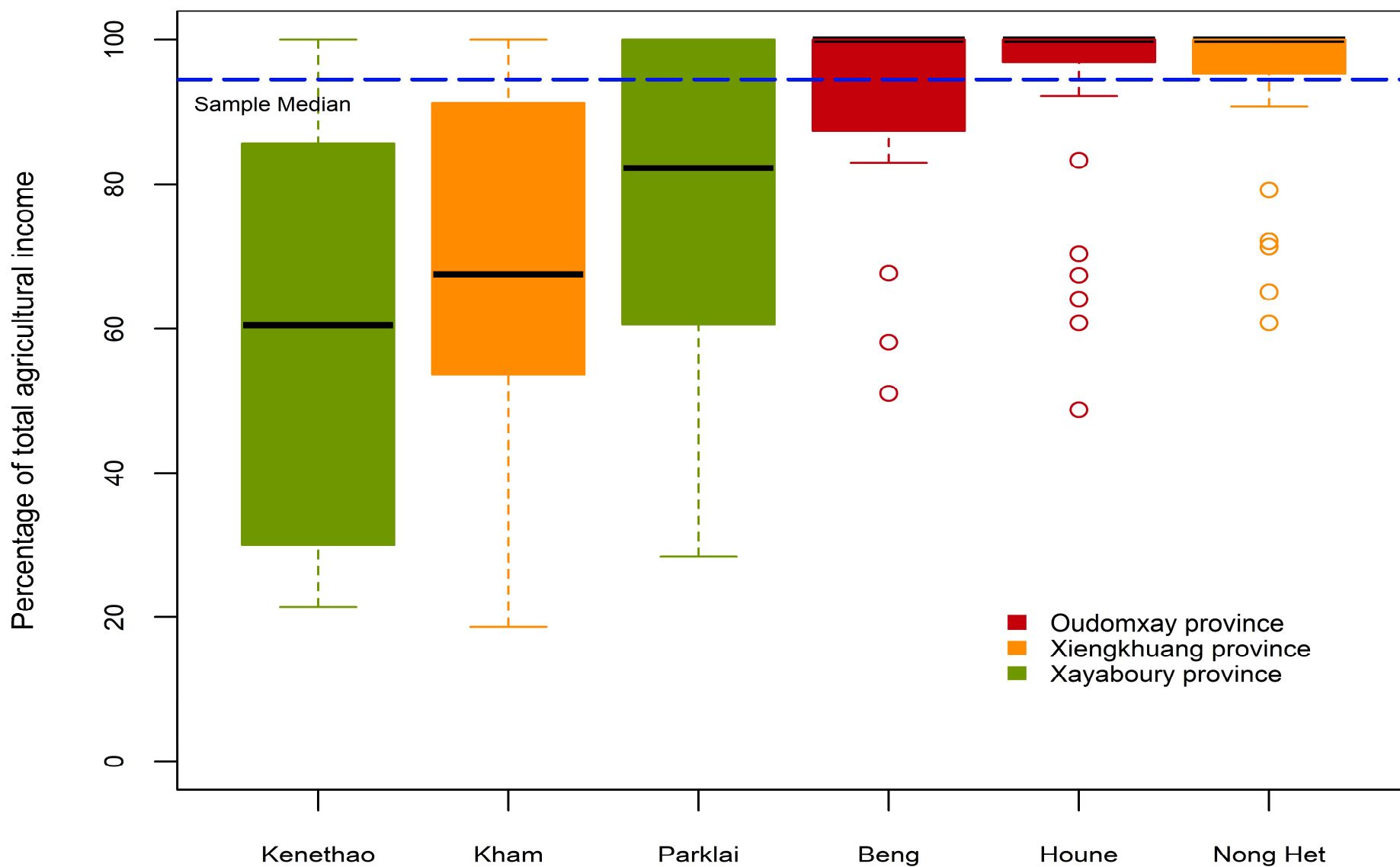
Surveyed Maize Yield by District



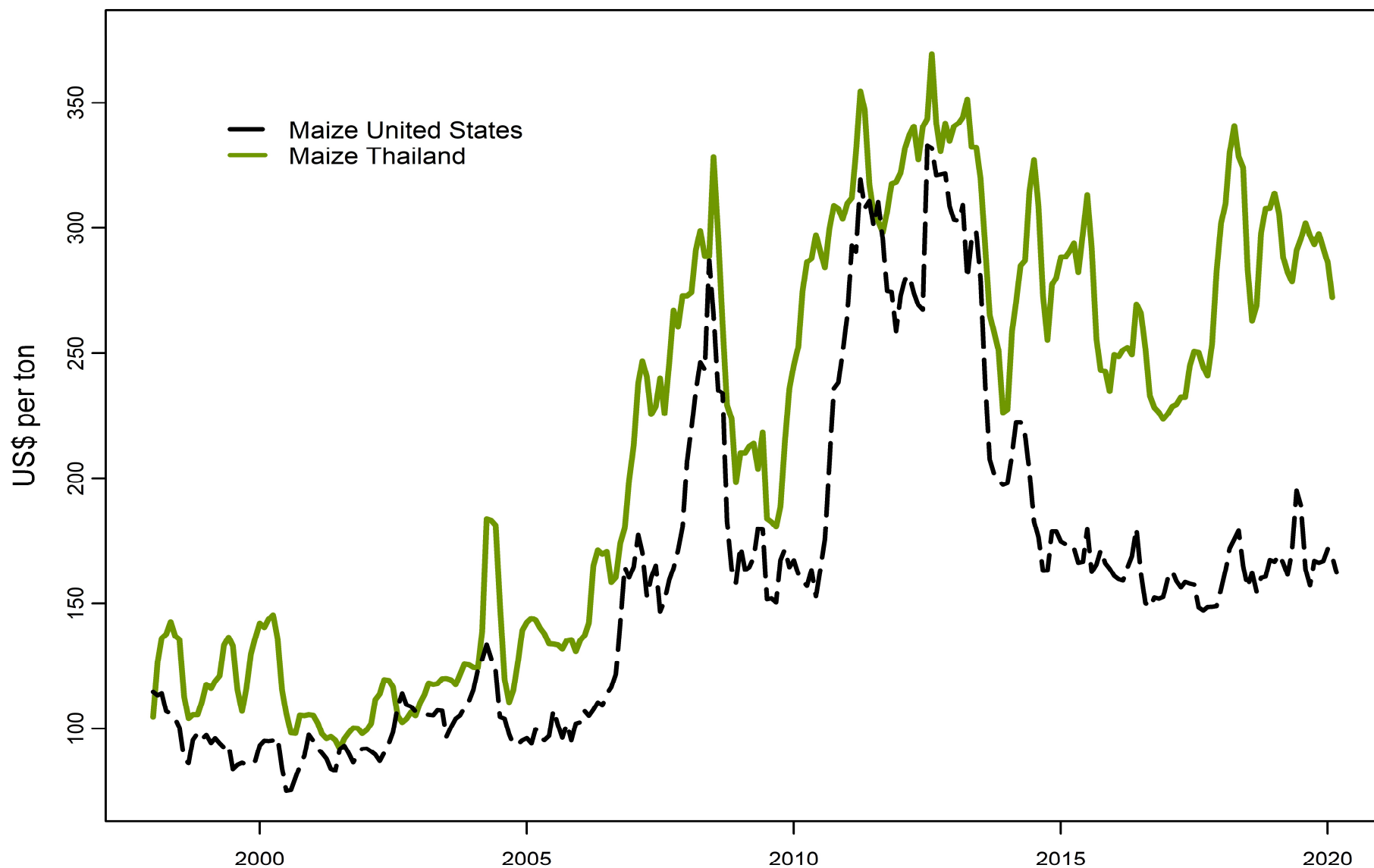
Estimated Agricultural Income by District



Maize as Share of Agri Income, by District



Monthly Maize Prices, 1998-2020



Maize Farmer – Trader Relationships

- **67%** of surveyed farmers **sell to small traders** (<1000 T/y), who live mostly in the same village or cluster village.
- The **relationships** between farmers and traders are **close and persistent**: mean and median duration 5.6 & 3 years.
- **76%** of farmers had only one buyer of maize.
- Transport costs, search costs, the “experience good” nature of relationships are possible explaining factors.
- Also, **29%** of farmers and **49%** of traders reported having an **agreement**, but they **rarely fix the price of maize**.
- Agreements allow farmers to obtain **inputs** from traders, often on **credit**. This credit is often repaid at harvest time.
- The median rate of credit declared was **2.5% per month**.

Maize prices and Farmer Characteristics

- There are differences in average prices of maize across provinces, even controlling for other factors.
- This might be related to heterogenous costs (e.g. inputs, transport), market conditions, and others.
- Maize **in cob is sold cheaper** than maize **in grain**.
- **Cooperative membership** is **positively** correlated with maize prices. They can substitute the aggregation role.
- **Having storage and storage length** are also **positively** correlated with maize prices. Storage improves maize quality and the bargaining power of farmers versus buyers.
- **Receiving inputs from traders** is **negatively** correlated with maize prices. This indicates that farmers “pay in maize”.

Analysing Maize Prices Received by Farmers

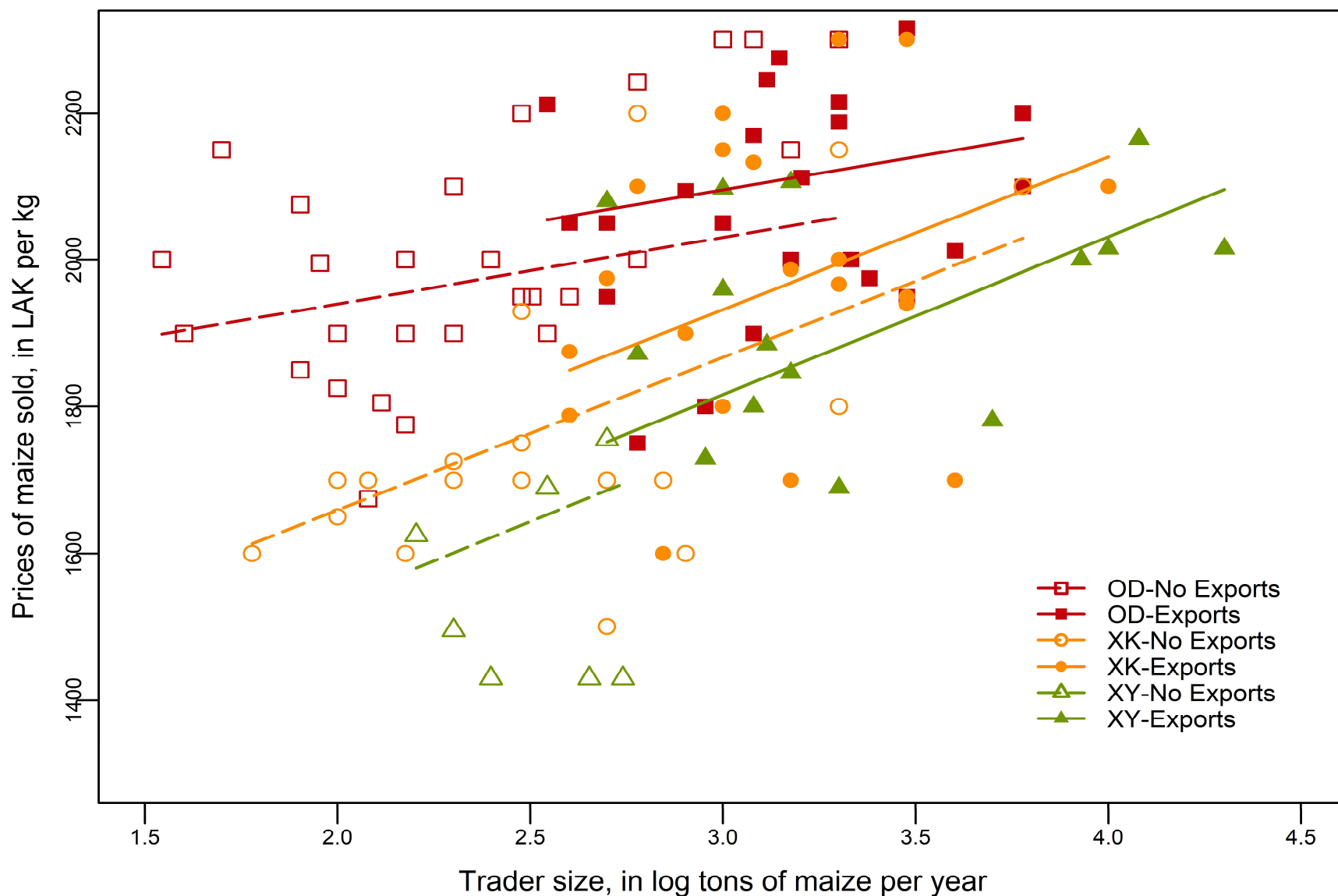
	Model 1	Model 2
Province OD (baseline)	1459*** (37)	1484*** (62)
Province XK	-12 (33)	-25 (42)
Province XY	-216*** (53)	-317*** (77)
Sells cob in XK	-545*** (82)	-577*** (99)
Sells cob in XY	-227*** (57)	-135 (89)
Coop. Member	179*** (47)	175** (75)
Has storage capacity	190*** (33)	150*** (51)
Storage length (in days)	0.60** (0.28)	0.95 (0.51)
Receives inputs	-55* (28)	-67* (39)
R ²	0.64	0.53
Adj. R ²	0.62	0.49
Num. obs.	168	105
RMSE	155	162

**p < 0.01, *p < 0.05, †p < 0.1

Surveyed Maize Traders: The Role of Size

- **Small traders** (≤ 1000 T) are more likely to **aggregate** for larger ones, **buying** from **farmers** (85%), **shell** maize and **transport** it between farmers and larger traders.
- **Larger traders** are more likely to **buy maize from traders**, **dry, clean, store** and **export maize** to CHN, THL and VNM.
- **Survival** of traders is **positively** related to **size**.
- The **types of vehicles owned vary by size**, with large trucks (12 and 22-wheels) more likely to be owned by large traders, and tractors by small traders, **due to function**.
- The **size of the transport stock is also linked to size**: the mean size large traders was **1.7 times** that of small ones.
- **Prices** of maize **sold, bought** and the **sell-buy margin** are **positively correlated** to trader size.

Prices of Maize in Grain sold by Traders, vs. Trader Size



Analysing Maize Prices Received by Traders

	Model 1
Province OD (baseline)	1760 ^{***} (114)
Province XK	-516 ^{***} (147)
Province XY	-654 ^{***} (195)
Trader Size (in log tons per year) * OD	39 [*] (21)
Trader Size (in log tons per year) * XK	51 ^{**} (24)
Trader Size (in log tons per Year) * XY	54 ^{**} (27)
Exports	65 (48)
R ²	0.46
Adj. R ²	0.43
Num. obs.	111
RMSE	163.8

^{***}p < 0.01, ^{**}p < 0.05, ^{*}p < 0.1

Policy Imp.: Cooperatives and Post-harvest Practices

- Cooperative membership can allow farmers to:
 - “aggregate” and reduce the incidence of local market power.
 - Buy inputs in bulk at reduced prices and obtain finance.
- Promotion of cooperative membership, in particular where they are rare (i.e. outside XY) is important, but requires addressing incentives, management, etc.
- Improved post-harvest practices like storage and drying can also increase prices (including quality) and quantity of maize for farmers. Fostering them exceeds finance availab.
- Other factors are access to farming best practices (extension services are key), local availability of suitable inputs (challenging due to geography), affordability of storage (technological solutions adapted to local cond.).

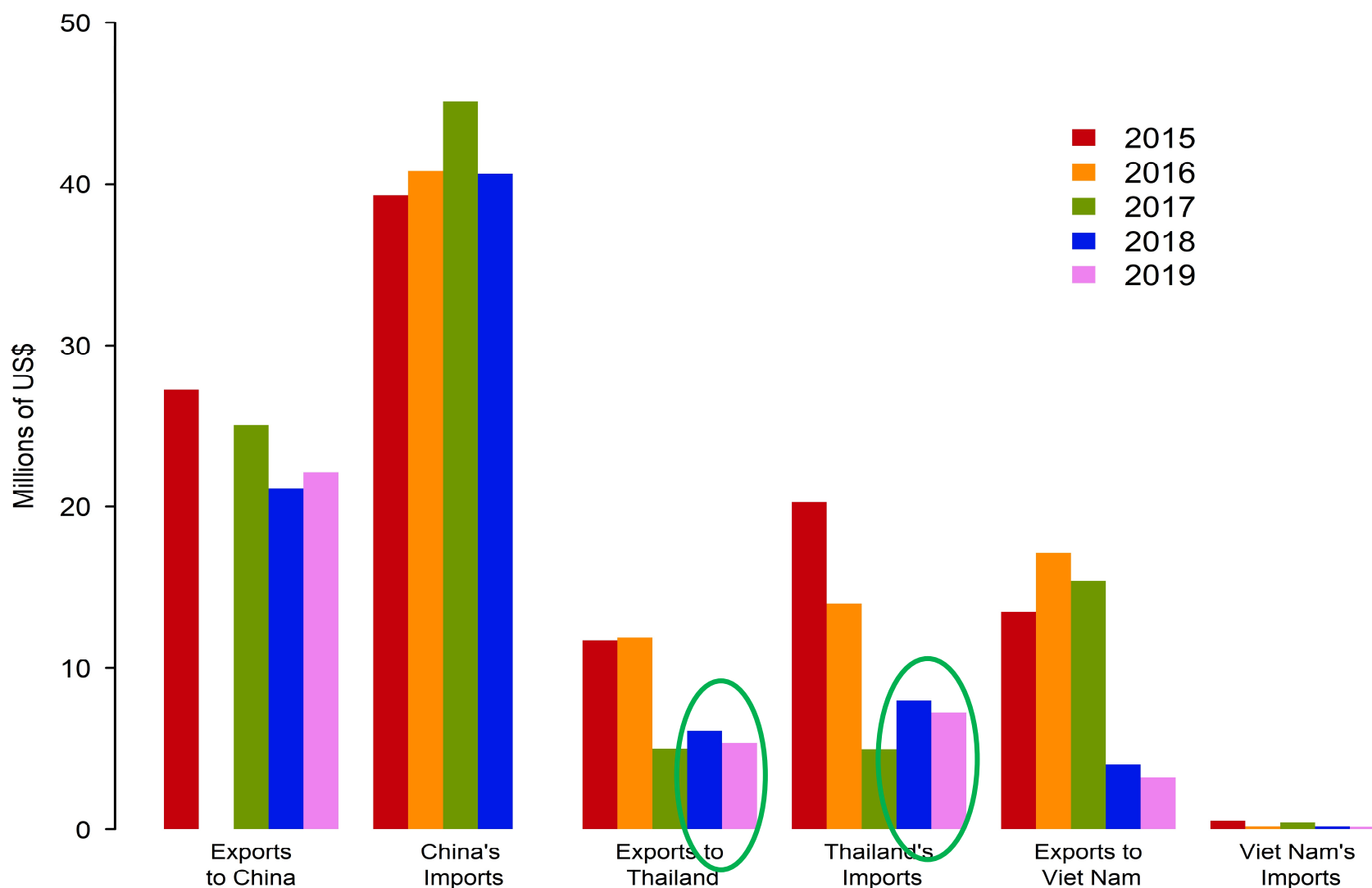
The Importance Rural Finance

- Increased access to productive finance by all stakeholders is crucial, at competitive risk-adjusted prices.
 - This will reduce the need for **farmers** to pre-sell due to financial constraints, thereby increasing their income.
 - Finance is also important for **traders**: capital stock (transport, machinery), building storage, negative shocks.
- Many questions emerge from our findings:
 - Can the current cost of finance be lowered, adjusting for risk?
 - What other conditioning factors restrict rural finance in Lao PDR? (e.g. collateral, market power, cost of provision).

Improving Data Availability

- One suggestion would be to create a “focal point” at an existing institution charged with gathering this data and making it available in electronic format.

Regional Maize Trade of Lao PDR 2015-19



Source: author's elaboration using COMTRADE data for code HS 100590. Data obtained 8/10/2020

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