



UvA-DARE (Digital Academic Repository)

Inclusive business models

Empowering women in urban agriculture in Burkina Faso

Kini, J.

Publication date

2022

[Link to publication](#)

Citation for published version (APA):

Kini, J. (2022). *Inclusive business models: Empowering women in urban agriculture in Burkina Faso*.

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Chapter 8

**Gender Aware Inclusive Business
Model: Conception and Application**

8.1 Introduction

This chapter answers the research sub-question 5: What are the conditions for a business model to be gender-aware and inclusive for poor women in value chains? What does an empirically tested gender-aware inclusive business model imply? The reason for designing and testing such a business model is to make available a tool that can be used as input in the design, monitoring and evaluation of more gender-aware and inclusive policies in the urban food chain. The chapter also provides elements to test hypothesis two (H2) (see 3.1.2). Section 8.2 makes an empirical analysis of the assumptions on gender-aware inclusive value chains (GAIVC). Section 8.3 addresses the operationalisation issue of the gender-aware inclusive business (GAIB) model which is a multi-dimensional index⁵⁴. Section 8.4 presents the data and descriptive statistics used for testing the model, and section 8.5 discusses the results of the GAIB index, and then draws the categories of business models involved.

8.2 Necessary conditions: fulfilling the assumptions of gender-aware inclusive value chains

This section analyses the assumptions of the gender-aware inclusive value chain to assess the extent to which they are supported by empirical data from the case studies. Thus, it draws on the two previous chapters (6 and 7) and some detailed data on the demand and production sides. Particularly, it draws on my ontology of empowerment as a business intervention in value chains. This means that any business activity involves a value chain (see 2.3.4). Therefore, a value chain is the necessary condition for its existence. In the current research, the necessary condition also requires that the business at hand should be gender-aware and inclusive (see 2.1.3). Thus, the section focuses on the three performance elements that compose GAIVC such as living performance, communicative performance and productive performance (see 2.1.3).

8.2.1 Living performance

A value chain has identifiable physical components (see 2.7.1). These physical components encompass (among other) stakeholders (producers, buyers, partners), infrastructures, production sites, warehousing, shops or marketplaces, roads, equipment or materials. Now, the questions are: do these components exist and are they identifiable in the case studied and how do they interact or depend on each other? Is there no competition among and between these elements (particularly all

54 As a model is a representation of reality, an index is necessarily a model, but a model is not necessarily an index. Herein, I used GAIB index as a model to determine the type of business implemented on the ground.

the stakeholders in the value chain), but rather cooperation? The last question is based on the assumption that, as human body organs do not compete each with other, there is no competition among and between themselves (see 2.1.3). Section 6.4 describes the elements in detail to answer these questions for each women group.

First, all three women's groups (Tampouy, Tanghin and Kossodo) fulfil the physically existing conditions of the living performance, except for the infrastructures, such as work buildings (meeting room and store house, toilets and so on) that the group in Tanghin does not have (see 6.3.4). Indeed, in the value chains, the producers, buyers (end-consumers, semi-wholesalers and retailers), development partners such as the agents of the ministry in charge of agriculture, NGOs and associations, offices and training rooms, produced food, and water infrastructures are all physically identifiable and play each a specific role in the value chains' dynamics (see Chapter 6).

Second, the competition or cooperation between stakeholders in the value chains differs from one woman's group to another. Indeed, in the Tanghin group, their value chain is characterised by high horizontal competition (among producers), at the buyers' level (competition between semi-wholesalers and retailers); and high competition at the vertical level such as competition between inputs sellers and producers and between producers and buyers (wholesalers and retailers). This competitive environment exacerbates gender barriers (see 6.3.1). In contrast, there is relatively low (nearly inexistent) competition between stakeholders in the value chain of women's group in Tampouy (similar to Kossodo) as most of the inputs are produced by the women themselves. Also, as more than 98% of the buyers from both women's group are end-consumers whose demand behaviour is different from the retailers, the competition between producers and end-consumers is relatively low. In addition, they have a common approach in terms of production branding (organic food) and the selling system (strongly integrated in the group of Kossodo, and relatively flexible in Tampouy; the groups have a principal seller at their site).

Hence, it is clear that because of the highly competitive environment (including gender barriers), the Tanghin group business does not fulfil the first condition of the GAIVC. The main reason is that high competition between stakeholders is a source of power games, and the powerful benefit more than the powerless. This

is contrary to the perspective of the human body organs which are individually autonomous, and any competition between them will collapse the system (body). The groups in Tampouy and Kossodo do fulfil this condition.

8.2.2 Communicative performance

The communicative performance of the value chain is relative to the flow of information and knowledge, products and services among and between elements within the value chain (internal environment) and outside the value chain (external environment). The condition or assumption is that the value chain is communicatively performing if there is a fast flow of information and knowledge as well as a fast flow of products and services among and between the other components of the value chain. This condition can be fulfilled more easily in a short value chain with low-income, small producers (see 2.1.3). Thus, does information and knowledge as well as products and services flow fast in the value chain respective to its length? Based on the analysis in previous chapters, I can draw the following conclusions:

First, there is a relatively high speed in the flow of products (crops) in the value chain of all the women's groups studied (see 6.3.9), because they all have a high demand to satisfy. However, the food flow is faster in Kossodo and Tampouy as their value chains are shorter than the one in Tanghin (see 6.3.6), meaning that it reaches the plate of the consumer in less time.

Second, the flow of information and knowledge is tied to the access to the information and knowledge, which is almost free (see 6.3.8). With information and communication technologies (ITC) many buyers and producers can inform each other fast. This is more accurate in the short value chains (Tampouy and Kossodo), as most often the information (e.g., crop availability, prices and quality) directly reaches the end-consumer, compared to the value chain in Tanghin where the retailers collect food from the production site to sell at the market places. In the latter case, the information does not quickly reach the end-consumer. However, knowledge sharing is not freely accessible for all the groups, except that they have partners that can support them (see 6.3.8). Consequently, the groups in Tampouy and Kossodo still have more access to knowledge sharing (through training) in a given year (see 6.3.8) than the group in Tanghin. In addition, many buyers share their knowledge with the women groups in Tampouy and Kossodo due to their specific brand (organic food) and the well organised system.

Finally, the value chains of the three business groups are independent from one another. Indeed, there is no competition between the group's value chains, because they operate in different locations and serve different buyer groups (see 6.3.10). Instead, women in Tampouy and Kossodo collaborate sometimes as they direct some buyers to each other when there are food shortages at one of the two sites. In addition, in regard to the production techniques and the exposure of each group to environmental stress, all the group's value chains are equally vulnerable to climate stress such as flooding and drought. Thus, the communicative conditions of the GAIVC are relatively fulfilled by the three women's groups despite their common vulnerability to climate stress.

8.2.3 Productive performance

This subsection assesses if the condition or performance of the production function in the value chain is assured. This is assessed through the production capacities and achievements discussed in chapters 6 and 7. All the women's group's value chains fully ensure their productive function by transforming the necessary inputs or needs, such as infrastructures, equipment/materials, human resources (and capital), time resources, relational resources, natural resources and space (land) into outputs (quantity and value of the produced crops), (see 7.3.3 and 6.2.5). They are performing so well that the demand for the products is higher than the production capacities. Particularly, the production capacities of the group in Tanghin are far greater than those of the Tampouy and Kossodo groups. Therefore, the business carried out in the value chain of each women's group fulfils the productive performance condition of the value chain.

Hence, the discussions in 8.2.1; 8.2.2 and 8.2.3 imply that the groups in Tampouy and Kossodo completely fulfil the necessary conditions of the gender-aware inclusive business, that is, their value chains are gender-aware and inclusive⁵⁵. In contrast, because of the highly competitive environment and the gender barriers still performing in the Tanghin group's value chain, it does not fulfil the necessary conditions (not a gender-aware inclusive value chain). However, let us assess the sufficient conditions of these businesses for a final judgement.

⁵⁵ The conclusion of the gender-awareness and inclusiveness of the value chain draws on my purely qualitative assessment.

8.3 Sufficient conditions: fulfilling the gender-awareness and inclusiveness of the business index criteria

This section develops the sufficient conditions for a business to be gender-aware and inclusive. Thus, it draws on the five components or dimensions of the gender-aware inclusive business model (see 2.1.2; 3; 4.9). In *E.13* (see 4.9) the values of w_i can be obtained through several procedures. First, in case of available data, the components' power values can be computed using the multiple components analysis (MCA) or principal component analysis (PCA) method (Giné & Pérez-Foguet, 2010). However, as this index is new in its kind, there is no available data yet. Second, the power values can be obtained through experts' opinion in the field (i.e., subjective data). As it was not evident to get such opinions, the solution was to attribute an equal power⁵⁶ to each component. Thus, the power value is estimated at $(1/5=0.2)$. As a consequence, the equation *E.13* turns into:

$$GAIB\ Index = I^{0.2} * C^{0.2} * A_1^{0.2} * A^{0.2} * V^{0.2}, \quad i = 1, 2, 3, 4, 5 \quad (E.14)$$

To compute the index, each component is additive in its indicators, whereas the index is multiplicative in its component. In other words, the arithmetic mean of the indicators composing a component is considered, as done by Kini (2017, 2016) and Giné and Pérez-Foguet (2010). Consequently, the GAIB Index is operational and can be computed using empirical data. However, as the data can be of different types, as in the current research, for example including nominal data or scaled data (including subjective data), all the indicators must be normalised using the formula proposed by Wilk and Jonsson (2013), because it was used by the author in his previous works (see Kini, 2017, 2016).

Standardization is used, because of the different underlying scales of the index components. In this case, the min-max rule is used.

$\frac{X_i - X_{min}}{X_{max} - X_{min}}$, where X_i is the observed value of indicator i , X_{min} is the minimum value

of the indicator, and X_{max} its maximum value.

56 The weakness of the equal power is that it supposes that all the components of the index have the same extent of contribution to the index value. This hides the specific weaknesses of some of the index components.

Finally, the sufficient condition for a business model to be gender-aware and inclusive is fulfilled when the index reaches a particular value considered as self-set threshold. I estimated this value to be 0.6: if GAIB index > 0.6 , then the business model being studied is gender-aware and inclusive; otherwise, there is no gender-aware inclusive business model.

Yet, this value (0.6) is an empirically self-set-up value based on my knowledge from the fieldwork and the individual value of the index's indicators. Indeed, the index encompasses an important number of sub-indicators (38) (see Annex1), with many disparities. Thus, I attributed to each component's indicators at least the value 0.6 (which is sufficient), then this value would set up the threshold of the GAIB Index. When the index is lower than 0.6, this means that one or more sub-indicators score poorly on the underlying scale (below average) Furthermore, that index uses both objective and subjective data (based on perceptions), because some indicators are qualitative.

8.4. Data and descriptive statistics: test of GAIB using the lettuce case

This section aims to apply the GAIB Index using empirical data from both the production and demand sides of lettuce (business) and its related value chain. The reason to have chosen this crop is that it is produced the most by all the women's groups over time. Also, it is the most demanded staple by consumers (79% of buyers demand for lettuce) (See Kini et al., 2020, p.7).

8.4.1 Data on the production side

The data on the production side that are used to compute the GAIB Index are diverse. They comprise subjective data drawn for the assessment of women's groups production techniques (by women themselves) in order to capture sustainability issues as well as innovation and gender-awareness. These data have already been described (see 6.3.5). Also, the coordination factors (intra-group) such as governance, cohesion and mutual support between group members are presented. Economic issues such as profit, revenue and production cost are also described. The other valued outcomes of the lettuce business are included in this analysis.

First, there is a good level of governance within the three studied groups. The data in Table 8.1 show that 96.55% of the interviewed perceive good governance, on a three-point scale ranging from 'good' (3) to 'bad' (1), of their groups in Tampouy against 3.45% for whom it is bad. In Tanghin, 88% consider their group to be well governed against 12% for bad. In Kossodo, only 38.46% of the interviewees perceive

a good governance of their group, against 15.38% finding it of bad governance. In between both extremes, 38.46% consider the governance to be acceptable. These data complement the discussion in 6.2.1.

Table 8.1: Perceived group governance (%)

	Kossodo (n=13)	Tampouy (n=29)	Tanghin (n=25)
Bad	15.38	3.45	12.00
Acceptable	38.46	-	-
Good	46.15	96.55	88.00
Total	100.00	100.00	100.00

Source: The author based on fieldwork data, (2018)

Second, there is good cohesion between all groups' members: 98.48% (of 66 interviewees) find the cohesion to be good (on a three-point scale ranging from 'good' to 'bad') (see Table 59b, Annex1). All the interviewees in Tampouy and Kossodo recognise that cohesion is very strong between their group members, whereas 1.52% in Tanghin perceive the cohesion to be acceptable.

Third, there is substantial mutual support (yes or no as measurement) between women in their groups (women help each other in their activities). 82.09% of the 67 respondents reported this mutual aid within their group against 17.91% who state the contrary (see Table 60b, Annex1). While all the interviewees in Kossodo and Tampouy recognise that there is mutual support between the women in their group, 48.00% of the interviewees in Tanghin claim the absence of mutual support among their group members (against 52%).

With regard to the statistics on the production cost, revenue and profit of lettuce, the data in Table 8.2 show a certain contrast between the three women's groups. First, in Kossodo, the total production cost of lettuce is on average XOF 16,931.94 (EUR 25.8) per woman and per year. The minimum is XOF 7,506 (EUR 11.4), maximum is XOF 20,016 (EUR 30.5) and standard deviation 2,215.941. The revenue of lettuce production is estimated on average at XOF 94,583.33 (EUR 144.2) per woman and per year. The minimal revenue is XOF 8,000 (EUR 12.2); the maximum is XOF 300,000 (EUR 457.4); standard deviation of 69,532.71. Thus, the profit made is on average XOF 77,651.4 (EUR 118.4) per woman and per year. The minimal profit (loss) is XOF -3,012 (EUR -4.6) and the maximum is XOF 282,486 (EUR 430.6). The huge variability in the revenue is probably due to the number of times (3 on average) women individually produce the lettuce in the year. That is, a woman can

produce more than 3 times a year. It may also be due to the planning system inside the women's group as they do not produce the same crop at the same time in order to avoid competition among themselves.

It is worth noting that the production cost including the inputs does not cover women's labour time or wages. Thus, the calculation of the "profits" doesn't compensate for women's time.

Table 8.2: Production cost, revenue and profit in Kossodo

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Production cost	24	16,931.94	2,215.941	7,506	20,016
Revenue lettuce	24	94,583.33	69,532.71	8,000	300,000
Profit	24	77,651.4	68,759.04	-3,012	282,486

Source: The author, based on Baseline Data (2017)

Second, in Tampouy, the total production cost of lettuce is on average XOF 10,011.19 (EUR 15.3) per woman and per year (see Table 8.3). The minimum is XOF 1,926 (2.9 euros), maximum XOF 22,951.5 (EUR 35.0) with a standard deviation of 5,012.39. The revenue or cash flow of lettuce is estimated at XOF 70,781.25 (EUR 107.9) on average per woman and per year. The minimal revenue is XOF 4,500 (6.9 euros); the maximum is XOF 495,000 (EUR 754.6) and standard deviation of 76,466.92. Thus, the profit made is on average XOF 60,770.06 (92.6 euros) per woman and per year. The minimal profit is XOF -9,186 (EUR -14.00) and the maximum is XOF 479,592 (EUR 731.1).

Table 8.3: Production cost, revenue and profit in Tampouy

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Total production cost	48	10,011.19	5,012.39	1,926	22,951.5
Revenue lettuce	48	70,781.25	76,466.92	4,500	495,000
Profit lettuce	48	60,770.06	76,304.09	-9,186	479,592

Source: The author, based on Baseline Data (2017)

Third, in Tanghin, the total production cost of lettuce is on average XOF 23,616.29 (EUR 36.0) per woman and per year (min: XOF 7,012.5 (EUR 10.7); max: XOF 63,112.5 (EUR 96.2); standard deviation: 13,978.63). The revenue or cash flow is estimated at XOF 227,685.5 (EUR 347.1) on average per woman and per year (min revenue: XOF 4,500 (EUR 6.9); max: XOF 1,050,000 (EUR 1,600.7); standard

deviation 290,968.4). Thus, the profit made is on average XOF 204,069.2 (EUR 311.1) per woman and per year (minimal profit: XOF -9,525 (EUR -14.5); maximum: XOF 1,035,975 (EUR 1,579.3)).

Table 8.4: Production cost, revenue and profit in Tanghin

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Total production cost	31	23,616.29	13,978.63	7,012.5	63,112.5
Revenue lettuce	31	227,685.5	290,968.4	4,500	1,050,000
Profit lettuce	31	204,069.2	283,637.9	-9,525	1,035,975

Source: The author, based on Baseline Data (2017)

8.4.2 Data on the demand side

The data from the demand side encompasses several variables described as follows. First, the destination or utilisation of the purchased crops are various but can be regrouped into two main categories: final or end-consumption and reselling or vending. The data show that 83.42% of the 386 interviewed buyers are end-consumers (family consumption) (see Table 61b, Annex1). The proportions of the types of buyers depends on the sites. Among the 83.42% of family consumers, 36.53% frequent Tampouy, 45.34% go to Kossodo and only 1.55% purchase at the site of Tanghin (see Table 62b, Annex1). This again supports the idea that the production of crops in Tanghin is more market-supply-oriented, whereas in Tampouy and Kossodo the production is more end-consumption-oriented.

Second, the quantities of purchased food is significantly different at each of the three sites studied. On average, each purchaser buys 155.83 kilograms of crops per trip at the site of Tanghin, whereas it is around 3.69 kilograms in Kossodo and 1.61 kilograms in Tampouy (see Table 63b, Annex1). The quantity of purchased food per destination is also different as shown in the table 64b below. Indeed, on average, the quantity of food supplied to the marketplaces is 76.97 kilograms per buyer; 26.89 kilograms per buyer who consumes it for social events; and 10.88 kilograms per buyer using it for family consumption (see Table 64b, Annex1).

Third, the appreciation of the purchased food quality (on a five-point scale ranging from 'excellent' to 'bad') by buyers shows interesting considerations related to health (see Table 65b and Table 66b, Annex1). Generally, buyers positively appreciate the quality of the food they purchase. 86.74% of the 377 surveyed buyers find the food product (lettuce) of good quality; 10.88% of very good quality, and 1.86% of excellent quality. 72.41% of the buyers who stated that the food is of good quality are final consumers; 7.16% are social events buyers and 6.90% are

intermediaries. Among the intermediaries (32 surveyed), 81.25% perceived the crop as of good quality and 18.75% as of very good quality. In addition, 8.75% of end-consumers find the food of very good quality and 1.86% of excellent quality.

Fourth, 85.29% of the 386 surveyed buyers consider the purchased food as affordable; 8.56% expensive and 6.15% cheap. That is, more than 91.44% of the buyers find the food affordable. In other words, among the 319 buyers that find the price affordable, 82.76% are family (end) consumers, 9.1% are intermediaries and 7.83% are social events buyers (see Table 67b, Annex1).

Fifth, about the duration of frequenting the production sites, the respondents (230 in total) have been going to the sites to purchase food for 6.15 years on average (min:1 year; max: 22 years); and 50% of these buyers have been going to the sites for over 5 years (see Table 68b, Annex1). In particular, buyers of Tampouy have been going for over 7.13 years each on average, and 50% of them count less than 5 years of frequenting the site. In Kossodo, buyers have been going for 4.48 years on average and 50% of the respondents have frequented the site for at least 4 years. In Tanghin, buyers have been frequenting the place for over 10.25 years on average, and 50% of them have less than 10 years of experience going to the site.

Sixth, when looking at the distance travelled by buyers, the data show that the buyers furnish significant effort to reach the site. Table 69b (Annex1) shows that on average, each buyer travels 5.06 kilometres per round-trip from their home to the site to purchase food; and 50% of those buyers travel less than 1.20 kilometre per round-trip. In particular, buyers of the group in Tanghin travel longer distances than buyers of the other sites, as a round-trip per buyer is around 10.68 kilometres on average; which is almost five times higher than the average traveling distance of buyers in Tampouy (2.16 kilometres), and 1.5 times higher than Kossodo. 50% of the buyers travel less than 4 kilometres each in Tanghin, 2 kilometres each in Kossodo and 0.8 kilometres each in Tampouy.

All the interviewed buyers are frequent visitors of the studied sites (see Table 70b, Annex1). On average each buyer goes to the site 10-11 (10.50) times a month, and more than 50% of them go 8 times each month. In particular, buyers in Tanghin are the most regular and they go 27.40 times per month on average, and 50% of the buyers go 30 times per month. In Kossodo, buyers frequent the site 7-8 (7.86) times on average per month, and 50% of them go less than 8 times per month. In Tampouy, buyers frequent the site on average 10-11 (10.70) times per month and 50% of them come at least 8 times per month.

Seventh, the cost of transportation of buyers to go from home to the site gives a good indication of their travel effort. Overall, per month, buyers spend an average XOF 7288,79 (EUR 11.11) each, and 50% of the buyers (180 in total) spend less than XOF 2400 (EUR 3.66) to go to the sites (see Table 71b, Annex1). In particular, buyers spend XOF 7774.73 (EUR 11.85) per month to go to the site of Tampouy (50% of them spend less than EUR 5.49 per month). In Tanghin, buyers spend on average XOF 34,516.67 (EUR 52.62) per month (50% of them spend less than EUR 45.74 each month). In Kossodo, buyers spend XOF 2861.1 (EUR 3.05) per month. Thus, the buyers of Tanghin spend on average around 4 times as much on transportation costs than those of Tampouy and 12 times as much as the buyers of Kossodo just to purchase lettuce on these sites.

Eighth, regarding the income earned by buyers per month, the data show that buyers of all the sites have an average monthly income of XOF 180,032.26 (EUR 277.32), with 50% of them earning less than XOF 150,000 (EUR 228.68) per month. In particular, at the site level, buyers of Tampouy and Kossodo have almost the same level of income (XOF 181,910.89 and XOF 181,117.65 respectively). In addition, 50% of the buyers on both sites have less than XOF 150,000 per month. Buyers of Tanghin hold a lower income than Tampouy and Kossodo, which is XOF 158,571.43 per month. 50% of the buyers of Tanghin earn less than 100,000 (EUR 152.45) per month (see Table 72b, Annex1).

Ninth, when it comes to the spending in the buyers' family, three main indicators are estimated: the total spending (total expenses) in the household per month, the amount of spending on food products (food expenses) and spending on vegetables (vegetables expenses). Overall, buyers spend on average XOF 96,853.68 (EUR 147.9) per month (i.e., 59.32% of their total spending); and, more than 50% of buyers spend XOF 57,453.83 (EUR 87.7) each month on food (see Table 73b, Annex1). In Tampouy, buyers spend around XOF 100,288.66 (EUR 153.1) each month, of which XOF 59,164.95 (EUR 90.3) is spent on food and XOF 15,824.74 (EUR 24.2) on vegetables. Moreover, more than 50% of buyers spend less than XOF 80,000.00 (EUR 122.1) as total spending per month, XOF 45,000.00 (EUR 68.7) on food and XOF 21,000.00 (EUR 32.1) on vegetables. This means that the share of food expenses in the buyer's family total spending is 61.09% and 16.34% for vegetables. In Kossodo, buyers spend XOF 95,073.53 (EUR 145.1) per month, and 50% of them spend more than only XOF 53,995.30 (EUR 82.4) each month as total spending. The spending on food commodities is estimated at XOF 56,715.69 (EUR 86.6) against XOF 24,794.12 (EUR 37.8) for vegetables only. Thus, buyers' total spending on food commodities represents 58.56% against 25.60% for vegetables. In Tanghin, buyers spend in total XOF 86,023.79 (EUR 131.3) each month, and 50% spend less than XOF 80,000.00

(EUR 122.1) each month. In particular, spending on food commodities is estimated at XOF 50,976.14 (EUR 77.8) against XOF 19,392.86 (EUR 29.6) for vegetables sole. Thus, total spending on food commodities represents 52.63% and 20.02% is spent on vegetables.

Tenth, about the availability of the food product on the three sites, more than half (52.23% of 247 interviewed) of the buyers perceive no change has occurred in food availability. Most of them (32.79%) commented on the case of Tampouy, followed by Kossodo (17.41%) and Tanghin (2.02%). 14.57% of the buyers say that they have no knowledge about the food availability (see Table 74b, Annex1).

Finally, regarding food diversification, 57.38% of the 244 interviewed buyers recognise that changes have occurred, against 25.41% who have not seen any change. 17.21% say they do not know. Among those agreeing with the occurrence of the change in food diversification (140 buyers in total), 33.20% (i.e., 57.86% of 140) frequent the site of Tampouy; 21.72% (i.e., 37.86% of 140) the site of Kossodo, and 2.46% (4.29% of 140) the site of Tanghin (see Table 75b, Annex1).

Overall, the statistics described above are directly used or in combination with other data to compute the index. For example, buyers' income is combined with the poverty line in Burkina Faso, estimated at XOF 153,530 (EUR 234.1) (INSD, 2015), to calculate the proportion of the buyers below the poverty line.

8.5 Results

This section tests and discusses the results of the computed value of the GAIB index for each collective unit of analysis (women's group). The purpose is to compare them and to identify which business model is the most gender-aware and inclusive. Thus, it first presents the results of the index components without power calculation. Second, it presents the values of the index using the power calculations (assuming equal powers).

8.5.1 GAIB Index components

The five components of the index were computed and the results are shown on two graphs: a graph with power calculation (see Graph 8.1) and another graph without power calculation (see Graph 8.2).

First, the graph related to the index's components (or dimensions) before the weighing computation shows that the different sites have some disparities in the components. All the sites are almost identical in terms of food affordability, even though Tanghin tends to be more affordable than the other sites. They also

tend to implement business models that are credible, even though Tampouy is in a better position than the other sites. For the remaining components, there is a great gap between the groups: Kossodo and Tampouy (around 0.7633 each) run the most adaptable businesses regarding the social (political), economic and natural environment they are involved in. This is mainly due to the weak considerations of gender power relations or the nonexistence of gender barriers in both groups, compared to the group of Tanghin.

Regarding the innovative component of the businesses, the graph shows that the groups in Tampouy and Kossodo (around 0.83 each) run the most innovative businesses, whereas Tanghin records 0.475. This may be because the first two groups introduce socially and environmentally friendly practices into their businesses, including knowledge and tools that they gain from their interactions with end-consumers and other partners.

The last dimension shown on the graph informs that none of the studied groups have a viable business model. Most of the businesses do not generate important profits (income), particularly in Tampouy (lowest level); whereas Tanghin and Kossodo are almost at the same level, a bit higher than Tampouy. This is probably due to the fact that the model in Tanghin is purely market-oriented and the principle of profit maximisation defines this business. In Kossodo, the business has been 'branded', the production is well-organised and they have installed a collective selling system. This is slightly different from the case in Tampouy where the group's business generates less profit for its members.

Second, from the graph generated using the powered dimensions of the GAIB Index, it appears that the gap (magnitude) between the levels of each component is reduced, compared to the gap identified in the first graph. However, the overall difference between the business models for each site remains as previously described.

8.5.2 alue of the GAIB Index

This subsection presents the value of the GAIB Index (see Table 8.5). In two studied sites of Ouagadougou, women's groups implement a gender-aware inclusive business model: in Tampouy (0.6075) and Kossodo (0.6643). Kossodo has a more gender-aware inclusive business model than in Tampouy (as the value of GAIB index is higher in Kossodo than the one in Tampouy).

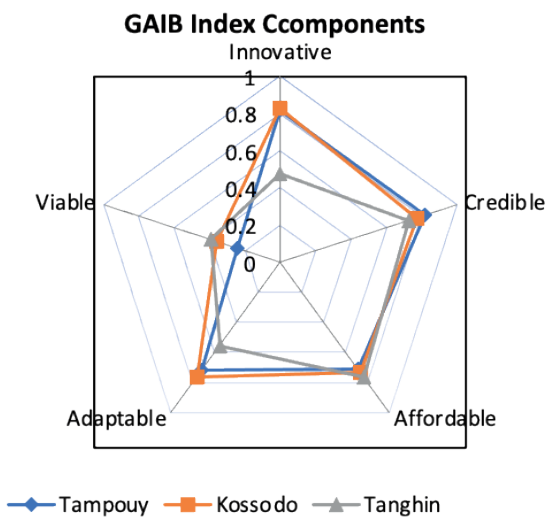


Figure 8.1: GAIB Index Components

Source: The Author

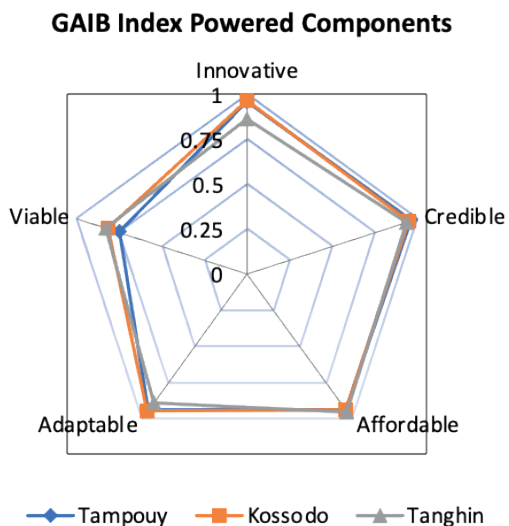


Figure 8.2: GAIB Index Powered Components

Source: The Author

Table 8.5: Gender-Aware Inclusive Business Index for the three sites

Components	Tampouy	Kossodo	Tanghin
Innovative	0.9599	0.9634	0.8616
Credible	0.9605	0.9487	0.9378
Affordable	0.9351	0.9396	0.9487
Adaptable	0.9354	0.9473	0.8895
Viable	0.7532	0.8165	0.8288
GAIB Index*	0.6075	0.6643	0.5653

* The GAIB Index is weighted and standardized

Source: The author based on the fieldwork data (2017, 2018)

The computation of the GAIB index allowed me to propose a classification of business models in three groups. The first class $[0;0.4[$ refers to the business models that do not fulfil the conditions to be considered gender-aware and inclusive of the poor (women from informal settlements). The second class ranges from $[0.41;0.6[$ and refers to the business models that fulfil the necessary, but not sufficient conditions, to be considered gender-aware and inclusive. The third class ranges from $[0.6;1[$ and refers to the business models that fulfil the necessary and sufficient conditions to be gender-aware and inclusive (see Figure 8.3).



Source: The Author

Figure 8.3: Typology of Business Models

The first class comprises mostly business models that strive for pure profit maximisation, which are (merely) exclusive of the poor. These types of businesses are also less collective (no collective action, purely individualised) and engender more competitive behaviour among the actors. Such businesses are difficult to direct towards models in which other matters (e.g., social or environmental) are seriously taken into

consideration because they can potentially restrict their gains from profit maximisation. I call such business models *gender-blind and exclusionary business* models which can be found in the neoliberal capitalistic business models.

The second class of business models can be seen as a *transitory business*. The business in this category can easily fall back into the first class or move up to the third class. Depending on the business environment (market signals, business opportunities and good institutions), they can be gender-aware and inclusive. Furthermore, the social, environmental and economic environments of such businesses can stimulate them to move towards a holistic integration of gender awareness and inclusiveness, as a certain level of social organisation already exists (e.g. women's groups) and the basic resources (e.g. land, human resources) are already available for this purpose; for example, an informal system of coordination (or horizontal integration) among the actors at the same node in the value chain (in which the business is implemented). Thus, such social organisation or collective capability (including both men and/or women) just needs some additional technical support (probably infrastructural support for example) to be able to really classify as a gender-aware inclusive businesses, as was probably the case of the women's groups in Tampouy and Kossodo which benefitted from support (infrastructure) of some partners.

In the last class, all the necessary conditions for running a **gender-aware and inclusive business** are relatively fulfilled, such as the existence of capabilities, resources (e.g., infrastructures, assets), a level of coordination or organisation among the actors, and a socially, environmentally and economically friendly environment. The sufficient conditions consist of the lack of gender barriers, the stakeholders that drive the business model (in these cases, the producers themselves are the drivers), and the accessibility of the business products to the poor.

8.5.3 Cut-off point of women survival entrepreneurs

To estimate the cut-off point from which women become more than a survival entrepreneur, I used the data on annual profit made by individual WSEs/WFEs only based on lettuce production (see Table 8.2). The Baseline survey and my personal fieldwork study indicate that each WSE/WFE produces at least 3 crops, 3 times per year (see Table 20b, Annex 1). Therefore, I have made a strong hypothesis that *“the total annual profit from WSEs' business is three times the average of lettuce profit; and that each WFE earn at least a zero profit a year (i.e., there is no more negative profit)”*.

To calculate the cut-off point, I first used the total annual profit per woman and compared it to the official poverty line estimated at XOF 153,530 (EUR 234 pc/year or EUR 0.64 pc/day) in Burkina Faso (INSD, 2015). After comparing this poverty line

with the one in 2009 estimated at XOF 108,454 pc/year (EUR 165 pc/year), I observe an increase of the poverty line of 42% over the period 2009-2015. I have subsequently taken this increase into account when updating and refining the poverty categorisation into five wealth groups carried out by Pouw and Kini (2016, p.22, building on Dietz et al., 2013) in the past, as follows. We need this more refined categorisation to account for the heterogeneity below the poverty line to assess where WSEs can be positioned. Thus, I applied this increase of 42% to the values delineating the classes of the money-metric poverty categories. Last, the cut-off point from which a woman survival entrepreneur (WSE) becomes a WFE (food entrepreneur with a growth orientation) was estimated using the arithmetic mean of the two extreme values in the average profit group $(710+1420)/2$ (see Table 86b, Annex1).

Table 8.6 below shows the outcomes of the cut-off point estimates. The cut-off point is estimated at EUR 1,065 as annual profit per woman on average. This is 1.7 time higher than the minimum wage guaranteed by the law in Burkina Faso (SMIG), estimated at EUR 657 pc/year (EUR 1.8 pc/day). In other words, the cut-off point is estimated at EUR 2.48 pc/day, which is above the national minimum wage and just below the international poverty line⁵⁷ of EUR 2.58 pc/day (World Bank, 2019, p.11). I argue that this amount (also considered as an income), can cover more than an individual WSE's children's food, education and health care issues (very determining for their agency), while using some margin to invest in soft technologies with a possibility to access funding to enhance their business activities. This is important because food, education and health care for children are the key drivers of WSEs' engagement in business activities (see 7.4.2 & 7.5), and once these needs are guaranteed, then women will be keen to mobilise their capabilities to enter the (competitive) growth-oriented businesses. It is useful to consider this cut-off point as it can be seen as a reference minimum wage that WFEs with a growth orientation apply to themselves to compensate for their labour time in business.

It stands that almost 97% of women in gender-aware inclusive business (Tampouy and Kossodo) are still survival entrepreneurs (WSEs); and only 3% are women food entrepreneurs with a growth orientation. In contrast, more than 80% of women in non-gender-aware inclusive business (Tanghin) are still survival entrepreneurs. These results could suggest that gender-aware inclusive business are less effective in terms of profit-making than non-gender-aware inclusive businesses. However, this is not the case as some nuances should be done in regard to the land-size exploited by women in both categories of business. Indeed, section 6.3.5, clearly shows that women in

57 The international poverty line is originally estimated in US dollars (USD 3.20 pc/day) in this World Bank report

Tampouy and Kossodo (i.e., in GAIB) have individually a smaller land-size (number of plots) than those in Tanghin. Also, some women in Tanghin (i.e., in non-GAIB) are both producers and (semi) wholesalers of vegetables, and are therefore making more profit. Interestingly, women in GAIB have access to a premium price (Kini et al., 2020).

Table 8.6: Cut-off point and categories of women entrepreneurs

Profit	Entrepreneur category	GAIB (N=66)	Non-GAIB (N=30)	Total (N=96)
< 1065	SWE	96.97	80.00	91.67
= 1065 (Cut-off point)	SWE	0.00	0.00	0.00
> 1065	WFE growth-oriented	3.03	20.00	8.33
Total		100.00	100.00	100.00

Source: The author based on the Baseline and fieldwork data (2017, 2018)

8.6 Conclusion

By identifying the necessary and sufficient conditions for a business to be gender-aware and inclusive in a holistic manner, we can narrow down the broad understanding of inclusive business models (see 2.2).

A business model needs to meet the necessary conditions to be considered gender-sensitive and inclusive. Particular attention needs to be paid to the communication system in the value chain (the flow of information, of knowledge, of products and services between the various stakeholders in the value chain). Thus, the length of the value chain and the speed of the flow are important determinants of this necessary communication condition that the business has to fulfil. Also, the productive performance needs to be looked at as a condition to be met as well. A business model needs to generate a regular production (quantity and value) to fulfil this condition. Stability should thus be an important pre-requisite. This finding does not exist in the literature and constitutes an interesting contribution of this research to the literature (see 2.2 and 2.3), that otherwise emphasised profit maximisation.

Prior to the necessary conditions of communicative and productive performance, the business needs to be run within the context of a physically existing framework, which means a necessary set of infrastructures, people (stakeholders), equipment and materials, as well as products. All these elements put together contribute significantly to a continuous creation of opportunities within the value chain, and furthermore the potential of the business to be gender-aware and inclusive. This finding supports to some extent the policies on agricultural mechanisation and productivity improvement (Souratie et al., 2019; Ministry of agriculture and Hydraulics, 2008).

The sufficient conditions for a business to be gender-aware and inclusive of the poor and vulnerable people (women) are tied to the fulfilment of the GAIB index conditions. These conditions are set at the threshold (0.6) or the value of the index at which a business model can be considered as gender-aware and inclusive. While criticisable because the model includes subjective criteria, this index threshold allows us to identify three potential categories of business models: the purely profit maximisation businesses (gender-blind and exclusionary businesses, but with higher profit), the in-between businesses (transitory business), and the gender-aware and inclusive businesses. The transitory business models can be targeted for increasing the numbers of businesses aimed at targeting poor women facing gender barriers in business. The third category of business can be targeted by interventions that are aimed at sustaining and promoting business carried out by this category of the population, because of its significant impact on their daily life. The next chapter addresses this point.

Last, the calculation of the cut-off point in this chapter provides an interesting insight on women in entrepreneurship, that is, evidence of the difference between WSEs and WFEs. Whilst the former (only) seek for income to cover their basic needs, the latter seek for profit (assuming a minimum income guaranteed) to reinvest in their business activity. Although only few of the studied women in gender-aware inclusive business are growth-oriented entrepreneurs, chapter 9 systematically uses the concept of WSEs, while Chapter 10 discusses WSE and WFE separately. In addition, the cut-off point calculation constitutes a benchmark for how women's labour can be valued in their business. This emphasises the nuance between profit and income (Chapter 10 further reflects on this issue).