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Pathways to Living Income:

A Farmer Segmentation Model

Pathways to Living Income: *A Farmer*

Segmentation Model

The farmer segmentation model presented here is designed to categorize farmers based on three critical dimensions: **resources, productivity, and empowerment**.

- **Productivity** reflects the efficiency and yield of farming practices.
- **Empowerment** captures farmers' level of involvement in decision-making, particularly regarding household and agricultural activities.
- **Resources** represent the physical, financial, and human assets available to farmers.

This model enables a nuanced understanding of the challenges and opportunities that different types of farmers face, facilitating an evidence-based and targeted approach to the design and implementation of interventions aimed at improving farmer livelihoods and achieving living incomes. The model is rooted in established theories of agricultural development, social equity, and economic resilience, supported by research into the determinants of farm income and successful segmentation approaches.

Theoretical Underpinnings

Living income is defined as the net annual income required for a household to afford a decent standard of living for all members (LICOP 2024). Meeting the living income benchmark requires the achievement of a holistic bundle of standard of living criteria, including the ability to meet basic needs such as nutritious food, adequate housing, education for children, healthcare, and clean water. It also accounts for transportation, clothing, and social participation, ensuring that household members can lead dignified lives. Unexpected household expenses are also included – e.g., climate and economic shocks – to account for overall financial resilience (LICOP 2024). Achieving a living income signifies moving beyond mere subsistence, toward thriving farmer livelihoods rooted in economic stability and long-term resilience. The farmer segmentation model is based on established research into the determinants of farm income, including access to resources, productivity levels, and empowerment. Studies consistently show that **resource access** is a foundational determinant of farm productivity, while productivity itself is a direct contributor to increased farming income and resilience. According to Snyder et al. (2019), disparities in access to resources such as credit, inputs, and technology are significant drivers of income inequality among smallholder farmers. The literature highlights the importance of expanding access to productive assets to improve agricultural yields and increase household income. Research from the Food and Agriculture Organization (FAO) further emphasizes that enhancing resource access, particularly for smallholders, is crucial for improving productivity and achieving food security at the household and community levels (FAO, 2018).



Agricultural productivity—defined as output per unit of land area—directly impacts household income, particularly in smallholder settings where households rely nearly exclusively on agricultural income streams. Productivity gains not only increase on-farm income but also have spillover effects that benefit the broader rural economy. According to Mellor’s hypothesis, a well-established predictor in agricultural economics, productivity growth in agriculture stimulates growth in non-farm sectors, thereby creating a multiplier effect that boosts local economies and household incomes (Mellor, 1976). Furthermore, productivity-driven income gains are essential for smallholders seeking to achieve economic stability and resilience (World Bank, 2014). Additional research supports this effect by demonstrating that significant increases in productivity are linked to proportional rises in household income, making productivity growth a crucial pathway toward achieving a living income (Snyder, et al., 2019). Evidence from initiatives implemented in farming communities across Global Majority countries underscores the importance of targeted support for enhancing smallholder farmer livelihoods and resilience, and the achievement of sustainable productivity growth (USAID, 2022).

Empowerment, particularly women’s decision-making power within households, is also a significant determinant of agricultural success and resilience. The Women’s Empowerment in Agriculture Index (WEAI) highlights that empowered farmers—especially women—are more likely to adopt innovative farming practices that result in improved productivity and household income (PLOS ONE, 2021).



Empowerment enhances adaptability, risk management, and the diversification of income sources—all critical elements in achieving a living income. Households with empowered decision-makers are more likely to invest in resource-efficient practices, contributing to improved productivity and income (Snyder, et al., 2019). Evidence from rural development case studies also show that targeted interventions, such as improving resource use efficiency and enhancing empowerment, yield higher returns and help farmers overcome specific barriers to achieving sustainable incomes (CGIAR, 2012). By categorizing farmers based on these key dimensions, **the farmer segmentation model provides a framework for interventions that maximize impact** and improve the livelihoods of those who are most vulnerable.

Segmentation Dimensions

The segmentation dimensions—Resources, Productivity, and Empowerment—provide a framework for understanding the various factors that influence a farmer’s ability to achieve a sustainable livelihood.

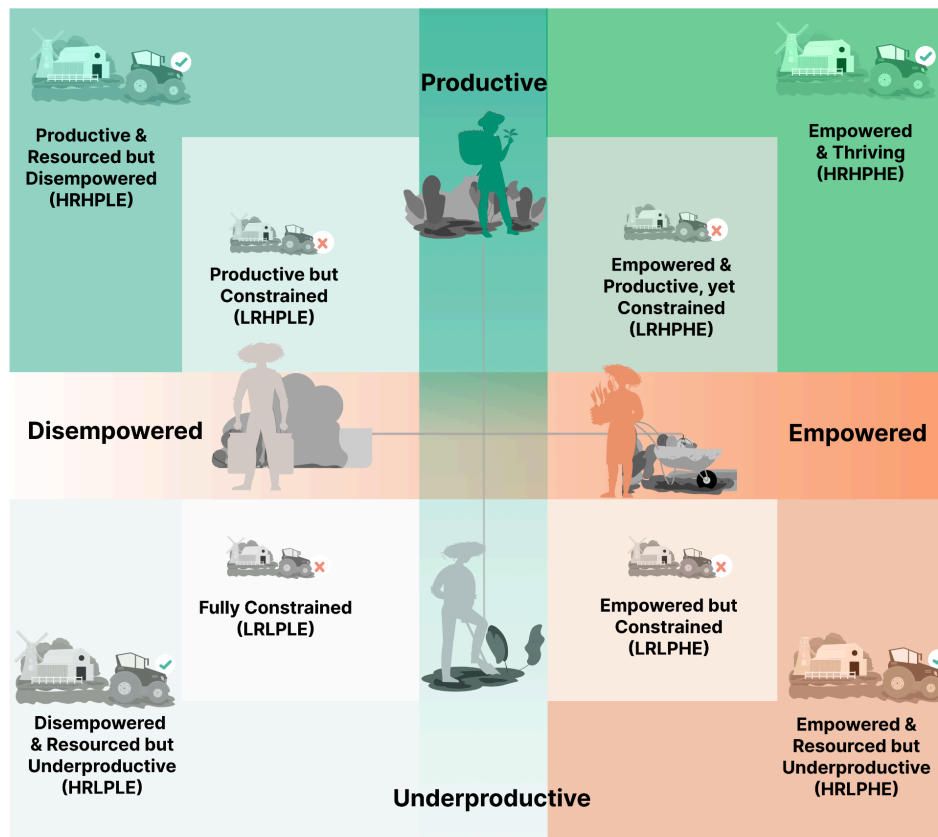
Dimension	Description
Resources	Represents the financial, physical, and natural resources that a farmer can access, including land size, technology, and inputs. Low resources indicate limited access to land, minimal technology use, and insufficient inputs, restricting a farmer’s ability to invest, diversify income, or withstand shocks. High resources reflect greater access to land, advanced technology adoption, and inputs, enabling investment and resilience.

Productivity	Measures the output relative to the resources available . It considers both crop yield and farming efficiency. High productivity is a sign of effective use of available resources, while low productivity often points to inefficiencies that may need targeted interventions.
Empowerment	Empowerment refers to women's influence over household and farming decisions , their participation in community activities , and their economic independence . Low empowerment is indicated by minimal influence over key decisions, limited participation in training or community meetings, and low economic contributions. High empowerment is characterized by strong decision-making authority, active participation in training and governance, and significant contributions to household income, which enhances household well-being, economic resilience, and the overall effectiveness of farming and household activities.

Segmentation Categories

The farmer segmentation model identifies **eight distinct segments** based on combinations of resources, productivity, and empowerment, each with a tailored strategy for support. The visual diagram in Figure A categorizes farmers into these eight segments, represented by their placement along the three axes (Productivity, Empowerment, Resources). Each axis is divided into two levels—high and low—to representing combinations that illustrate the complex realities s faced by smallholder farmers:

Figure A: The Eight Smallholder Farmer Segments



- **Fully Constrained:** Farmers with low resources, low productivity, and low empowerment. They face significant challenges and have limited opportunities for achieving a living income. (LRLPLE)
- **Empowered but Constrained:** Farmers have high empowerment but are challenged by low resources and productivity. They are active decision-makers but need substantial support to improve their farming outcomes. (LRLPHE)
- **Productive but Constrained:** Farmers with high productivity despite limited resources and empowerment. They have potential for growth but need support in decision-making and access to resources. (LRHPLE)
- **Empowered & Productive, yet Constrained:** Farmers are empowered and productive but face resource limitations. With increased resource access, they could achieve greater stability and income. (LRHPHE)
- **Disempowered & Resourced but Underproductive:** Farmers with high resources but lacking productivity and empowerment. They need improved efficiency and greater influence in decision-making to reach their potential. (HRLPLE)
- **Empowered & Resourced but Underproductive:** Farmers with high resources and empowerment but challenged by low productivity. Technical support to improve farming practices can help them maximize their resources. (HRLPHE)
- **Productive & Resourced but Disempowered:** Farmers with high resources and productivity but limited empowerment. Efforts to promote inclusive decision-making can enhance their household welfare. (HRHPLE)
- **Empowered & Thriving:** Farmers with high resources, productivity, and empowerment. They are well-positioned to achieve a sustainable living income and can serve as examples of best practices for other farmers. (HRHPHE)



Table 1e provides a detailed breakdown of each segment, outlining the specific characteristics of farmers within each category, along with a description of their challenges and opportunities. This structured overview helps in understanding the unique needs of each segment and guides targeted programmatic interventions.

Table 1: Segmentation Categories and Program Implications Table

Farmer Segment	Resources	Productivity	Empowerment	Description	Program Implications
Fully Constrained (LRLPLE)	Low	Low	Low	These farmers face severe challenges across all aspects of their farming activities, making achievement of a living income unlikely. Significant support is required to improve all aspects of their livelihoods, but investments in agriculture alone may not be sufficient. Diversification into non-farming activities may offer better opportunities for achieving a sustainable income.	Investments should consider targeted interventions to address resource, productivity, and empowerment gaps, such as inputs on credit or training on good agricultural practices (GAP). While there is potential for improvement, achieving a living income may require incremental interventions, and for some farmers, transitioning to non-farming livelihoods may ultimately offer a more economically viable and sustainable path.
Empowered but Constrained (LRLPHE)	Low	Low	High	Although these farmers are actively involved in decision-making, their limited resources and productivity hinder their ability to achieve a living income. Empowerment provides an opportunity to drive growth, but significant investments in both productivity and resource access are essential.	Investments should leverage their empowerment by focusing on expanding access to resources, improving productivity, and exploring income diversification opportunities.
Productive but Constrained (LRHPLE)	Low	High	Low	These farmers' efficiency suggests potential to reach a living income; however, a lack of resources and empowerment limits their ability to sustain productivity gains and improve household welfare.	Support should focus on enhancing resource access and empowering farmers through training and initiatives that promote active decision-making, thus strengthening their pathway to a living income.
Empowered & Productive, yet Constrained (LRHPHE)	Low	High	High	These farmers make the most of their limited resources, and with improved access, they could potentially achieve a living income. Empowerment and productivity provide a strong foundation,	Investments should prioritize enhancing access to resources to maximize the potential of these farmers, enabling them to move towards a sustainable income.

				but resource access is the critical bottleneck.	
Disempowered & Resourced but Underproductive (HRLPLE)	High	Low	Low	Despite access to resources, inefficiencies and lack of empowerment hinder these farmers' ability to achieve a living income. Improvements in both productivity and empowerment are critical to unlock their potential.	Focus should be on improving resource utilization through training and empowering household members, especially women, to drive productivity gains.
Empowered & Resourced but Underproductive (HRLPHE)	High	Low	High	Empowerment could drive improvements for these farmers if complemented with targeted interventions to boost productivity. They are well-placed to achieve a living income but need to make better use of their resources.	Programs should emphasize technical assistance, improved practices, and efficient resource use to enable these farmers to reach a living income
Productive & Resourced but Disempowered (HRHPLE)	High	High	Low	These farmers are approaching a living income but need to enhance empowerment within the household to fully realize their potential, ensuring inclusive decision-making and sustainable growth.	Empowerment programs, especially those focused on women's participation in decision-making, are essential to maximize the potential of these farmers and secure a resilient income.
Empowered & Thriving (HRHPHE)	High	High	High	These farmers are well-positioned to achieve or sustain a living income and can serve as examples of best practices. They have the highest prospects for growth, resilience, and positive spillover effects on the community.	Advanced market linkages, access to premium markets, and investments in innovation can further support these farmers, sustaining and building on their success.

This farmer segmentation model is a practical tool for improving **adaptive management** and **program design** in agricultural development. By categorizing farmers based on **resources, productivity, and empowerment**, the model ensures that support programs are well-targeted and capable of delivering sustainable impact. The model enables stakeholders to identify which farmer groups require immediate and extensive interventions versus those who require tailored support to optimize existing strengths.

The segmentation model helps practitioners in the following ways:



- **Targeted Intervention Design:** By clearly defining farmer segments, interventions can be tailored to address specific needs such as enhancing productivity, empowering household decision-making, or expanding resource access. This allows for more strategic and efficient deployment of resources, with each intervention customized to meet the distinct challenges faced by each farmer group.
- **Efficient Resource Allocation:** Resources can be allocated more effectively by focusing investments on the segments that have the potential for the highest return in terms of productivity gains, empowerment, or livelihood improvement. This helps maximize returns on investment and facilitates sustainable income growth for farmers.
- **Monitoring and Adaptation:** The farmer segmentation model provides a framework for continuously monitoring farmer' progress and adapting interventions as needed. It ensures that programs are not static, but evolve based on changes in farmers' realities and external conditions, which supports adaptive learning and iterative improvement of intervention strategies.
- **Program Prioritization and Risk Management:** The farmer segmentation model enables policymakers and development actors to prioritize programs that best meet the needs of different segments, ensuring that interventions are equitable and that vulnerable groups are not left behind. Moreover, it helps identify which farmer groups are at the highest risk of falling below a living income and what targeted support could help mitigate these risks.
- **Alignment with Living Income Objectives:** A key objective of utilizing the farmer segmentation model is to ensure that more farmers achieve a **living income**. The model helps design pathways toward the achievement of this goal by identifying barriers and opportunities for each farmer group. By understanding where resource, empowerment, and productivity gaps exist, tailored interventions can be designed to move farmers closer to a living income.

Understanding these farmer segments and incorporating them into strategic decision making enables stakeholders— governments, NGOs, key supply chain partners, etc.—to make informed decisions on resource allocation and tailor interventions to achieve meaningful outcomes. The farmer segmentation model enables a more adaptive and data-driven approach to rural development, ultimately enhancing the resilience of farming households by prioritizing the achievement of **living incomes**. Integrating this approach with partnerships among supply chain participants, from buyers and traders to cooperatives and input providers, can foster significant gains in farmer resilience and sustainable income growth.

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