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AGRICULTURAL MACHINERY SUPPLY BUSINESSES IN MYANMAR'S DRY ZONE: GROWTH AND TRANSFORMATION

By

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EXECUTIVE SUMMARY

This report presents findings on the supply side of agricultural mechanization in Myanmar, based on a survey of 57 agricultural machinery suppliers in five urban centers in Myanmar's Central Dry Zone, and incorporating information on the location and year of establishment of branches of machinery businesses based in Yangon. Key findings are summarized below.

Machinery supply businesses are now numerous and widely distributed. Fifty-seven enterprises were identified, operating a total of 234 stores in 74 townships and 13 states/regions. Ownership is quite concentrated, with six businesses accounting for 52% of all stores. All enterprises surveyed are Myanmar owned and operated. Most were established in order to supply agricultural machines or other heavy machinery, but a few of the largest have since diversified into other sectors.

The main rice growing zones of the Delta and Dry Zone were the first to begin to mechanize, with mechanization subsequently spilling over into areas of the Dry Zone growing non-rice crops, and to upland areas. Numbers of agricultural machinery supply shops in Myanmar increased 333% between 2008 and 2018, from 54 to 234, while the number of townships with machinery suppliers jumped from 29 to 74. Numbers of agricultural machinery supply outlets in the Dry Zone grew slowly until 2013. Very rapid growth took place from 2014-2017, during which 61% of all stores were established. Half (49%) of all machinery supply business are located in the Dry Zone, 36% in the Delta and 15% in the hilly and border states.

Sales of agricultural machinery in the Dry Zone boomed from 2013-2016, increasing several fold, but growth peaked by 2017. Sales of four-wheel tractors and combine harvesters contracted slightly in 2017, by -22% and -16% respectively. Sales of two-wheel tractors and attachments for four-wheel tractors also fell in 2017.

A wider assortment of agricultural equipment is now available from a greater range of sources than ever before. The proliferation of businesses has created opportunities for numerous brands to enter the marketplace as both suppliers and manufacturers compete for market share. The number of four-wheel tractor brands sold quadrupled from 2013 to 2017, while the number of combine harvester brands available doubled from 2015 to 2017

Products sold by businesses in the Dry Zone reflect the agro-ecology of the region. Four-wheel tractors and their attachments (disc plows and rotary tillers) are the main items, outselling two-wheel tractors, water pumps, and engines, which are the highest volume items sold in the Delta. Very low sales of water pumps in the Dry Zone reflect limited direct access to irrigation canals and ground water. Dry Zone farmers prefer four-wheel tractors for non-paddy crops because two-wheel tractors have insufficient power to break up hardened soils prior to cultivation. In the Delta, where paddy is the dominant crop and water is plentiful, soils are softened by puddling before paddy cultivation commences, making two-wheel tractors better suited to plowing than heavy four-wheel tractors.

Finance for agricultural machinery purchases is widely available and utilized, contributing the rapid growth of machinery sales. Almost all machinery supply businesses offer some form of

hire purchase financing. The importance of banks as a source of finance has grown relative to that of direct finance provided by machine suppliers. The share of machinery suppliers partnering with banks to provide hire purchase loans to customers buying two-wheel tractors, four-wheel tractors, and combine harvesters increased from little or nothing before 2013, to 84%, 87% and 96%, respectively in 2017. Sales financed through hire purchase loans supplied by banks are reported to account for 76%, 67% and 98% of sales of these machines, respectively.

The number of banks offering hire purchase loans for agricultural machinery has increased quickly, from five in 2014 to 11 in 2017. Throughout this period two banks, Yoma and MCB, dominated the provision of hire purchase finance. Yoma accounted for 41% of partnerships with machinery dealerships in 2014, rising to 48% in 2017.

Almost all purchases of agricultural machines and attachments are initiated by customers, except for four-wheel tractors. One quarter of four-wheel tractors purchases made in 2017 were organized by co-operative associations under the Department of Co-operatives, or brokered by the Agricultural Mechanization Department. The benefit of government agents acting as intermediaries between buyers and sellers of machinery is not clear, given that sales of all machines other than four-wheel tractors are made almost exclusively via direct customer-supplier interaction.

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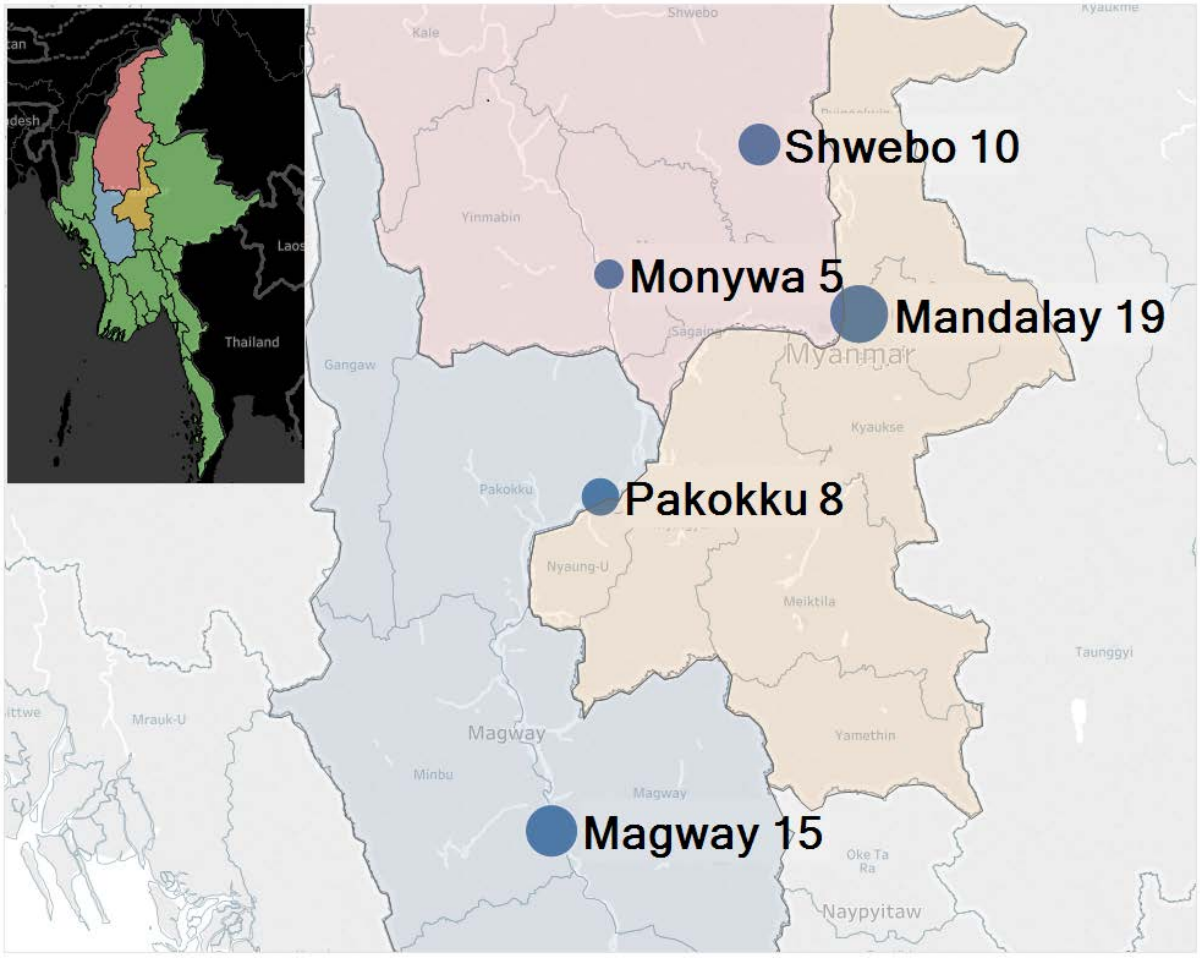
1. Introduction

Myanmar is in the midst of a process of rapid agricultural mechanization. Previous research has documented the demand side of agricultural machine use (Filipski et al. 2018), and mechanization outsourcing services (Belton et al. 2018) in Myanmar's Central Dry Zone – one of the country's most important agricultural zones. This report presents findings on the supply side of agricultural mechanization, based on a survey of 57 agricultural machinery supply businesses in five urban centers, conducted in mid-December 2017 (Figure 1). Together, these enterprises account for the majority of agricultural machinery supplied in the Dry Zone.

Figure 1: Locations of surveyed businesses



2. Methods and Sample

Prior to survey implementation, scoping visits were conducted in the five main urban centers in the Central Dry Zone - Mandalay, Monywa, Shwebo, Pakkoku and Magway. Sixty-one agricultural machinery supply businesses were identified during scoping. At the time the survey was initiated, these businesses were believed to represent the complete universe of agricultural machinery suppliers in these five urban locations. Four of the 61 businesses listed declined to be interviewed, giving a final sample of 57 interviews. The 57 businesses interviewed were comprised of 39 individual companies. Where businesses operated more than one branch, all branches listed in the sample frame were interviewed.

The survey instrument was designed to elicit information on type and volume of machinery sales, modes of financing sales, provision of services to customers, and the location and time of establishment of all the branches operated by each business. Analysis of data from the survey identified the existence of 17 branches of machinery supply businesses in the five urban locations where the survey was implemented that were not included in the survey sample frame, and a further 31 machinery supply shops in townships in Mandalay, Magway and Sagaing, outside of the five urban centers surveyed. Thus, our sample of 57 enterprises covers 73% of the known machinery supply shops in the five survey locations, including most of the largest, and 52% of the known machinery suppliers in Mandalay, Magway and Sagaing regions.

Survey respondents were sometimes unable to provide details of the date of establishment of all business branches. Missing information was acquired post-survey by making phone calls or visits to the head offices or branches of the companies concerned. Information on the location and year of establishment of all branches belonging to machinery businesses surveyed in Yangon in 2016 by Win et al (2016) was also updated at this time. Data from Yangon were pooled with data from the Dry Zone to provide an expanded picture of the spatial and temporal spread of machinery businesses.

3. Sectoral Structure

This section summarizes key features of the structure of the machinery supply business sector in Myanmar, drawing on data from surveys in the Dry Zone and Yangon. We focus on the degree of concentration and historical trends in business numbers and distribution.

3.1 Concentration of business ownership

At the national level, machinery supply businesses are numerous, but ownership of branches is quite concentrated. Table 1 presents details of the total number of individual companies recorded in the combined Dry Zone and Yangon machinery dealer surveys, and the total number of branches that these companies operated[1]. We divide businesses into three groups, based on the number of branches they operate: a single branch; 2-10 branches; more than 10 branches.

[1] This is not a complete nationally representative sample, but because surveys were implemented in both the Dry Zone and Yangon, they almost certainly include the majority of major businesses in the agricultural machinery supply market.

Businesses with a single branch account for 60% of all enterprises, but just 15% of all branches. Businesses operating 2-10 branches account for 30% of businesses, and 34% of all branches. Only six businesses operate more than 10 branches each, but together they account for 122 branches (52% of the total).

Table 1: Number and share of machinery supply enterprises and branches, by business size (combined Dry Zone and Yangon survey results)

	Number of branches operated by business			
Item	*1*	*2-10*	*>10*	*All*
Number of enterprises	34	17	6	57
Number of branches	34	79	122	234
Share of enterprises (%)	60	30	11	100
Share of branches (%)	15	34	52	100

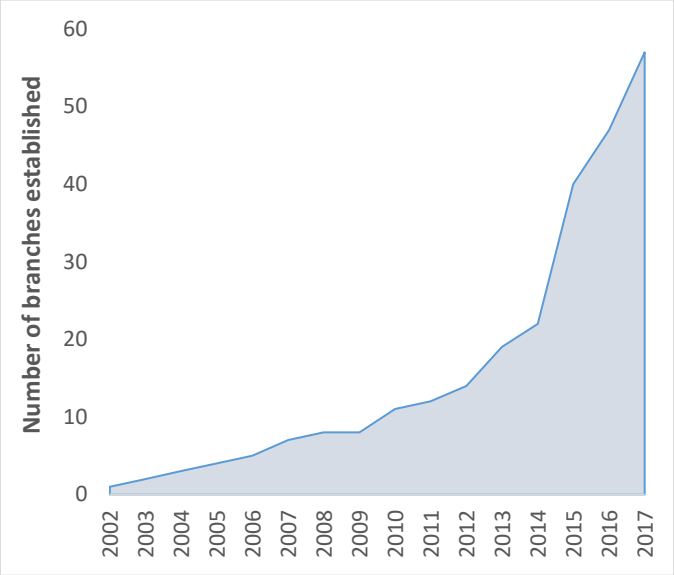
All enterprises surveyed are Myanmar owned (i.e. none were established by foreign investment). The vast majority were originally established as businesses supplying agricultural machines or other heavy machinery. The two largest companies, Good Brothers (34 branches[2]) and UMG (32 branches), have since diversified their business portfolios to include a wide range of activities such as financial services, construction, and agricultural input distribution. Another major player, operating 15 branches, was established as a subsidiary of the Myanmar conglomerate Yoma Strategic Holdings, in order to distribute products from the company New Holland. Individual branches surveyed in the Dry Zone employed an average of 14 staff in 2017 (up by 66% from nine workers in 2015, reflecting the expansion occurring during this period).

3.2 Growing numbers of businesses

The establishment of machinery dealerships in the Dry Zone has occurred in three phases. First, from 2002-2009 businesses numbers increased very slowly. Fourteen percent of branches currently operating were established during this period. Second, from 2010-2014 there was a slight increase in the rate at which businesses were established. One quarter of the branches surveyed opened during these five years. Third, from 2014-2017 machinery supply businesses entered a period of very rapid growth, during which 61% of all shops were established. Structural drivers of the growth of the market for agricultural mechanization during this period are discussed in detail in Win et al. (2018).

[2] This figure includes six branches that are operated by a subsidiary business that sells equipment exclusively from the manufacturer Kubota, co-branded as "Kubota Good Brothers"

Figure 2: Cumulative number of Dry Zone machinery supply businesses established by year



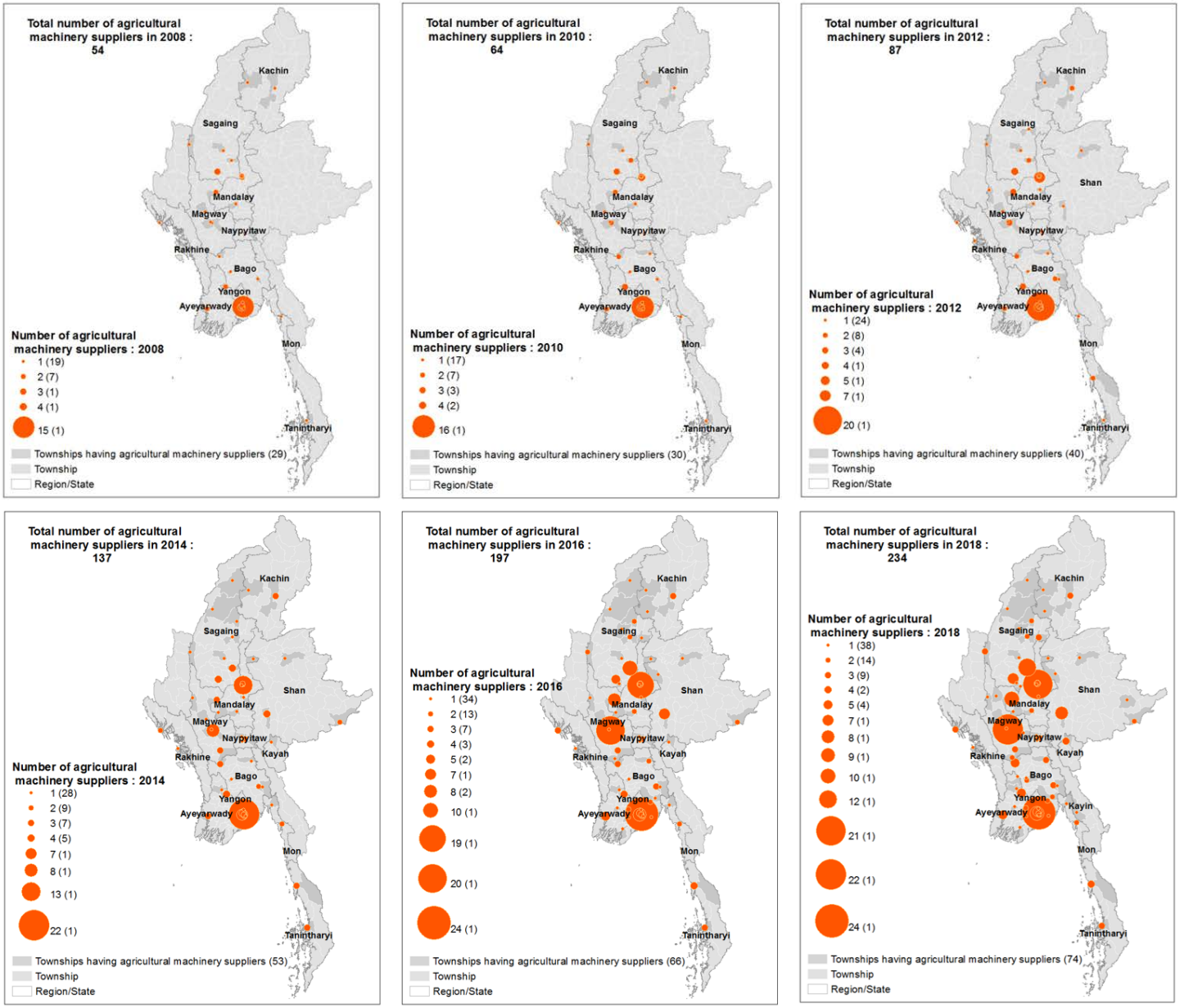
3.3 Spatial and temporal distribution

Figure 3 illustrates the geographical spread of agricultural machinery supply shops in Myanmar from 2008 to 2018. Numbers increased 333% over this period, from 54 to 234, while the number of townships serviced by a machinery supplier jumped from 29 to 74[3].

The main rice growing zones of the Delta and Dry Zone were the first to begin to mechanize, with mechanization subsequently spilling over into areas of the Dry Zone growing non-rice crops, and to upland areas. Numbers of machinery supply businesses grew very slowly during the 1980s and 1990s, and were concentrated largely in Yangon. From 2000-2010 numbers of businesses increased gradually in both Delta and Dry Zone, but remained concentrated in the Delta (which accounted for more than three quarters of all businesses during this time), and especially in Yangon. Machinery supply businesses outside of these two 'core' agricultural zones were first established in 2006, when the Good Brothers' company opened branches in the main cities in Mon, Tanintharyi and Rakhine. Since this time, the number of businesses in all three zones has continued to climb, but the share of businesses located in the Delta has fallen (down from half in 2012 to just over one-third in 2018).

[3] These numbers include many urban townships

Figure 3: Location and number of Myanmar machinery supply businesses, 2008-2018 (Combined Dry Zone and Yangon surveys)



The Dry Zone saw an explosion in the numbers of machinery enterprises established, particularly from 2015 onwards, switching position with the Delta in terms of share of machinery businesses located there. The number of businesses established in the hill and border states grew during this period, though still in smaller numbers and fewer locations than in other zones. Machinery supply shops in these upland states accounted for 15% of the national total in 2018 (Table 2).

Table 2: Share of machinery businesses by geographical zone (%)

Zone	2000	2003	2006	2009	2012	2015	2018
Delta*	79	74	67	59	51	37	36
Dry Zone≠	21	26	26	31	36	48	49
Hills/borders≈	0	0	7	10	13	15	15

Delta = Ayeyarwady, Bago, Yangon. Dry Zone = Magway, Mandalay, Nay Pyi Taw, Sagaing. Hills/Borders = Kachin, Kayah, Mon, Rakhine, Shan, Tanintharyi

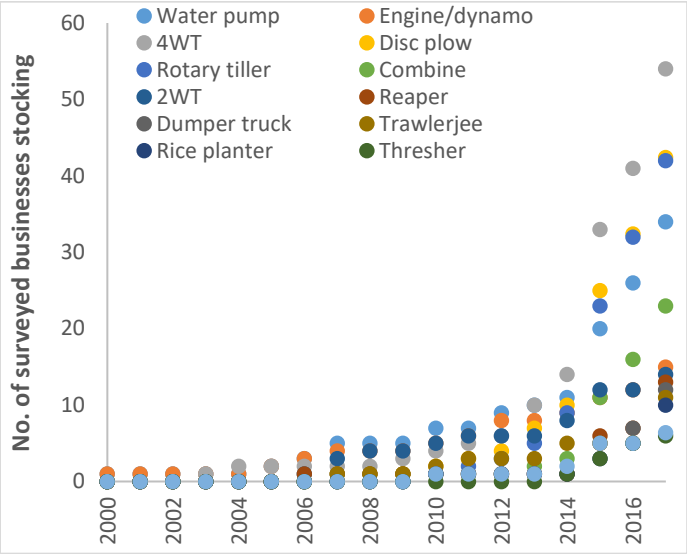
4. Business Conduct

This section summarizes key aspects of the behavior of machinery supply businesses in the Dry Zone, in terms of product assortment carried, sales volumes, customer finance, and provision of additional services.

4.1 Product assortment

A wider assortment of agricultural equipment is now available from a greater range of sources in the Dry Zone than ever before. In 2017, at least 12 types of agricultural machinery and equipment were available from machinery suppliers. The variety of machines sold has increased dramatically since the early 2000s, when engines, light trucks and four-wheel tractors (4WT) were the only machines sold. The number of businesses marketing each type of machine also increased sharply, with all items except trucks available from at least 10 of the businesses surveyed (Figure 4).

Figure 4: Number of businesses stocking machines and equipment by year (2000-2017)



The assortment of products stocked by machinery supply businesses in the Dry Zone is closely matched with regional agro-ecology. Four-wheel tractors (4WT) and attachments (disc plows and rotary tillers) are the main items, in terms of both total sales and numbers of businesses stocking. 4WT were stocked by 95% of businesses, with sales totaling 3584 in 2017. Sales of 4WT exceeded sales of smaller, cheaper two-wheel tractors (2WT), which were stocked by just 25% of suppliers, and sold a total 3190 units in 2017 (Table 3).

Table 3: Machinery and equipment sales (number) by Dry Zone suppliers (2017)

Item	% of branches selling	Mean sales per branch	Median sales per branch	Total sales
4 wheel-tractor	95	66	30	3584
Disc plow	74	92	26	3867
Rotary tiller	74	61	16	2564
Combine harvester	42	17	2	407
Engine/dynamo	26	178	13	2672
2 wheel-tractor	25	228	90	3190
Reaper	23	21	5	273
Trawlerji	21	26	12	553
Dumper truck	21	7	5	79
Water pump	19	21	6	146
Rice planter	18	1	1	13
Thresher	11	9	10	56
Light truck	11	2	0	11

Combine harvesters (CH) were the second most widely stocked item of equipment, sold by 42% of shops surveyed. Other items, including reapers, rice planters, trawlerji, engines, threshers, and

light trucks are sold in small numbers, by between approximately 10% and 25% of businesses (Table 3). Very low sales of water pumps (just 146 units) reflect limited direct access to irrigation canals or ground water. This scenario contrasts with that in the Delta, where rice is the dominant crop and 2WT, water pumps, and engines (often purchased for use with 2WT) are the most common items sold (Win et al., 2016). The harder, drier soils Dry Zone require greater power to prepare, necessitating the use of 4WT (Table 3).

We use sales of 4WT as a proxy for business size (turnover) because they are stocked by almost all Dry Zone machinery suppliers, and are among the most expensive items of machinery sold, constituting a large share of the value of the Dry Zone agricultural machinery market. Enterprises were ranked from lowest to highest sales of 4WT to obtain three groups (terciles) of equal size. Tercile 1 is comprised of the third of businesses with the lowest 4WT sales, and tercile 3 the third of businesses with the highest 4WT sales. Data are presented in Table 4.

Despite being marketed by nearly all machinery suppliers, sales of 4WT and associated attachments (disc plows and rotary tillers) are highly concentrated among tercile 3 businesses (the largest third of enterprises), which account for 82% of sales of 4WT and 88% of sales of plows and tillers. Tercile 1 businesses (the smallest third) account for just 2-3% of sales of 4WT and their attachments. The distribution of sales of CH by business size is similar to that of 4WT.

Table 4: Share of machinery and equipment sales (number) by business size tercile (2017)

Size Tercile*	4WT	Disc Plow	Rotary tiller	CH	Rice Planter	Light truck	Dump truck	Engine/ dynamo	Trawlerji	Water pump	Reaper	Thresher	2WT	All
Tercile 3	82	88	88	86	69	0	13	16	17	41	6	18	24	59
Tercile 2	15	10	10	9	15	91	78	79	52	59	12	38	38	29
Tercile 1	3	2	2	4	15	9	9	5	31	0	82	45	38	12

Interestingly, the majority of dump trucks (78%), light trucks (91%),, trawlerji (52%), and engines (79%) are sold by medium sized businesses (those in tercile 2). Sales of reapers and threshers, which are sold on small volumes, and sales of 2WT originate from a mix of small and medium businesses (tercile 1 and tercile 2). This pattern suggests that while nearly all businesses stock 4WT in order to attract customers, larger businesses are able to capture the majority of sales, perhaps due to having exclusive rights to stock preferred brands such as Kubota. Conversely, medium and small businesses seem to specialize selling more 'niche' items that are not prioritized by larger companies.

4.2 Sales

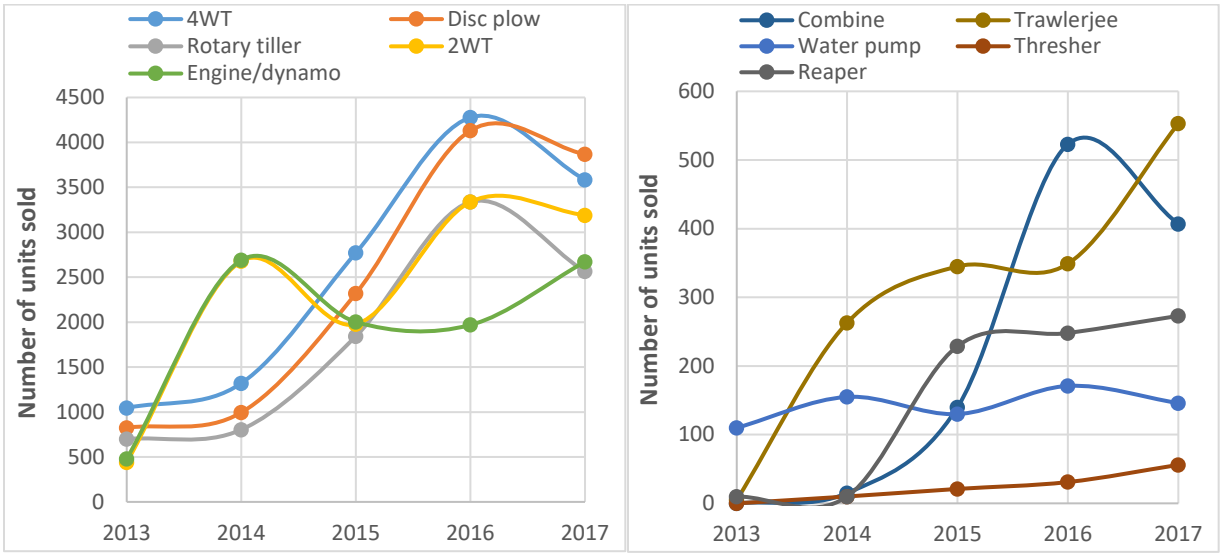
Sales of agricultural machinery in the Dry Zone boomed from 2013-2016, but growth peaked by 2017. Total sales of machines used in land preparation and harvesting grew briskly from 2013 to 2016 (increasing approximately 300-400% for 4WT and attachments, 650% for 2WT and 3400% for ers). The most rapid sales growth was from 2014-2015, coinciding with the establishment of large numbers of new machinery supply outlets. Sales of large machines contracted slightly in 2017 (-by 22% and -16% for 4WT and CH, respectively), as did sales of 2WT and attachments for 4WT (Table 5). This drop may be partly attributable to the timing of the survey in mid-December 2017,

before all sales for the year were completed. Sales of smaller machines (reapers, water pumps) remained relatively stable, or increased slightly (trawlerji, engines) (Figure 5).

Table 5: Sales of machinery and equipment by Dry Zone dealerships, by year (2013-2017)

Item	2013	2014	2015	2016	2017	% change (2013-'14)	% change (2014-'15)	% change (2015-'16)	% change (2016-'17)	% change (2013-'17)
4WT	1045	1320	2771	4278	3584	26	110	54	-16	243
Disc plow	825	995	2319	4132	3867	21	133	78	-6	369
Rotary tiller	700	804	1843	3337	2564	15	129	81	-23	266
2WT	440	2678	1978	3338	3190	509	-26	69	-4	625
Water pump	110	155	130	171	146	41	-16	32	-15	33
Engine/dynamo	480	2690	2002	1969	2672	460	-26	-2	36	457
Combine	0	15	140	523	407	-	833	274	-22	2613
Reaper	10	10	229	248	273	0	2190	8	10	2630
Thresher	0	10	21	31	56	-	110	48	81	460
Trawlerji	5	263	345	349	553	5160	31	1	58	10,960

Figure 5: Sales of machinery and equipment by Dry Zone dealerships, by year (2013-2017)



4.3 Distribution rights and brand competition

Machinery supply businesses attempt to differentiate themselves from one another by acting as the sole distributors of particular brands of machinery. Sole distribution rights are usually awarded on a township by township basis, so a single machinery manufacturer may distribute its products through from more than one machinery supply business. Larger machine supply businesses appear able to secure distribution rights for more popular brands of machine, helping them to capture a large share of the market. At the same time, larger international suppliers often seek to protect or

enhance their brand by ensuring that distributors meet certain requirements such as after sales service and employment of trained staff.

Three quarters of machinery supply shops reported being a sole distributor for at least one company in 2017, up from 63% in 2015. The number of brands of machinery marketed under sole distribution rights grew from 10 in 2013 to 22 in 2017. Closely mirroring this trend, the number of brands of 4WT reported by machinery suppliers as the "number one brand sold" increased from 6 in 2013 to 24 in 2017, while the number of brands of CH reported as number one brand sold grew from zero in 2013 to five in 2015 and nine in 2017. The proliferation of businesses has thus created opportunities for a proliferation of brands to enter the marketplace as both suppliers and manufacturers compete for market share.

4.4 Financing

Finance for sales of agricultural machinery is now extremely widely available, contributing the rapid pace at which sales have grown. Almost all machinery supply businesses (94%) offer some form of hire purchase financing, among which, 84% partner with one or more private banks to make hire purchase loans[4] available to their customers, and 46% provide hire purchase facilities directly to customers.

The importance of banks as a source of finance has grown relative to that of direct finance provided by machine suppliers. The share of machinery suppliers reported as partnering with banks to provide hire purchase loans to customers buying 2WT, 4WT, and CH increased from little or nothing before 2013 to 86%, 87% and 96%, respectively in 2017. The share of businesses offering direct finance on sales of these machines varied from year to year (from 50% to 67% 2WT, and 10% to 37% for 4WT) and declined to just 9% for CH (Table 6).

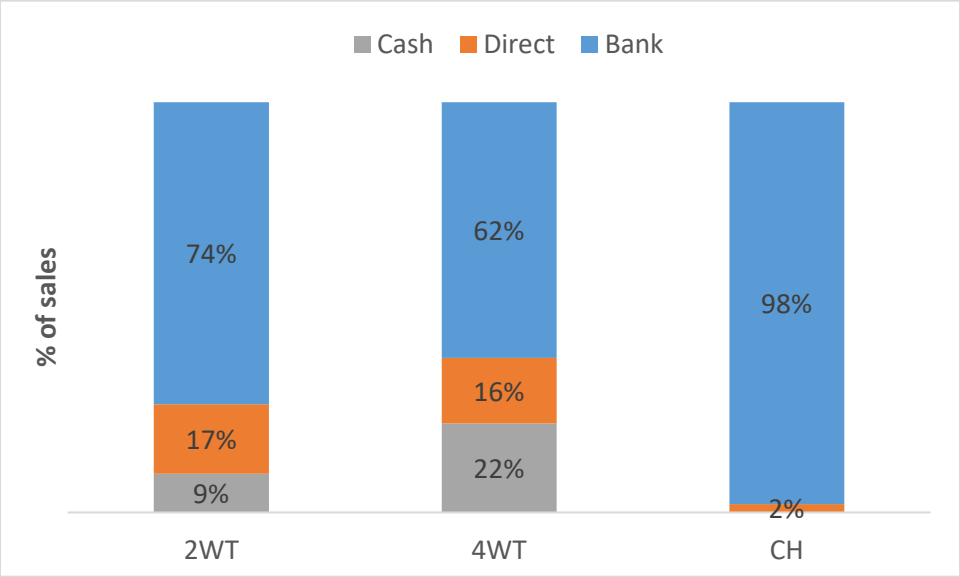
Table 6: Share of machinery dealerships selling selected machines on hire purchase (HP), by source of finance and year (pre-2013 to 2017)

Machine	Source of HP finance	Pre-2013	2013	2014	2015	2016	2017
2WT	Direct	67	67	50	50	50	64
	Bank	17	17	38	75	83	86
4WT	Direct	0	10	21	36	37	30
	Bank	17	40	43	76	80	87
CH	Direct	0	50	67	18	13	9
	Bank	0	50	33	73	81	96

[4] Hire purchase loans require an initial down payment to be made on the machine to be purchased. The outstanding balance is repaid in several installments, usually over 1-2 years, at a fixed rate of interest.

Sales of 2WT, 4WT and CH made by Dry Zone machinery suppliers in 2017 were made overwhelmingly through hire purchase arrangements, with banks accounting for the vast majority of hire purchase finance. Purchases funded fully by customers were reported to account for just 9% of 2WT sales and 22% of 4WT sales, and no sales of CH. In contrast, sales financed through hire purchase loans supplied by banks accounted for 74%, 62% and 98% of sales of these machines, respectively, with the remainder of sales financed by hire purchase loans supplied directly to customers by machinery dealerships. This finding underlines the crucial role that finance provided by banks has played in facilitating rapid agricultural mechanization in Myanmar.

Figure 6: Share of sales in 2017 by source of finance



The number of banks offering hire purchase loans for agricultural machinery increased quickly, from five in 2014 to 11 in 2017. Throughout this period two banks, Yoma and MCB, dominated the provision of hire purchase finance. Yoma accounted for 41% of partnerships with machinery dealerships in 2014, rising to 48% in 2017, while MCB accounted for 23% of partnerships in 2014, remaining constant at 24% in 2017. One third of the machinery suppliers that partnered with banks partnered with more than one.

4.5 Sales intermediation

With the exception of 4WT, virtually all purchases of agricultural machines and attachments (95% to 100%) are initiated by customers on their own behalf. From 2013-2017, 70-80% of 4WT purchases were initiated directly by customers. Sales mediated by co-operative associations accounted for the remainder of sales until 2017, when they fell to 9% of the total, and a new institution AMD, mediated 14% of sales (Table 7).

Table 7: Share of four-wheel tractor sales by type of institutional intermediation

Intermediary	2013	2014	2015	2016	2017
None (initiated by customer)	70	72	78	81	76
Co-operative association	30	28	22	19	9
Agricultural Mechanization Department	0	0	0	0	14
NGO	0	0	0	0	0

Government policy has supported the sale of 4WT through a loan facility disbursed through co-operative associations, under the Department of Co-operatives[5]. In 2017, this was partially replaced by new approach under which AMD plays a brokerage role in linking potential customers to machine suppliers. However, given that all machines other that 4WT are sold almost exclusively via direct customer-supplier interaction, the benefits of this approach are not obvious.

4.6 Repair services

Most Dry Zone agricultural machinery suppliers provide machine repair services. Two-thirds of businesses supplying 2WT also repair them, as do 71% supplying CH and 100% selling 4WT. These shares have changed rather little since 2014. The numbers of machines repaired are substantial. For instance, the number of 4WT repaired in 2017 was roughly equal to total 4WT sales from the same businesses within the preceding two years, at well over 7000; and the number of CH repaired was equal to CH sales in 2016. This underlines the high degree of wear and tear that farm machines are subject to in the process of everyday use.

These rates of repair services are far higher than those reported by businesses in Yangon, where only 11% also repaired machines (Win et al. 2016). Machinery supply shops in Yangon have been established for much longer on average than those in the Dry Zone, and are located in a concentrated geographical cluster, in which there are also many spare parts and mechanical repair businesses. We speculate that clustering has allowed for specialization and division of labor among enterprises in Yangon, whereas more widely disbursed nature, and more recent establishment of businesses in the Dry Zone means that they must fulfil both roles. It may also be that Yangon is more heavily urbanized and thus difficult to access with heavy equipment than towns the Dry Zone, meaning that repairs are more likely to be carried out in rural parts of the Delta.

4.7 Rental services

Very few machinery suppliers (5%) rent out the use of machines to farmers. This finding is consistent previous surveys of machine suppliers in Yangon (Win et al. 2016) and Belton et al's (2018) study of rental service providers, that indicates this segment of the agricultural machinery value chain is dominated by rural outsourcing service providers.

[5] During 2013/14 - 2015/16, the Department of Cooperatives received $400 million in loans from Chinese EXIM Bank and $100 million from Daedong Industry Co. from South Korea to finance the purchase of agricultural machinery (World Bank, 2017) .

5. Conclusions

This report presents findings on the supply side of agricultural mechanization in Myanmar, based on a survey of 57 agricultural machinery suppliers in five urban centers in Myanmar's Central Dry Zone, and incorporating information on the location and year of establishment of branches of machinery businesses based in Yangon. Key findings are summarized below.

Machinery supply businesses are now numerous and widely distributed. Fifty-seven enterprises were identified, operating a total of 234 stores in 74 townships and 13 states/regions. Ownership is quite concentrated, with six businesses accounting for 52% of all stores. All enterprises surveyed are Myanmar owned and operated. Most were established in order to supply agricultural machines or other heavy machinery, but a few of the largest have since diversified into other sectors.

The main rice growing zones of the Delta and Dry Zone were the first to begin to mechanize, with mechanization subsequently spilling over into areas of the Dry Zone growing non-rice crops, and to upland areas. Numbers of agricultural machinery supply shops in Myanmar increased 333% between 2008 and 2018, from 54 to 234, while the number of townships with machinery suppliers jumped from 29 to 74. Numbers of agricultural machinery supply outlets in the Dry Zone grew slowly until 2013. Very rapid growth took place from 2014-2017, during which 61% of all stores were established. Half (49%) of all machinery supply business are located in the Dry Zone, 36% in the Delta and 15% in the hilly and border states.

Sales of agricultural machinery in the Dry Zone boomed from 2013-2016, increasing several fold, but growth peaked by 2017. Sales of four-wheel tractors and combine harvesters contracted slightly in 2017, by -22% and -16% respectively. Sales of two-wheel tractors and attachments for four-wheel tractors also fell in 2017.

A wider assortment of agricultural equipment is now available from a greater range of sources than ever before. The proliferation of businesses has created opportunities for numerous brands to enter the marketplace as both suppliers and manufacturers compete for market share. The number of four-wheel tractor brands sold quadrupled from 2013 to 2017, while the number of combine harvester brands available doubled from 2015 to 2017

Products sold by businesses in the Dry Zone reflect the agro-ecology of the region. Four-wheel tractors and their attachments (disc plows and rotary tillers) are the main items, outselling two-wheel tractors, water pumps, and engines, which are the highest volume items sold in the Delta. Very low sales of water pumps in the Dry Zone reflect limited direct access to irrigation canals and ground water. The preference for four-wheel tractors is due to Dry Zone soils, which require more power to prepare than those in the Delta, which are softened by puddling prior to plowing.

Finance for agricultural machinery purchases is widely available and utilized, contributing the rapid growth of machinery sales. Almost all machinery supply businesses offer some form of hire purchase financing. The importance of banks as a source of finance has grown relative to that of direct finance provided by machine suppliers. The share of machinery suppliers partnering with banks to provide hire purchase loans to customers buying two-wheel tractors, four-wheel

tractors, and combine harvesters increased from little or nothing before 2013, to 84%, 87% and 96%, respectively in 2017. Sales financed through hire purchase loans supplied by banks accounted for 76%, 67% and 98% of sales of these machines, respectively.

The number of banks offering hire purchase loans for agricultural machinery has increased quickly, from five in 2014 to 11 in 2017. Throughout this period two banks, Yoma and MCB, dominated the provision of hire purchase finance. Yoma accounted for 41% of partnerships with machinery dealerships in 2014, rising to 48% in 2017.

Almost all purchases of agricultural machines and attachments are initiated by customers, except for four-wheel tractors. One quarter of four-wheel tractors purchases made in 2017 were organized by co-operative associations under the Department of Co-operatives, or brokered by the Agricultural Mechanization Department. The benefit of government agents acting as intermediaries between buyers and sellers of machinery is not clear, given that sales of all machines other than four-wheel tractors are made almost exclusively via direct customer-supplier interaction.

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