Credit constraints, agricultural productivity and household welfare in Burkina Faso: a gender perspective

RESEARCH PROPOSAL

Presented to
Partnership for Economic Policy (PEP)

By
Yaya KY

&
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Habi KY
Modeste DAYE

Burkina Faso
June, 2019
Before you begin
Please make sure you carefully review and understand the following:

- **Webpage** – for priority themes, eligibility criteria and application procedures
- **Guidelines** – for designing a research project proposal (in scientific terms - section III)
- PEP requirements and strategy for policy engagement and research communication (section IV)

Please note that:

- This template is mandatory
- Plagiarism is strictly forbidden – see note on “references and plagiarism” at the end of this document/template. PEP will be using a software program to detect cases of plagiarism.
- PEP encourages applicant research teams to submit proposals in English, but content (in text boxes below) may also be written in French or Spanish.

There are three main dimensions to all PEP-supported projects: capacity building, research and policy engagement. Each dimension must be considered with due care and attention as they will be assessed individually and concurrently to determine the overall quality of a proposal.

The PEP proposal template is structured in five sections:

1. Project overview and objectives
2. Capacity building – team composition and experience
3. Research – literature review, method and data
4. Informing policy - context, relevance, process and dissemination
5. Other considerations

**SECTION I – PROJECT OVERVIEW & OBJECTIVES**

1.1. Abstract (100 to 250 words)

State the main research question, the context and its relevance in terms of evidence-informed policymaking, in relation to PAGE priority issues. Complete with a brief description of the method and data that will be used.

Insert your text here – 100 to (max) 250 words

The key goal of this project is to analyze how different degrees of credit constraints facing agricultural households affect their productivity and the welfare implications of differences in productivities. We aim to test in particular how more productive female
managed agricultural activities contribute consumption per capita in households as compared to men, conditional on their different levels of credit constraint. Such analysis is particularly relevant both to PEP’s key priorities and for informing policymaking in Burkina Faso, the country of focus of this project. Our project in fact fits well in PEP’s research priorities and more specifically relevant for the strand: Entrepreneurship and Financial Inclusion, and Rural Employment. This subject is clearly of interest to Burkina Faso a low income country where agriculture and women empowerment are some key priorities.

From a methodological viewpoint, unlike the standard regression switching approach commonly applied in the literature comparing credit constrained and non-constrained agents, this project will rely on an (endogenous) two stage multinomial selection model to explain on the one hand how different households and plots characteristics determine the different levels of credit constraints (selection equation) and, on the other hand, an assessment of the impact of those constraints on productivity. Furthermore, we will be able to evaluate the extent to which these conditional variations of productivity affect household welfare. In our approach, we will both take care endogeneity and different levels of constraints.

We will rely in this project on a nationally representative survey sample from the 2014 Multisectoral Continuous Survey (MICS) in Burkina-Faso. The database includes a total of 10860 households and the data were collected in four phases between January 2014 and December 2014.

1.2. Main research questions (max 500 words)

Explain the focus (or key questions), including the gender-sensitive aspect, of your research and its relevance for policy.

This research seeks to estimate the impacts of credit constraints on productivity and the implications in terms of household welfare. More specifically, the project aims to answer three questions:

(i) What are the determinants of access to credit by agricultural households in general? In particular, does the gender of farmers affect the probability to access to credit?

(ii) What is the impact of different level of credit constraints on agricultural productivity of households? Are there differential impacts according the gender of farmers?
(iii) How the relaxing of credit constraints translates into improving household welfare, and to what extent gender dimension plays a role in this relation?

It is clear that, apart from the constraints related to access to credit, agricultural activities in Burkina Faso are subject to various other constraints such as low equipment, access to quality inputs, access to the market, etc. However, we conjecture that a better access to external financing will make it more likely to relax some of these constraints. This hypothesis will be tested by comparing households that are totally constrained to those relatively less constrained.

We are confident that the results of this research will provide a new empirical evidence and framework on which policymakers and financial institutions interested in agriculture and women entrepreneurship can rely in order to design and implement more effective policies.

1.3. Main contributions (max 500 words)

Describe why and how you expect this research/evidence to contribute to addressing important knowledge gaps, both in terms of scientific contributions* and to inform policymaking.

For the gender-sensitive aspect, explain the potential usefulness of your work for gender-oriented policy.

*The literature review shall be detailed under “Research” (section III), not in this section.

The project aims to shed a light on three main strands of the literature related to (1) the different levels of credit constraints faced by farmers and their productivity, (2) the welfare implications of productivity gains at household level and, (3) how female owned or managed plots compare to males’ in terms of productivity gains and in particular in terms of marginal contribution to household public consumption and welfare.

On the first aspect, the literature analyzing the impacts of credit constraints on productivity fails to tackle sufficiently heterogeneity in different levels of constraints. In fact, using endogenous switching regression models, most papers focus on a mere comparison between credit constrained and non-credit constrained farmers. While this approach can provide a broad view of the impacts credit constraints, viewed generically may have on productivity, it does not give a clear sense of what happens to farmers who are not in this dichotomous categorization. For instance, if the agent rather falls into intermediary cases such as, being partially credit constrained (i.e. having prior interaction with formal financial institutions and being unsuccessful in loan application vs rejected loan applications with no prior interaction with financial institutions), impacts on productivity will be different compared to an agent who is fully credit constrained. In fact, this intermediary case may be considered as being relatively less constrained as compared to the fully constrained category and thus not captured when analyzing the effects on productivity. From a methodological perspective, a two stages multinomial
selection model of Heckman will be used to account for this heterogeneity and add further understanding of how credit constraints affect productivity in agriculture.

Second, there is to the best of our knowledge, a missing welfare implications dimension of how different productivity changes accrue to the different levels of credit constraints affect welfare in the corresponding household, and in particular in the context of Burkina-Faso, the country of interest in this study. This type of welfare sensitivity analysis is important in a context where different degrees of credit constraint can affect agricultural productivity differently.

The third aspect of this project’s contribution is to focus on the gender dimension where little is known on how productivity gains by women affect household’s welfare as compared to men. This type of welfare sensitivity analysis is meant to help provide more solid arguments for further supporting women entrepreneurship in agriculture, based on their contribution to household’s welfare for any dollar in productivity gain (i.e. contribution of productivity gains to welfare) from credit a constraint relaxing.

These three contributions are complement and constitute a coherent and complete framework to inform policy in a more precise way. This project is particularly relevant to policymaking as it suggests to design tailored policy supports depending on the level of credit constraint faced and not just whether or not the agent is constrained. Furthermore, the gender dimension analysis will certainly provide inputs to advocate for more supports to women entrepreneurship in agriculture, based on the welfare effects of their productivity given the level of credit constraints facing them.

SECTION II – CAPACITY BUILDING

2.1. Team composition and experience

For each team member, please indicate (using the following tables – one per member):

1. Age, sex, and relevant training, experience and/or expertise (start with team leader).

Note that:
- Teams must be composed of both researchers and government officials/officers:
  - Four (4) researchers - including one senior/experienced researcher, acting as team leader and at least two researchers aged under 30 - with a sufficient academic and/or professional background in economic policy analysis. In particular, having a master’s degree/diploma or being currently enrolled in a master’s program is considered a minimum requirement (generally, team leaders should have a doctoral degree/diploma or be currently enrolled in a doctoral program). These members should describe their relevant training and experience in the issues and research techniques involved.
• Two (2) government officials/officers from (and with their involvement sanctioned by) the institution in charge of the policy/program that the research aims to inform. These government-affiliated members must have a good understanding of the relevant policy processes and priorities but are not required to have research experience.

- Applicant teams must be gender mixed, with female members representing at least 50% of all members (including the team leader) and contributing substantively to the project. PEP encourages teams with a female leader.
- All members of applicant teams must be African nationals (and reside in Africa for the duration of the project).
- Priority is given to projects in low-income economies, and/or fragile or conflict-affected situations (LIE/FCS) but proposals are welcomed from all African countries (including North Africa).
- A researcher can be funded as a team member a maximum of three times by PEP (no more than twice as team leader) and should show marked progression over time.
- A researcher who is already involved in a funded project is not eligible to submit a new proposal before the approval of the final report of the currently funded project.
- Each listed member must post an up-to-date CV in their profile on the PEP website – refer to “How to submit a proposal” and the eligibility criteria on the call webpage.

2. Benchmark and expected capacity building:
   - Describe the capacities that each team member (and potentially her/his affiliated institutions) is expected to build through their participation in this project. This is an important aspect in the evaluation of proposals and should be presented in detail.
     • What techniques, practices, literature, theories, tools, etc. will each team member and her/his institutions learn (acquire in practice) or deepen her/his knowledge of?
     • How will these skills help each team member in their career (development) and/or professional responsibilities?
     • What is each team member’s current state of knowledge with regard to the project you are proposing?

3. Task and contributions to project: Indicate the specific tasks each team member would carry out in executing the project.

Note that, in this particular initiative, while all outputs should be focused on the research-policy nexus and produced through a collective and coordinated effort, PEP will provide more specific training/support for:
- Researcher team members to take the lead in developing a high-quality scientific research paper (i.e. reporting the process of and results from methodological applications).
- Government-affiliated members to take the lead in developing a “policy paper” (i.e. positioning the research and findings within the country’s broader policy contexts and strategies).

### Team leader

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<tr>
<th>Name</th>
<th>Age</th>
<th>Sex (M/F)</th>
<th>Highest degree/diploma</th>
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<tbody>
<tr>
<td>Yaya KY</td>
<td>42</td>
<td>M</td>
<td>Ph.D. in Economics,</td>
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</table>

**Training and experience**

15 years experiences working on issues related to agriculture, technology diffusion, innovation, education, trade policy, regional integration and economic growth
- Conducted research project on finance inclusion and technology adoption
- Conducted research project on agriculture productivity
- Temporary teacher at university of Ouagadougou II
- Temporary teacher at university of Cheikh Anta Diop, Sénégal
- Published scientific papers in peer-reviewed journals (Economics Bulletin, Journal of African development)

**Expected capacity building**

- Research project management: through this project we will learn how manage a team of researchers and administration. Specially how to make the most of each member of the team for a better quality of the report.

Innovation and Volatility of the GDP Growth Rate: Case of the Economies of Sub-Saharan Africa
[https://ideas.repec.org/a/afe/journl/v19y2017i1p88-112.html](https://ideas.repec.org/a/afe/journl/v19y2017i1p88-112.html)

Analyzing the Mobile-Banking Adoption Process among Low-Income Populations: A Sequential Logit Model
[https://econpapers.repec.org/paper/haljournl/halshs-01225149.htm](https://econpapers.repec.org/paper/haljournl/halshs-01225149.htm)
**Research writing skills:** We will use comments, remarks and different trainings offered by PEP experts to reinforce the team members’ writing research skills.

**Research communication skills:** There is room in the framework of the project to present progress at different steps of the implementation, both in PEP’s conferences and in our respective institutions’ internal seminar or in external institutions. This will allow both to continuously develop our communication skills and dissemination of our work. Besides, some less technical presentations will be given to policymakers in their institutions in order to keep them continuously updated on our approach, the results and the key policy implications.

**Contribution to project**

Research coordination; Research planning; data analysis; data analysis; contribution to methodology set up, models estimation; hypothesis testing; Logistics; contribution to literature review and summary reports; contributions to academic and policy briefs writing, as well as communication and dissemination activities (seminar, conferences, press etc.)

**Researcher #2**

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<th>Name</th>
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<th>Highest degree/diploma</th>
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<tr>
<td>Al-mouksit AKIM</td>
<td>28</td>
<td>M</td>
<td>Ph.D in Economics</td>
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</table>

**Training and experience**

- 5 years of experience on issue related to development economic issues such as migration, poverty and inequality, meta-analysis as well as distributive effect of fiscal policy with particular attention to countries in West Africa.
  - Currently consultant at World Bank.
  - Associated Researcher at DIAL-IRD, France.
  - Research assistant at CRES in Senegal (Consortium pour la Recherche Economique et Sociale)
  - Teaching sampling techniques at Cheikh Anta Diop University
  - Published scientific papers in peer-reviewed journals (World Development)

### Expected capacity building

- **Research writing skills**: We will use comments, remarks and different trainings offered by PEP experts to reinforce the team members’ writing research skills.
- **Research communication skills**: There is room in the framework of the project to present progress at different steps of the implementation, both in PEP’s conferences and in our respective institutions’ internal seminar or in external institutions. This will allow both to continuously develop our communication skills and dissemination of our work. Besides, some less technical presentations will be given to policymakers in their institutions in order to keep them continuously updated on our approach, the results and the key policy implications.

### Contribution to project

- Data analysis; contribution to methodology set up, models estimation; hypothesis testing; Logistics; contribution to literature review and summary reports; contributions to academic and policy briefs writing, as well as communication and dissemination activities (seminar, conferences, etc.)

### Researcher #3

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<tr>
<td>Modeste DAYÉ</td>
<td>33</td>
<td>M</td>
<td>Ph.D in Economics,</td>
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**Training and experience**

- Currently **consultant at the World Bank**’s Social Protection and Labor unit.
- Research visit, Department of economics, Heriot-Watt university, Edinburgh, Scotland (UK)
- Research visit, Centre for the Study of African Economies, Department of Economics, University of Oxford (UK).
- **Teaching and research assistant** at the university of Namur, Belgium and the university of Abomey-Calavi, Benin

**Published scientific papers in peer-reviewed journals**


**Improving MSMEs access to external financing in Low Income Countries: Is there a role for Development**

Expected capacity building

- **Research writing skills:** We will use comments, remarks and different trainings offered by PEP experts to reinforce the team members’ writing research skills.

- **Research communication skills:** There is room in the framework of the project to present progress at different steps of the implementation, both in PEP’s conferences and in our respective institutions’ internal seminars or in external institutions workshops. This will allow both to continuously develop our communication skills and to better disseminate the results of our work. Besides, some less technical presentations will be given to policymakers in their institutions in order to keep them continuously updated on our approach, the results and the key policy implications.

Contribution to project

Data analysis; contribution to methodology set up, models estimation; hypothesis testing; Logistics; contribution to literature review and summary reports; contributions to academic and policy briefs writing, as well as communication and dissemination activities (seminar, conferences, etc.)

Researcher #4

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<th>Name</th>
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<tr>
<td>Habi KY</td>
<td>38</td>
<td>F</td>
<td>Ph.D. in Economics,</td>
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</table>

Training and experience

- University lecturer since 2013
- Visiting scholar (Université cheikh Anta Diop, Sénéga)
- Visiting scholar (Centre de coopération internationale en recherche agronomique pour le développement, Montpellier, France)
- Published scientific papers in peer-reviewed journals (Centre D'études, De Documentation Et De Recherche Économiques Et Sociales)

Expected capacity building

Data analysis skill: We will share with all team members the programs of data analysis, model estimation, hypothesis testing.
- **Research writing skills**: We will use comments, remarks and different trainings offered by PEP experts to reinforce the team members’ writing research skills.

- **Research communication skills**: There is room in the framework of the project to present progress at different steps of the implementation, both in PEP’s conferences and in our respective institutions’ internal seminars or in external institutions workshops. This will allow both to continuously develop our communication skills and to better disseminate the results of our work. Besides, some less technical presentations will be given to policymakers in their institutions in order to keep them continuously updated on our approach, the results and the key policy implications.

### Contribution to project

| Logistics; contribution to literature review and summary reports; collected secondary data; contribution to writing and modeling, as well as communication activities |

### Government official/officer #1

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<th>Highest degree/diploma</th>
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<tr>
<td>Augustine Marie Louise Rita NONGANA</td>
<td>56</td>
<td>F</td>
<td>Master II in Economics,</td>
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</table>

**Training and experience**

- 30 years experiences at government department of agriculture
- Now: Head of Department for Monitoring and Evaluation of the Policies of the rural sector to the Permanent Secretariat for the Coordination of Agricultural Sector Policies (Ministry in charge of Agriculture)
- Researcher in the department of monitoring and evaluation of the policies of the Rural Sector of the Permanent Secretariat of the Coordination of Agricultural Sector Policies (Ministry in charge of Agriculture)
- Technical Framework of the Direction of Prospective and Statistics Agricultural and Food (Ministry of Agriculture)

**Expected capacity building**

- Research communication skills: through the sharing of our results with some the scientific community, policy
makers, women's association, association of agricultural producers, we will learn how to better communicate with them.

### Contribution to project

Logistics; contribution to literature review and summary reports; contribution to writing and modeling, as well as communication activities.

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**Government official/officer #2**

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<th>Highest degree/diploma</th>
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<tr>
<td>Diane Larissa Nongbamba YILI</td>
<td>30</td>
<td>F</td>
<td>Master II in Economics,</td>
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**Training and experience**

- Technical advisor at government department of agriculture since 2014
- Now: Technical advisor at the Ministry of Agriculture
- Assistant in Agribusiness Advisor of the 2SCALE project
- Training on value chains
- Training in leadership and gender
- Training and study tour on agricultural entrepreneurship in Israel
- Training in agricultural entrepreneurship

**Expected capacity building**

Data analysis skills: We will share with all team members the programs of data analysis, model estimation, hypothesis testing etc in order to reinforce their ability in micro data analysis specifically.

**Contribution to project**

Logistics; contribution to literature review and summary reports; collected secondary data; contribution to writing and modeling, as well as communication activities.

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### 2.2. List of past, current or pending (non-PEP) projects in related areas involving team members, including resulting publications (If any)

Indicate the funding institution, the title of the project and related publications, and list the team members involved.

<table>
<thead>
<tr>
<th>Name of funding institutions</th>
<th>Title of projects and related publications (link)</th>
<th>Team member(s) involved</th>
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<tr>
<th>Institution</th>
<th>Title</th>
<th>Publication (reference)</th>
<th>Author</th>
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<tr>
<td>World Bank</td>
<td>Title: Évaluation des couts unitaires de formation par programme d’études dans les Institutions publiques de l’Enseignement Supérieur Technique et Professionnel en Guinée</td>
<td>Publication (reference):</td>
<td>Yaya KY</td>
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<td>ESRC-DFID</td>
<td>Title: Can formal financial products reduce poverty and vulnerability? Experimental evidence from Benin on the impact of access to saving accounts and microcredit</td>
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<td>Modeste DAYE</td>
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2.3. List of past or current PEP-supported projects involving team members, including resulting publications

<table>
<thead>
<tr>
<th>Project code (e.g. PMMA-12345)</th>
<th>Title of project and related external (non-PEP) publications, if any</th>
<th>Team member(s) involved</th>
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SECTION III – RESEARCH, METHOD AND DATA

This section should be completed by the team leader and/or research members

3.1. Literature review (1000 to 1500 words)

Explain the specific gaps in the existing literature that your research aims to fill. You might want to explain whether this question has been previously addressed in this context (including key references), and if so, what you intend to achieve by examining the question again. Be sure to include literature that provides conceptual foundations for the gender analysis to be undertaken in your research.

Agriculture is one of the key sectors driving economic activities in Sub-Saharan Africa.¹ In Burkina Faso, a land-locked country in West Africa and the focus country of this research project, an important share of the population is employed in agriculture and most farmers live in rural area and are poor.² To that extent, it has been shown that growth enhancing policies in agriculture sector are likely to be the most effective in reducing poverty as compared to other sectors of activity because poor (largely farmers) tend to benefit more from growth in agriculture sector (Christiaensen et al., 2011; De Janvry and Sadoulet, 2010). However, in order to have output growth, productivity has to be

¹ Africa agriculture status report, 2017
² Burkina-Faso ministry of Agriculture, www.agriculture-bf.info
improved. In search of higher productivity, farmers often need to invest in productive assets or inputs but usually lack internal funds to do so. Access to external finance has been ranked by most microenterprises owners in developing countries as being a key constraint to the development of their activities.

In agriculture, the lack of access to external funds or access to credit can lower investments in inputs (crops diversification, fertilizer, etc.) and equipment, preventing to benefit from productivity gains. There is a substantial part of literature analyzing credit constraints and productivity in agriculture. Evidence is provided that being credit constrained can reduce the likelihood of participating in off-farm self-employment activities while simultaneously making it more likely that agricultural households end up in low-return farm wage labor activities (Ali, et al., 2014). The authors show however that in Rwanda, there is room for around 17% productivity gains in agricultural sector when the informational and transaction costs driven constraints are relaxed. Guirkinger and Boucher (2008) show theoretically that agricultural households’ productivity is linked to their endowment when they are credit constraints and decreases with the constraints’ tightness. This means that poorer and credit constrained agricultural households are more likely to be the least productive. Using data from Peru, they estimate some productivity gains from credit constraints relaxing, laying between 15% and 32% higher outputs. Other authors emphasize on the types of credit constraints faced by farmers: quantity rationing, transaction costs, risk rationing and the impacts of reducing these constraints on farmers’ productivity (Zhao et al., 2014; Mukasa et al., 2017; Seck, 2017). Mukasa et al. (2017) argue that the nature of credit constraints (risk constraints and transaction costs constraints) matters. They have found that relaxing constraints related to price, risk and transaction costs produces the highest effects with 59.7%, 39.8%, and 27.7% productivity gains respectively in Ethiopia. Similarly, Seck (2017) uses this heterogeneity in credit constraints and added the nature of agro-ecological zones considered in the analysis to find similar results for Senegal.

Overall, credit constraints are harmful to agricultural productivity, and some types of constraints are more binding than others. However it is not clear how different degrees of credit constraints matter for productivity. Kuntchev et al. (2013), identify four levels of constraints using a direct elicitation approach: a microentrepreneur can be (1) fully credit constrained, (2) partially credit constrained, (3) maybe credit constrained or (4) not being credit constrained at all. Fully credit constrained agents characterized by having no prior interaction with formal financial institutions are the most constrained. This category of constraints includes agents who have demanded a loan despite they did not have any significant a priori interaction with formal institutions, but have not been successful, or rather, have simply abstained from applying for a loan, claiming that the main reasons pertain to unfavorable credit terms and conditions offered (i.e. high interest rate and collateral, too low loan amount or short maturity). Some other agents are partially credit-constrained and are characterized by the fact that they have some interactions with
formal financial institutions (having a savings account for example) but either do not demand credit to finance their microenterprise due to the contracting terms and conditions, or have been unsuccessful in their loan application. Another category of agents are grouped as “may be credit-constrained” as they have some interactions with formal financial institutions and have been successful in their loan application from the past twelve months. However this does not mean that these agents are always successful and maybe to some lower extent be credit constrained for various reasons related to the contracting terms and conditions. Finally, one may have agents non-constrained at all (i.e. they do not apply for credit whether or not they have prior interactions with formal financial institutions, claiming they do not need a loan).

Given these different levels of credit constraints, the classical approach consisting in comparing credit constrained versus non-constrained farmers hides important heterogeneity regarding the extent to which the considered agent is constrained and how effective would a policy support be if channeled to this specific agent. In fact, based on the constraints binedness and types faced, differentiated policy support might be more relevant than a generic and uniform policy implementation. Although the different level of constraints is based on the direct elicitation approach and categorization suggested by Kuntchev et al. (2013), the focus of our framework is different. While they rely on individual level analysis and study the determinants of access to credit by microenterprises, this project rather aims at understanding how different degrees of constraints affect agriculture productivity and the implications in terms of welfare both at household and individual levels.

Despite a growing evidence is emerging regarding the relationship between agriculture and productivity in many countries, very little is known on Burkina Faso where, the majority of people in particular in rural areas are in agriculture sector and poor. Udry et al. (1995) show that there are significant inefficiencies in production factors allocation across plots managed simultaneously by household members using data from Burkina Faso. They found that there is room for productivity gains of about 10%-15%. Omer and Savadogo (2014) explained part of inefficiencies in the cotton sector in Burkina Faso, relating them to a drop in Total Factor Productivity (TFP). This TFP drop are also likely to explain inefficiencies in other crops.

Besides, there is a missing welfare dimension to be linked to productivity which, as shown above, depends on whether the considered household is constrained or not. Very few papers in the literature tackle these aspects. Zhao et al. (2014) show for China that, while both credit constrained and non-constrained households manage to smooth their subsistence consumption in response to an increase in investments in inputs, constrained households face a crowding out of aggregate household consumption.

Analyzing the welfare implications of productivity gains is important in this framework since it will help uncover and discuss the extent to which any percentage point change in productivity translate into welfare improvement in terms of both food consumption per
capita and food security but also regarding food diversity. This type of welfare sensitivity analysis is in particular important in a context where different degrees of credit constraint can affect agricultural productivity differently.

On gender dimension side, there is little evidence regarding gender-gaps in terms of financing agriculture and improving productivity of women. Asiedu et al. (2013) however show that female-owned firms in sub-Saharan Africa are more likely to be financially constrained as compared to male-owned firms. Goldstein and Udry (2008) found some differences in profits between husbands and wives on very similar plots. They analyzed the role of ambiguous and contested land rights on investment and agricultural productivity in Ghana. The authors show that the length of fallow period explains the gender gap in terms of profits made. On male-owned plots, this fallow period tends to be longer, giving room for higher productivity. Despite the fact that women tend to be more productive that men on smaller plots, all crops considered, they achieve much lower yields than men on similar plots size (about 18% less and 40 % for sorghum, see Udry et al. (1995)). Part of these striking gender gaps might be explained by several factors of which there is not only a lack of access to credit but also the fact that female managers of plots are less likely to adopt new technology, in particular yield-enhancing and soil-restoring strategies (Theriault et al. (2016)). However, as shown by Abdul-Salam and Phimister (2019), credit constrained households and thus individuals farmers are substantially less likely to adopt a new technology compared with their unconstrained counterpart. Conceptually, the nature and the extent of risk each gender is willing to undertake also matters. In fact, risk-aversion might refrain females from engaging in relatively risky and potentially more profitable investments as is required most often in agriculture, leaving them with lower productivity on their plots as compared to males (Sepahvand, 2019). On this welfare dimension, and given the key role played by females in households in terms of their contribution to the public consumption as compared to males, there is in the literature an avenue to understand how relaxing credit-constraints on females impacts household’s welfare. This project also aims to understand the extent to which productivity gains by females impact household welfare as compared to males.

References

3.2. Methodology (1200 to 1600 words)

Present the specific techniques that will be used to answer the research questions and how exactly they will be used to do so.

- Explain whether you will use a particular technique normally used in other contexts or whether you intend to extend a particular method and how you will do so.
- Explain if these methods have already been used in the context you are interested in (including key references).
- Explain how these methods incorporate and/or are appropriate for addressing gender considerations in your research.

- For PMMA (microeconomic analysis) proposals only: It is generally expected that the proposed methodology aims to empirically estimate a causal relationship. In such a case, you should explain potential sources of endogeneity in the context of your research and how the proposed technique(s) would allow the identification of the relevant parameters. You are strongly encouraged to discuss the potential impact mechanisms i.e., the channel(s) through which the “treatment” impacts on your outcome(s). Also, make sure you clearly present the outcome(s), the “treatment” and the sample used in the analysis.

The principle of our approach is to compare the productivity of different group of households according their degree of credit constraint adapted from (Kuntchev et al., 2012) and generalized to household level. We distinguish four groups of households: (1) Not Credit Constrained households (NCC); (2) Maybe Credit Constrained households (MCC); (3) Partially Credit Constrained; (4) Fully Credit Constrained households (FCC). These four groups are constructed using saving and access to credit section of our survey data. The starting point is the definition of the different degrees of constraint at individual level based on the following framework (Figure 1).

Figure 1: Different types of credit-constraint based on individual level questions
The first group called “Not Credit Constrained (NCC)” includes individuals who meet the following conditions simultaneously:

- Having or not an account in a financial institution
- Having not applied for a credit (or loan) during the past 12 months
- The reason being “No need” for a loan.

This category comprises individuals having an interaction with financial institutions and assumed to have a certain level of financial literacy. By responding that they do not need any credit or loan, we assume that this category does not face any particular credit constraint as they certainly have enough internal resources and capital.

The second group labelled “May be Credit Constraint (MCC)” includes individuals who meet the following conditions:

- Having or not an account in a financial institution
- Having applied for a credit (or a loan) during the last 12 months
- Obtained the credit

The main characteristic of this group is the access to a credit regardless of them having a bank account or not. We are interested in access to formal credit from financial institutions. The term “May be” refers to the fact that even if they have access to credit, nothing indicates that they got the amount needed or the preferred contracting terms and conditions.

The third group called “Partially Credit Constrained (PCC)” meets the following criteria:

- Having an account in financial institution
- Having asked for a credit (or loan) during the past 12 months
- Being rejected

Moreover, individuals who meet the following criteria are also considered “Partially Credit Constrained (PCC)” as well:

- Having an account in financial institution
- Having not asked for a credit (or a loan) during the past 12 months
- The reason being the credit contracting “Terms and conditions”

In comparison to the previous group i.e. the MCC group, Partially Credit Constrained group does not have access to credit because either the corresponding individuals applied for a loan but did not get it or they self-excluded from applying because of terms and conditions of the credit. These contracting terms can be for example high interest rate and transaction costs, too low amount or too short credit maturity, etc. However, we consider that they are partially constrained because they have prior interactions with a financial institution through their bank account.
The fourth category called “Fully Credit Constrained (FCC)” meets the following conditions:

• Do not have any account in a financial institution
• Did not ask for a credit (or a loan) during the past 12 months
• The reason being the credit contracting “Terms and conditions”

Individuals who meet the following conditions also fall in FCC category:

• Do not have any account in a financial institution
• Asked for a credit (or loan) during the past 12 months
• Was rejected

The FCC group is different from the three others by the fact that the corresponding individuals do not have an account in a financial institution meaning having no significant interaction with a financial institution. Furthermore, they do not have access to credit even through informal channel.

The analysis unit of this study being mainly household, the previous levels of constraints are adjusted accordingly as follows:

• “Not Credit Constrained (NCC)” : All household members are NCC.
• “May be Credit Constrained (MCC)” : At least one household member is MCC.
• “Partially Credit Constrained (PCC)” : At least one household member is PCC and no one is NCC or MCC.
• “Fully Credit Constrained (FCC)” : All household members are FCC.

Similar framework is used to analyze credit constraints and productivity in agriculture (Ali et al. 2014). However, they consider only two groups, constrained versus unconstrained while we distinguish three degrees of constraint in this work and thus analyze four categories.

A two stage multinomial selection model of Heckman (Heckman 1979; Bourguignon, Fournier et Gurgand 2007) will be used for our estimations. The first step consists in using a multinomial logit to model the likelihood of the household being into either of three credit-constrained status: i) FCC; ii) PCC or MCC and iii) NCC. This first step corresponds to the selection equation specified as follows:

\[ S_h^* = \beta_0 + \beta_1 X_h + \beta_2 Z_h + \mu_h \]  

\[ S_h = \begin{cases} 
0 & \text{if } S_h^* \leq c_1 \\
1 & \text{if } c_1 < S_h^* \leq c_2 \\
2 & \text{if } c_2 < S_h^* 
\end{cases} \]
$S_h$ is a latent variable that determines the probability that household $h$ falls in credit-constraint state $j$, $j=0,...,3$; $S_h$ equals to 0 if the household is NCC, takes the value of 1 if the household $h$ is PCC or MCC and is 2 if the household $h$ is FCC. $X_h$ represents a vector of explanatory variables including mainly household observable characteristics that would explain both the selection and the productivity equations. These characteristics are: household head socio-demographic characteristics (age, gender, education, etc.), productive assets of the household (land size, agricultural equipment, etc.), non agricultural income. Departmental fixed effects will also be introduced to control for potential confounders related to the location such as infrastructures, macroeconomic shocks, etc. In addition to household characteristics and departmental fixed effects, we consider the proportion of female farmers within each household in order to capture the degree of involvement of women in the production process.

The second step of the model is the estimation of the productivity equation of the different groups of households:

$$y_{jh} = \alpha_j + \theta_j X_h + \sum_{k \neq j} \omega_k \lambda_{kh} + \varepsilon_{jh} \quad (3)$$

$y_{jh}$ represents different measures of performance (labor productivity, yield per ha, input use, commercialization) of household $h$ belonging to the group $j$.

The choice of this model is motivated by two main reasons. The first reason is that it allows to correct for endogeneity related to selection bias into the different credit-constrained status due to differences on observable or unobservable characteristics. The presence of unobserved characteristics may in fact affect both the probability of being credit-constrained and the level of productivity estimated leading to biased estimates. For example, anticipated gains from credit in terms of productivity could be a driver of farmers’ participation in credit markets (Seck, 2017). Another unobservable is related to the risk behavior of the household. Some agents may be more likely to participate in credit markets due to their relatively low aversion to risk compared to their counterpart not participating.

The introduction of the factor $\lambda_k$ allows to control for this selectivity bias. This factor is computed from the selection equation (1) as follows:

$$\lambda_k = \frac{P_k \ln (P_k)}{1-P_k} + \ln P_j \quad (4)$$

The identification of the model requires the exclusion criteria which means the introduction of identifying (or selection) variables $Z_h$ in the first step. These identifying variables are supposed to explain the selection but not directly the productivity. Ali et al., (2014) use two sets of identifying variables: the value of non-productive household assets (consumer durables and livestock) and, access to social networks and information. In line with this work, we will use similar indicators to define our selection variables.

In practice, we will use the value of non-productive assets especially consumer durables; motivating the relevance of this instrument by the fact that wealthier households are less likely to face credit constraint. Moreover, we introduce the use of internet and the
ownership of mobile phone, radio or a computer as a proxy to access to information. Regarding social networks, we will use an indicator of whether the household head or his spouse is member of a decision-making body of an association or a relevant group or not.

The second reason for our model choice is its flexibility in comparison to the two-stage endogenous switching regression (ESR) model used generally in the literature (Guirkinger and Boucher, 2008; Ali et al., 2014; Seck, 2017). While ESR model takes into account the selection between two categories (constraints or not constraints), the two stage multinomial selection model allows to account for more heterogeneity and the corresponding selection process in the different levels of constraints considered. At the best of our knowledge, this study is the first implementing this model.

Based on the literature on the evaluation of multiple treatments, we can estimate the impact of the different degrees of constraint. The pairwise comparison of treatments, in our case the credit-constraint status, gives the Average Treatment Effects on the Treated (ATT) (Lechner, 2002). In particular, we estimate the impact of credit-constraint status \( j, j=1,2,3 \) considering FCC \((j=0)\) as control group:

\[
\begin{align*}
\text{ATT}_{10} &= E(y_1|S = 1) - E(y_0|S = 1), \text{ effect of being PCC or MCC on outcome y} \quad (4) \\
\text{ATT}_{20} &= E(y_2|S = 1) - E(y_0|S = 1), \text{ effect of being NCC on outcome y} \quad (5)
\end{align*}
\]

Regarding the welfare implications of the differences in productivity related to each level of credit constraint, our approach is to estimate the elasticity of household per capita consumption to productivity as follows:

\[
C_{jh} = \alpha_j + \varphi_j P_h + \theta_j X_h + \sum_{k \neq j} \omega_k \lambda_{kh} + \varepsilon_{jh}, \quad j=0,\ldots,3 \quad (7)
\]

\( C_{jh} \) represents the logarithm of per capita consumption of household, \( h \) means being in group \( j \), \( P_h \) represents the measure of the logarithm of the productivity and \( \varphi_j \) the elasticity of the per capita consumption in relation to productivity associated to the group \( j \). Equation (7) can be estimated using OLS. However, a selection bias problem may arise when estimating this equation on samples related to different types of credit constraints. The source of the selection bias may be the existence of potential unobservable characteristics such as gains anticipated from credit in terms of consumption smoothing, or having a low aversion to risk which may be correlated to both credit constraints and consumption. A multinomial selection model will be implemented also in order to deal with endogeneity related to selectivity bias. The comparison of the elasticity between the different credit-constraint status allows to evaluate how the impacts of credit-constraint could translate into household welfare via different productivity realizations. The higher is the elasticity \( \varphi_j \), the higher should be the effect of relaxing the corresponding credit constraint on the household welfare.

Besides selection bias, another source of endogeneity might be caused by omitted variables which are likely to affect productivity (e.g: the management skills of the farmers). The omission of such variables which might be correlated to consumption, are likely to overestimate the impact of productivity gains on consumption using simple OLS. To deal
with this issue, we suggest to re-estimate equation (7) by instrumental variable approach (2SLS). The implementation of these different methods of estimation will help test the robustness of our results and will render the identification of the impact of productivity on per capita consumption more precise and less biased. We follow the literature to instrument agricultural productivity by rainfall shock in the department (Amare & al., 2018). The validity of this instrument is challenged however by potential correlation between rainfall shock and departmental economic activities such as nonfarm employment, self-employment and local prices. To control for this potential indirect relationships between this instrument and the consumption, we include variables related to both non-farm employment and self-employment. Furthermore, we consider real consumption using spatial pseudo-deflator computed by the national institute of statistics.

Gender dimension being an important aspect of this work, a particular attention will be given to that variable and we relate it to the proportion of female farmers in the household included in X_h throughout all the analysis. The coefficient associated to this variable in the selection equation (equation 1) provides the gender gap in terms of credit-constraints in line with the work of Asiedu et al. (2013). The same coefficient in the outcome equation (3) provides the gender effect in terms of agricultural performance (productivity, inputs use, commercialization, etc.). More importantly, the welfare analysis based on elasticity of welfare to productivity discussed just above will take into account this gender dimension.

References (complement to those presented in the literature review section)


3.3. Data requirements and sources (1000 to 1300 words)

This is a critical part of the proposal. Explain the reason for you choice of particular databases. You must establish that they are ideal for the policy question you wish to address (including in terms of gender analysis) and that you have or will have access to these data
This research will use data from the 2014 Multisectoral Continuous Survey (MICS). The survey sample is representative at the national level and the unit of analysis is the household and the individual members. The survey sampling was conducted in two stages. The first stage concerns primary units or enumeration areas (EAs). These areas were selected with probability proportional to the number of households they contain. A total of 905 EAs were selected. At the second stage, that is, at household level, 12 households were selected in each EA. Overall, the sample size amounts to 10860 surveyed households.

Data were collected in four phases between January 2014 and December 2014. A total of six questionnaires were used for data collection. The first deals with the price of consumer goods and services, the second with agricultural activity and the other four questionnaires deal with each time of the collection.

We are confident that the database contains a very rich set of information on the household composition, household members’ level of education, their social characteristics (sex, age, and relationship with the household head). Moreover, there are indicators related to sectors of activity, household’s agricultural assets ownership, different types of crops grown, the plots exploited and the quantities of inputs used for each crop and the corresponding production.

One of the questionnaires devotes a module to access funding. Thus the data allow to know the members of the household who have a savings account in a bank or a microfinance institution. They provide information on their request for credit in a formal institution (bank, microfinance, cooperative, GIE) or informal (tontine, supplier, other household, etc.). They make it possible to know if the requested credit has been obtained or not. For household members who have not applied for credit, the reasons are available in the database.

The data also provides information on household consumption at each pass for collection. This information will make it possible to estimate the household’s level of intra-annual consumption in order to evaluate the impact of the credit constraint on the smoothing of this consumption. Data are collected on all components of household consumption including agricultural and agri-food products (food and non-alcoholic beverages, alcoholic beverages, tobacco and narcotics), alcoholic beverages, tobacco and narcotics, clothing and footwear, housing, water, electricity, gas and other fuels, furniture, household items and routine maintenance of the home, health, transportation, communication, recreation and cultures, the education, restaurants and hotels, various goods and services.

Some variables provide information on household food security. They include the quality of food consumed by the household at the time of the survey. They show whether the household had to skip a meal because they do not have enough money or other resources to provide food, if the household ate less than they should have eaten because
of a lack of money or others. They also reveal whether household members spent a whole day without eating for lack of money or other resources. This information is used to calculate a household food security indicator. Then we could evaluate the impact of the credit constraint on this indicator.

The primary results (graph 1) show the importance of farm households. These latters represent 70% of all households. Agricultural activities includes both green and livestock farming and fishing. However, the analysis will focus on households doing green agriculture. The proportion of women farmers is small, only 8%.

**Graph 1**: Households repartition by activity status

![Graph 1: Households repartition by activity status](image)

Source: authors

Among farming households, 11% have an account in a formal financial institution, 27% applied for credit, 55% didn’t because they do not need it and 26% obtained the requested credit (graph 2). For example, a small proportion of farm households have an account in a financial institution and almost of those who applied for credit have got it. For women farmers, about 5% have an account, 24% have asked for a loan, 37% didn’t because they don’t need, 22% have demanded credit and have got it.

**Graph 2**: Weight of agricultural households by status in relation to access to credit
Based on this information, the indicator of credit constraint was built. All farmers including women farmers which have a “No Credit Constraint” represent 55% against 23% for women farmers, while “may be credit constraint” equals 26% against 13.5% for women farmers and “Full credit constraint” accounts for 34% against 29% for women farmers.

**Graph 3**: Farm household weight according to the terms of the credit constraint indicator
The graph below shows the distribution of yield per hectare of households with access to credit and those who do not have access by crop. These crops include food-producing crops, cash crops and market gardening. Graph 4 shows for some segments of the distributions that households with access to credit are more likely to have higher yields as compared to those who do not.

**Graph 4**: Distribution of agricultural output by type of product and access to finance

A comparison of means (Table 1) is suggestive of a positive association between access to credit and productivity. The difference in yield per hectare is in fact significant for the three types of crop. However, this simple test does not account for selection bias related to differences in observables and unobservable. Our empirical framework will control for these issues and take into account the different levels of credit constraints and the gender-sensitivity analysis.

**Table 1**: Comparison test of average yields according to access to financing

<table>
<thead>
<tr>
<th></th>
<th>No access</th>
<th>Access (II)</th>
<th>Difference</th>
<th>t-student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield per hectare for food-producing culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Yield per hectare for cash crop</td>
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<td></td>
<td></td>
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<tr>
<td>Yield per hectare for market gardening</td>
<td></td>
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</table>
### Table 1: Comparison of Yield Averages by Type of Product and Access to Finance

<table>
<thead>
<tr>
<th></th>
<th>(I)</th>
<th>(II-I)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food producing culture</td>
<td>415.6</td>
<td>512.2</td>
</tr>
<tr>
<td>Cash crop</td>
<td>391.7</td>
<td>453.1</td>
</tr>
<tr>
<td>Market gardening</td>
<td>850.2</td>
<td>1206.5</td>
</tr>
</tbody>
</table>

+ p < 0.15, * p < 0.10, ** p < 0.05, *** p < 0.01.

Source: author’s

Considering the sub-sample of the women farmers, the graph 5 shows a similar difference between the women farmers who don’t have credit constraint with those who have it. In fact, the proportion of Women farmers who have small yield is higher amongst women farmers who have credit constraint than those who don’t have it.

**Graph 5**: Distribution of agricultural output by type of product and access to finance in the sub-sample of women farmers

Source: author’s

To test the significance of the results above, we made a comparison test of the yield average. The table 2 shows the results of these tests. According to this table, there is no difference between the average yield between women farmers who don’t have credit constraint and those who have it for food producing culture. For Cash crop, the difference is significant at 5%. The sample size of the market gardening culture is too small (11 observations) to be tested. However, access to credit has an impact on the average yield of men farmers. It would be interesting to know why there is no difference between the
average yield of two kind of women farmers who produce food producing culture while the difference is significant for men farmers.

Table 2: Comparison test of average yields according to access to financing in the sub-sample of men and women farmer

<table>
<thead>
<tr>
<th></th>
<th>No access (I)</th>
<th>Access (II)</th>
<th>Difference (II-I)</th>
<th>t-student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food producing culture</td>
<td>356.1354</td>
<td>330.6529</td>
<td>25.48245</td>
<td>0.5971</td>
</tr>
<tr>
<td>Cash crop</td>
<td>313.4873</td>
<td>501.7297</td>
<td>188.2424**</td>
<td>-2.1552</td>
</tr>
<tr>
<td>Market gardening</td>
<td>534.7667</td>
<td>1601.333</td>
<td>1066.567</td>
<td>0.4292^3</td>
</tr>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food producing culture</td>
<td>424.4288</td>
<td>527.9253</td>
<td>103.4965***</td>
<td>-6.8329</td>
</tr>
<tr>
<td>Cash crop</td>
<td>406.2553</td>
<td>462.1846</td>
<td>55.92938***</td>
<td>-3.1668</td>
</tr>
<tr>
<td>Market gardening</td>
<td>851.3475</td>
<td>1301.709</td>
<td>450.3619***</td>
<td>-2.1162</td>
</tr>
</tbody>
</table>

+ p < 0.15, * p < 0.10, ** p < 0.05, *** p < 0.01.

Source: author's

SECTION IV – INFORMING POLICY

This section should be completed by the government-affiliated members, and validated by the head of their institution (to be confirmed in the required acknowledgement letter).

4.1. Government affiliation

a) Name the government institution at which you are employed, and describe its general mandate

N.B. This does not engage the institution itself to sanction, take part in and/or sponsor the proposed research project, other than authorizing the employees identified in section 2.1 (and below) to take part in the related work on a personal basis.

Mrs SOULAMA is responsible for monitoring and evaluation of rural sector policies in the Ministry of Agriculture. She coordinates the monitoring and evaluation of the strategy for implementing agricultural policies and sectoral reforms. She also coordinates the sectoral evaluation of the National Economic and Social Development Plan.

^3 The size of the sub-sample is too small (11 observations)
b) What is/are your specific role(s)(as employees) in the institution

<table>
<thead>
<tr>
<th>Government official/officer #1</th>
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<tbody>
<tr>
<td>Name</td>
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<tr>
<td>Title/position</td>
</tr>
</tbody>
</table>
| Role/responsibilities | - Monitoring and strategic assessment of the implementation of agricultural sectoral policies;  
- Monitoring and evaluation of the implementation of the strategic sectoral reforms  
- Monitoring and evaluation of sectoral performance in the implementation of the PNDES through the conduct of sectoral reviews. |

<table>
<thead>
<tr>
<th>Government official/officer #2</th>
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<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Title/position</td>
</tr>
</tbody>
</table>
| Role/responsibilities | - Contribution to the development of agricultural value chains  
- Contribution to the development of documents for entrepreneurship development projects  
- Animation of workshop of consultation with the cooperatives and the actors of the different channels  
- Setting up of business plans for the actors of the different agro-silvo-pastoral sectors, fisheries and wildlife  
- Training of agricultural entrepreneurs from 13 regions of Burkina Faso and organizations in managerial techniques  
- Supervision and training of producers and POs in Farmers Business School (FBS) and BUS A and BUS B  
- Linking financial institutions and agricultural entrepreneurs  
- Action monitoring of actors |

4.2. Describe the policy context and needs

a) Describe the specific policy issue(s), questions or needs faced by your institution and that the research project aims to inform - both in terms of socioeconomic
outcomes (identify the target/beneficiary population), and the related policy processes (whether it is at the stage of debate, decision, design, implementation, review, reform, etc.).

Explain why the evidence to be produced with this research is important/useful to inform decision-making, especially with regard to your institution’s specific mandate and strategies.

In the National Social Economic Development Policy (PNDES), the Burkinabe authorities committed to promote decent employment for young people and women by 2020. In this policy, the agricultural sector plays a particularly important role. Indeed, nearly one-third of employment is provided by the agricultural sector (Ministry of Youth, 2016). In its sectoral policy "agro-silvo-pastoral production" (PS-PASP), the Burkinabe Government is aware of the constraints that affect the well-being of rural populations, particularly women. These include fragile food and nutrition security, continuously degraded natural resources and long-lasting management mechanisms, low capacity for water resource mobilization, low equipment in the rural sector and the lack of equity between men and women in access to resources. The removal of these constraints requires producers to have access to financing.

b) What are the current policy options/scenarios, faced by (or available to) decision-makers - in terms of potential interventions, approaches, etc. - in relation to this particular issue?

If possible, also provide a brief history of policy initiatives (and related reforms, if any) implemented in the past to address the issue, indicating generally what worked and what didn’t (i.e., why is this still an issue?).

The Burkinabe government has opted for three strategic axes to boost its agricultural sector. It is about (i) food and nutrition security, resilience of vulnerable populations; (ii) Competitiveness of the agro-silvo-pastoral fisheries and wildlife sectors and access to markets and (iii) sustainable management of natural resources. The implementation of these strategies is based on the principle of equity between poor and rich, gender equity, equity rural and urban areas. Our research may provide the determinants of unfair access to finance through credit constraints, but also factors affect the impact of access to credit on productivity among women.

c) How do you expect this evidence will be used/assimilated effectively into the relevant policy decision/advisory processes? Be as precise as possible, indicating the specific decisions or recommendations that have to be made by your institution.

Are you aware of any cost- or budget-related considerations that should be taken into account in the context of these policy decision/advisory processes?

Also, justify the timing of the proposed research project - how does it fit with the calendar of the related policy decision/advisory processes?
Through this research, for each group of producers according to our credit constraint indicator, the determinants of access to credit will be identified. In addition, the impact of access to credit on productivity will be assessed for all producers and for women producers in particular in order to perform a comparative analysis. The analysis of marginal effects by geographic area, level of education, age and socio-professional status will make it possible to formulate specific recommendations in order to formulate targeted and more effective policies.

4.3. Stakeholder mapping and dissemination

List all other potential stakeholder institutions, i.e., institutions that you consider as potential users of the same research evidence (other than your own). These can include other ministries and government agencies, as well as civil society organizations, NGOs, private sector, etc.

<table>
<thead>
<tr>
<th>Name of institution/organization #1</th>
<th>Ministère de l’Agriculture et des Aménagements Hydro-agricoles</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the key representatives or target research users (policy makers)</td>
<td>SANKARA Adama, Head of the Financing Promotion Department, +22670 69 78 35, +22676 06 52 73, <a href="mailto:adamasankara79@yahoo.fr">adamasankara79@yahoo.fr</a></td>
</tr>
<tr>
<td>Describe briefly why and how you believe this institution could use the evidence</td>
<td>This ministry is in charge of agricultural policies implementation and economic development. It gives a particular attention to vulnerable populations in general and more specifically to women. A partnership with this institution clearly an asset for the team, and will facilitate the communication of the policy implications of our results. Our project in fact cover questions related to how agriculture can provide relevant livelihood strategies to vulnerable people and in particular women. These questions are of high interest to the institution who will use its expertise to build on our findings and recommendations so as to formulate policies easing access to finance for agriculture and women in rural areas.</td>
</tr>
</tbody>
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<thead>
<tr>
<th>Name of institution/organization #2</th>
<th>Ministère de la Jeunesse et de la Promotion de l’Entrepreneuriat des Jeunes</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the key representatives or target research users (policy makers)</td>
<td>TONANE Ali, Director General for the Promotion of Entrepreneurship and Youth Empowerment, 2267215550, 22675151550, 22675 15 15 50, <a href="mailto:tonaneali2020@gmail.com">tonaneali2020@gmail.com</a> <a href="mailto:tonaneali@yahoo.fr">tonaneali@yahoo.fr</a></td>
</tr>
<tr>
<td>Describe briefly why and how you believe this institution could use the evidence</td>
<td></td>
</tr>
</tbody>
</table>
This Ministry is in charge of issues related to youth employment. The institution will also be interested in our results in their policies definitions. This includes how relevant can gender or age be in certain aspects of agricultural activities.

<table>
<thead>
<tr>
<th>Name of institution/organization #3</th>
<th>Secrétariat permanent pour la promotion de la microfinance (SP/PMF) au Ministère de l’économie et des finances</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the key representatives or target research users (policy makers)</td>
<td>Not yet</td>
</tr>
<tr>
<td>Describe briefly why and how you believe this institution could use the evidence</td>
<td>SP / PMF is the public body housed in the Ministry of Economy and Finance in charge of the promotion of microfinance in Burkina Faso. It can build on our findings and recommendations to formulate policies aiming to facilitate access to finance for agriculture in general and rural women in particular.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of institution/organization #4</th>
<th>Fond d’Appui aux Initiatives des Jeunes du Ministère de la Jeunesse et de la Promotion de l’Entrepreneuriat des Jeunes (FAIJ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the key representatives or target research users (policy makers)</td>
<td>KIENDREBEOGO Alfred, Director of Monitoring Evaluation and Recovery, 22676 07 99 15, <a href="mailto:kalfred@yahoo.fr">kalfred@yahoo.fr</a></td>
</tr>
<tr>
<td>Describe briefly why and how you believe this institution could use the evidence</td>
<td>FAIJ is a public body housed in the Ministry of Economy and Finance in charge of the promotion of entrepreneurship in Burkina Faso. They are interested in nurturing their policies with our findings.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of institution/organization #5</th>
<th>Fonds d’Appui aux Activités Rémunératrices des Femmes du Ministère de l’économie et des finances (FAARF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the key representatives or target research users (policy makers)</td>
<td>Mme TRAORE Mariam, Chef de département terrain, 22670 67 95 66, 22674 39 70 80, 22678 47 01 90</td>
</tr>
<tr>
<td>Describe briefly why and how you believe this institution could use the evidence</td>
<td>FAARF is the public body housed in the Ministry of Economy and Finance in charge of the promotion of microfinance in Burkina Faso. It can build on our findings and recommendations for formulating policies to facilitate access to credit for agriculture in general and rural women in particular.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of institution / organization #6</th>
<th>Association Professionnelle des Banques et Établissements Financiers du BURKINA (APBEF-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the key representatives or target research users (influencers)</td>
<td>Oumar KI, Executive Director of APBEF B (Professional Association of Banks and Financial Institutions of BURKINA), +226 70 21 70 23, <a href="mailto:oumar.ky@gmail.com">oumar.ky@gmail.com</a>, <a href="mailto:oumar_ky@yahoo.fr">oumar_ky@yahoo.fr</a></td>
</tr>
</tbody>
</table>
Describe briefly why and how you believe this institution could use the evidence

APBEF-B is an association of bankers who collect data and information of interest to the banking sector, shares information on the solvency and morality of clients, and mediates between the Banks and the Minister of Finance. They will be able to share our recommendations with their respective structures to see how to include them in evaluation of risks in financing agriculture, and more specifically young and female farmers.

<table>
<thead>
<tr>
<th>Name of institution/organization #7</th>
<th>Confédération paysanne du Faso (CPF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the key representatives or target research users (influencers)</td>
<td>PORGO Issoufou, Permanent secretary, +226 25 30 18 44, 226 70245046</td>
</tr>
<tr>
<td>Describe briefly why and how you believe this institution could use the evidence</td>
<td>The Faso Farmers’ Confederation (CPF) organizes the rural world through professionalisation and capacity building, in order to achieve security and food sovereignty. They are an intermediary between policy makers and the peasant world. They will be able to use the results of this research as empirical evidence to support the different requests the association send to the public authority and policy makers in Burkina-Faso.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of institution/organization #8</th>
<th>Université Ouaga II</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the key representatives or target research users (influencers)</td>
<td>Dr Ousmane Traoré, Deputy Director of the Research Training Unit in Management Science and Economics, Université Ouaga II, 22670152100, <a href="mailto:oustraor@yahoo.fr">oustraor@yahoo.fr</a></td>
</tr>
<tr>
<td>Describe briefly why and how you believe this institution could use the evidence</td>
<td>University Ouaga II is the public university that has the faculty of economics and management and research laboratory in economics. The methodological approach and the research questions can inspire masters and doctoral students interested in gender, productivity and financial inclusion. Different seminars might be given in the research lab so as to draw attention on interesting issues in agriculture, young and women entrepreneurship which deserve further research.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of institution/organization #9</th>
<th>Coordination des ONG, Associations des Femmes du Burkina (COA/fév)</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the key representatives or target research users (influencers)</td>
<td>Not yet</td>
</tr>
<tr>
<td>Describe briefly why and how you believe this institution could use the evidence</td>
<td>COA / Feb is a civil society body that coordinates the work of women’s associations in order to improve their living condition. They will be able to use the results of this research as empirical evidence to support the different demands they formulate to the public authority.</td>
</tr>
</tbody>
</table>
4.4. Outline your engagement/dissemination strategy

Describe how you intend to engage with these other stakeholder institutions (listed in 4.3) to ensure that they:

1) Contribute to informing the research work (i.e. consultations)
2) Are kept informed of the research progress and findings

The objective of the dissemination strategy is not only to take into account, if possible, the concerns of the stakeholders on the different questions analyzed in this research, but also to efficiently disseminate the conclusions and the policy implications found. Taking into account the concerns of the stakeholders will produce more relevant recommendations that can help them improve the livelihood strategies of farmers and in particular, women and young in agriculture. Moreover, stakeholders in fact need to be well informed on the outcomes of a research on these critical development issues in order to develop and implement evidence-based policies. Therefore, the team commit to (1) contribute to informing stakeholders on the key aspects of the research and (2) providing follow-ups on progress in the course of the study and finally communicate the findings.

There are four main steps in the implementation of this project. First, at the beginning of the project, we will organize a meeting with all the stakeholders, specially the policymakers to present the project in detail. The second step will be about different follow-ups on the progress made. At this step, we will organize some follow-up meetings, WhatsApp discussions, telephone meeting (Skype/WhatsApp), Email for information, scientific seminar and provisional results presentation meetings with the different focal points. In addition, we plan to attend and present at an international conference to get some scientific critics from peers (the CSAE conference in Oxford, UK will be a relevant target).

The third step is the organization of a national workshop where all stakeholders, general public, online media, audios, video and print media will be invited. The last
step will be dedicated to dissemination. We will produce a policy brief (hard copy and electronic version), publish on relevant web sites (www.Lefasonet.bf, and the web site and social media of CARDES (www.cardes.org, Facebook page, Twitter and LinkedIn). The web site of www.Lefasonet.bf is the sixth more popular web site in Burkina Faso after Yahoo.com (1st), Google.com (2e), Google.bf (3th), Facebook.com (4th), Google.fr (5th).

SECTION V – OTHER CONSIDERATIONS

5.1. Describe any ethical, social, gender or environmental issues or risks that should be noted in relation to your proposed research project.

Insert your text here
To the best of our knowledge, there is no ethical, social, gender or environmental issues or risks that should be noted in relation to our research proposal.

5.2. References and plagiarism:

Applicants should be very careful to avoid any appearance of plagiarism. Any text of five or more consecutive words that is borrowed from another source should be carefully contained between quotation marks with a reference to the source (including page number) immediately following the quotation. It is essential that we be able to distinguish what you have written yourself from what you have borrowed from elsewhere.

Note also that copying large extracts (such as several paragraphs) from other texts is not a good practice, and is usually unacceptable. For a fuller description of plagiarism, please refer, for example, to the following website:

- http://writing.yalecollege.yale.edu/advice-students/using-sources/understanding-and-avoiding-plagiarism

PEP will be using a software program to detect cases of plagiarism.