

# Linking Small-Scale Farmers to High-Value Chains: A Case Study of Inclusive Business Models in the Costa Rican Pineapple Sector

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## Research Objective:

To compare four different business models in the Costa Rican pineapple sector with respect to their inclusiveness of small- and medium-scale producers.

## The Costa Rican Pineapple Sector

With 45,000 ha planted, Costa Rica is the world’s largest exporter of fresh pineapple with a total of 1,677,702 tons or 85% of their total production being exported which raises to 1,976,760 tons of fruit. It is estimated that a total of 1,300 producers are involved in the Costa Rican pineapple sector, of which 96% are small-scale producers and the remaining 4% are medium and large producers.

## Conceptual Framework

Structure-Conduct-Performance approach (S-C-P) is used to determine the effect of the structure of business models on the relationship between the different actors and on the performance of business models.

**BUSINESS MODEL 1 (BM1): Producer-driven model**

**BUSINESS MODEL 2 (BM2): Buyer-driven model (long-term relationship)**

**BUSINESS MODEL 3 (BM3): Buyer-driven model**

**BUSINESS MODEL 4 (BM4): Intermediary-driven model**

## Results

### Business Structure

Table 1. Structure characteristics of business models

Variable	Business Model 1 (producer-driven)	Business Model 2 (buyer-driven)	Business Model 3 (buyer-driven)	Business Model 4 (intermediary-driven)
<b>Agreements and specifications</b>				
Verbal agreement (% of yes)	57.1 <sup>c***</sup>	54.5 <sup>o**</sup>	70.6 <sup>l***</sup>	11.1 <sup>c***o****</sup>
Written contract (% of yes)	28.6 <sup>c***</sup>	27.3 <sup>o**</sup>	0 <sup>l***</sup>	77.8 <sup>c***o****</sup>
Fixed price agreed (% of yes)	52.4 <sup>o***</sup>	9.1 <sup>o**</sup>	17.6	16.7
Delivery time agreed (% of yes)	9.5	36.4	5.9 <sup>*</sup>	44.4 <sup>l*</sup>
Quantity of delivery (% of yes)	14.3 <sup>c*</sup>	50.0	17.6	55.6 <sup>c*</sup>
Caliber agreed (% of yes)	4.8 <sup>c**</sup>	22.7	17.6	44.4 <sup>c**</sup>
Certification required (% of yes)	71.4 <sup>o****</sup>	59.1 <sup>o**</sup>	11.8 <sup>o****o****</sup>	88.9 <sup>l***</sup>
Payment time agreed (weeks)	2.21 <sup>c***</sup>	2.32 <sup>o****</sup>	1.78 <sup>o****</sup>	4.17 <sup>c***o****</sup>
Price agreed (dollar cents/kg)	30.95	25.90	26.81	26.31

#### Services Offered

Credit (% of yes)	9.5 <sup>o****</sup>	45.5 <sup>o*</sup>	11.8 <sup>l***</sup>	83.3 <sup>o****</sup>
Technical assistance (% of yes)	81.0 <sup>o****</sup>	63.6 <sup>o**</sup>	11.8 <sup>o****o****</sup>	88.9 <sup>l***</sup>
Training (% of yes)	66.7 <sup>o****</sup>	59.1 <sup>o**</sup>	0 <sup>o****o****</sup>	77.8 <sup>l***</sup>
Strategy and logistics (% of yes)	52.4 <sup>o*</sup>	72.7 <sup>o****</sup>	11.8 <sup>o****</sup>	61.1 <sup>l**</sup>

\* \*\* and \*\*\* show that the variable in the row is statistically different between the two business models at 10%, 5% and 1% significance level, respectively.

<sup>a</sup> Difference between BM1 and BM2

<sup>d</sup> Difference between BM2 and BM3

<sup>b</sup> Difference between BM1 and BM3

<sup>e</sup> Difference between BM2 and BM4

<sup>c</sup> Difference between BM1 and BM4

<sup>f</sup> Difference between BM3 and BM4

## Partnership between farmers and buyers

Table 3. Trust and Commitment according to business model

Variable	Business Model 1 (producer-driven)	Business Model 2 (buyer-driven)	Business Model 3 (buyer-driven)	Business Model 4 (intermediary-driven)
Trust	0.47 <sup>b***c***</sup>	0.24 <sup>e*</sup>	-0.20 <sup>b**</sup>	-0.64 <sup>c***o**</sup>
Commitment	0.46 <sup>b***c*</sup>	0.16	-0.36 <sup>b**</sup>	-0.38 <sup>c*</sup>

\* \*\* and \*\*\* show that the variable in the row is statistically different between the two business models at 10%, 5% and 1% significance level, respectively

<sup>b</sup> Difference between BM1 and BM3

<sup>c</sup> Difference between BM1 and BM4

<sup>d</sup> Difference between BM2 and BM3

Table 4. Pearson’s and Point-Biserial correlations between trust and commitment and the conduct variables

Variable	Trust	Commitment
Years of relationship	0.247 <sup>**</sup>	0.253 <sup>**</sup>
Inform of rejection reasons (Y/N)	0.059	-0.039
Share of fruit rejected	0.033	-0.062
Respect of the payment time (Y/N)	0.425 <sup>***</sup>	0.275 <sup>**</sup>
Respect of the price (Y/N)	0.318 <sup>***</sup>	0.244 <sup>**</sup>
Difference between the payment time agreed and the time the payment was received (weeks)	-0.26 <sup>***</sup>	-0.122
Difference between the price agreed and the actual price received (\$)	-0.197	-0.147
Payment received (Y/N)	0.112	0.091
Willingness to continue relationship (Y/N)	0.473 <sup>***</sup>	0.402 <sup>***</sup>

\*\* and \*\*\* show a significant correlation between the two variables at 5% and 1% significance level, respectively.

## Inclusiveness (ownership, voice, and reward)

Table 5. Inclusiveness criteria according to business model

Variable	Business Model 1 (producer-driven)	Business Model 2 (buyer-driven)	Business Model 3 (buyer-driven)	Business Model 4 (intermediary-driven)
Ownership	3.21 <sup>a***b***</sup>	2.41 <sup>a*</sup>	2.09 <sup>b***</sup>	2.81
Voice	3.37 <sup>a***b***c***</sup>	1.42 <sup>a***</sup>	1.08 <sup>b***</sup>	1.72 <sup>c***</sup>
Risk	3.63	3.55	3.49	3.85
Reward	2.71 <sup>b***</sup>	2.23	1.53 <sup>b*</sup>	1.33 <sup>c**</sup>

\* \*\* and \*\*\* show that the variable in the row is statistically different between the two business models at 10%, 5% and 1% significance level, respectively

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<sup>c</sup> Difference between BM1 and BM4

<sup>f</sup> Difference between BM3 and BM4

Table 6. Level of inclusiveness according to business model

Variable	Business Model 1 (producer-driven)	Business Model 2 (buyer-driven)	Business Model 3 (buyer-driven)	Business Model 4 (intermediary-driven)
Inclusiveness Index	3.10 <sup>a***b***c***</sup>	2.02 <sup>a***</sup>	1.57 <sup>b***</sup>	1.95 <sup>c***</sup>

\*\*\* shows that the variable in the row is statistically different between the two business models at 1% significance level, respectively

<sup>a</sup> Difference between BM1 and BM2

<sup>b</sup> Difference between BM1 and BM3

<sup>c</sup> Difference between BM1 and BM4

## Producers’ Characteristics

Table 2. Producer characteristics according to business model

Variable	Business Model 1 (producer-driven)	Business Model 2 (buyer-driven)	Business Model 3 (buyer-driven)	Business Model 4 (intermediary-driven)
<b>Producer Characteristics</b>				
Share of producer's income due to pineapple				
- 51% - 75%	14.3	0 <sup>o****</sup>	47.1 <sup>d***</sup>	33.3 <sup>o**</sup>
- > 75%	47.6	61.9	35.3	27.8
Household size	2.57 <sup>a*</sup>	3.68 <sup>a*</sup>	2.76	3.00
Participation in pineapple organization (% of yes)	95.2 <sup>a***b***c**</sup>	27.3 <sup>a***</sup>	29.4 <sup>b***</sup>	55.6 <sup>c**</sup>
<b>Production System</b>				
Pineapple Area (ha)	6.88 <sup>a**</sup>	17.66 <sup>a***</sup>	13.41	5.74 <sup>c**</sup>
GAP Index (%)	87.79	85.59	82.06 <sup>l**</sup>	91.15 <sup>l**</sup>
Number of Producer's Certification	0.52 <sup>b*</sup>	0.64 <sup>l**</sup>	0.12 <sup>d***</sup>	1.06 <sup>a***</sup>
Production System (conventional) %	76.2 <sup>a*b*</sup>	100 <sup>a*</sup>	100 <sup>b*</sup>	94.4
Cost/pineapple (US\$)	0.28 <sup>b*</sup>	0.22 <sup>d*</sup>	0.19 <sup>b*d**</sup>	0.26 <sup>l*</sup>

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## Conclusions and Implications

We find that the producer-driven business model is the most inclusive model and gives farmers the highest level of ownership, voice and reward. The buyer-driven model that is based on long-term relationships between buyers and farmers is the second most inclusive model. Farmers value the services offered by buyers as well as the punctuality in payments and the respect of the prices that were agreed. Unexpectedly, the intermediary-driven business model does not have a high level of inclusiveness and farmers in this model suffer from high delays in payment and differences between the agreed price and the price received.

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