

# PAGE

policy analysis on growth and employment



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Priority policy research issue for the second PAGE II (2017) call for proposals

## Productive employment in rural farm and non-farm sectors - labour productivity and factor market imperfections

In what follows, we introduce the priority thematic issue of **Productive employment in rural farm and non-farm sectors – labour productivity and factor market imperfections**, identified for the second round of PEP's call for research proposals for its PAGE II program.

To assist applicants in designing their research proposal, PEP resource persons have prepared a complete review of existing scientific literature on each of the priority themes. Follow this link to access the [recommended reading](#) lists online.

IMPORTANT: For all policy research issues identified for this round of funding, applicants are encouraged to explore impacts on inequality across gender, socio-demographic groups and age groups. Consideration of gender aspects should be included for all issues.

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## Motivation and situation analysis

Agriculture remains the key sector in driving economic growth and poverty reduction in many developing countries. Together with the allied rural non-farm sectors, it provides livelihoods for about 3.4 billion people living in rural areas around the world (World Bank, 2013). Studies also show that participation in non-farm employment allows rural smallholders to invest in agriculture and adopt productivity-enhancing inputs and technologies to improve farm productivity (Reardon et al., 2000; Ruben and Van den Berg, 2001; Bezu and Holden, 2008). This is because many rural areas suffer from credit and insurance market constraints such that employment in non-farm activities: provides essential savings for agricultural investment; signals credit worthiness; and serves as insurance against agricultural shocks (Bezu et al., 2012).

Inclusive growth and poverty reduction in many developing regions will require continued productivity gains in agriculture and in the rural non-farm sector so that these sectors will continue to attract skilled labour and provide employment for youth, women and other workers. Indeed, millions of youth graduating each year from schools and universities are not keenly interested in looking for employment in the rural areas because of low returns and underdeveloped employment opportunities, reflecting lack of complementary investments in the agricultural and rural non-farm sectors to attract and retain young talents.

## Research issues

Raising labour productivity and correcting labour market imperfections is crucial to structural transformation of the rural economy in developing countries. The key research questions in this thematic area will therefore focus on the performance of rural markets, with a special attention to labour productivity in agriculture and non-farm sectors. In particular, research should explore how policies and institutional arrangements may be improved to increase labour productivity and increase employment opportunities in the rural sector in developing countries, especially for women, youth and others. In addition, this thematic area will analyse the contribution of employment in agricultural and rural non-farm sectors to slowing migration of labour from rural to urban areas.

### **a. Growth in labour productivity and inter-sectoral shifts in labour demand**

Growth in labour productivity, overall and within agriculture, has been a strong predictor of poverty reduction because of the important linkages between wages, household self-employment, and the real incomes of the poor. Agricultural labour productivity growth is particularly important because of the direct effects on the many workers who participate in the agricultural sector, and also because it causes growth in other sectors (De Janvry and Sadoulet, 2010). The following research questions emerge:

- What are the key trends and determinants or drivers of labour productivity change in rural areas?
- How does the agricultural sector perform in terms of labour productivity, wages and income growth in relation to the rural non-farm sector and other sectors in the economy?
- How does the labour productivity differential affect patterns of employment, labour allocation and overall competitiveness of the rural sector for employment and job creation?
- How does labour productivity and income growth vary between men and women in rural areas and what factors cause these gaps?

## **b. Policy and market imperfections and enterprise development**

The overall contribution of the agricultural and rural sector to employment generation is constrained by policy and market imperfections that perpetuate low labour productivity and sustain disparities in terms of employment opportunities between rural and non-rural sectors.

- How important are the imperfections in labour and other factor markets in rural areas and how do they shape patterns of investment and productivity growth in agriculture and the allied non-farm sectors?
- What kind of institutions and practices determine labour and other factor allocations in rural markets and how do they shape patterns of investment and productivity growth in agriculture and the allied non-farm sectors? How does gender influence these institutions and practices, and what kind of policy or other intervention may be appropriate to change these practices?
- How important are public and social policies related to productive assets (e.g. land) and social services (including education, health, sanitation, etc.) in closing labour productivity and income gaps across sectors and between men and women?
- How do market and policy imperfections influence incentives for private sector investment and enterprise development for inclusive growth, job creation and employment in rural areas?

## **c. Migration and employment in the rural sector**

Another important area of research with significant knowledge gaps relates to our understanding of how the agricultural and rural non-farm sectors will contribute to attracting and retaining skilled labour and slowing down the exodus of labour from agriculture and the rural sectors to urban areas, where employment opportunities are also limited.

- How does overall social, gender, and economic inequality shape the patterns of employment and migration between the rural and urban sectors and what factors will bridge this rural-urban divide or even reverse the flow of skilled labour from rural to urban areas?
- Will income and labour productivity growth in the agricultural and rural sectors slow down the exit and outmigration of labour to the cities and to what extent would this contribute to reducing rural unemployment?
- How does labour productivity change and income growth in the rural sector shape the perspectives of youth, women, and other prospective workers in terms of staying in and investing in rural areas?
- What kind of policies and interventions would be needed to regulate the out-migration of labour from the rural sector and align this carefully with changing labour demand in the industrial and services sectors?
- What is the impact of migration on the wellbeing of left-behind households and how does it vary by gender of migrant, and gender composition of households?

## **Methodological approaches**

### **a. Microeconomic policy approaches (PMMA and field experiments)**

With micro data and micro-econometric methodologies, the lack or failure of labour (or other inputs) market can be tested. Depending on the degree of market imperfections, the literature proposes different methodological strategies. For example, Tiberti and Tiberti (2015) estimate a non-separable agricultural household model with cross-section data from Tanzania and find that labour market imperfections limit the full benefits of investments in fixed inputs and

infrastructure leading to sub-optimal effects. Dillon and Barrett (2014) find failing or missing markets in rural areas in five sub-Saharan African countries with the recent available datasets from the ISA-World Bank project.

In the PAGE-I initiative (see table below), the microeconomic policy research group supported various projects covering some of the topics proposed in this section. These works use quasi-experimental techniques on typical cross-sectional or panel household budget surveys, sometimes combined with primary or census data, to estimate the average and heterogeneous effects of different policies, shocks or individual strategies. The approaches proposed range from propensity score matching (PSM) to endogenous switching regression (ESR), regression discontinuity design (RDD), difference-in-difference (DD) and instrumental variables (IVs).

In a study about the effect of land tenure security reforms on off-farm employment in rural China with a particular focus on women, Chang et al. find that the Rural Land Contracting Law in 2002 has a positive impact on wage employment, both for men and for women. Similarly, this policy reform increases total incomes. Using the data from three waves (1995, 2002 and 2008) of the Chinese Household Income Project, the authors use a difference-in-differences approach as an identification strategy of the effect of land tenure security.

Dedehouanou et al. study the link between rural non-farm and farm sectors, and whether self-employment opportunities in rural Niger have a positive impact on the agricultural sector and food security. Using different variants of ESR for binary and continuous outcomes, the authors find that rural farm households that also engage in rural non-farm self-employment activities show lower credit constraints (i.e. they invest more in agricultural inputs) and show less risk of being food insecure.

Hoang et al. study the effect of the liberalisation of chemical fertilisers on, among other things, the allocation between rural farm and non-farm employment using the 1993 and 1998 panel Vietnam Living Standard Surveys (VLSS) from Vietnam. Using an extended Heckman selection model with instrumental variables, the authors find that the lower price of fertilisers reduces the employment of rural households in nonfarm activities while it increases the participation in the farm sector, especially for smallholder farmers. Using propensity score matching with the 2009 Cambodia Socio-Economic Survey of households and Census data, Roth et al. find that internal (from rural to urban/metropolitan areas) migration generates, among other things, a "dependency effect", i.e. members living in households with migrants tend to reduce their participation in work activities.

Regarding the productivity gaps by gender in the agricultural sector, using panel data from Uganda and the Oaxaca-Blinder (OB) decomposition methodology, Ali et al. (2015) estimate a gender gap of 17.5 percent and find that its driving components are the greater child care responsibilities and the more difficult access to transportation experienced by women. Using the same methodology, similar studies have been conducted in Niger and Nigeria. Using data from Ethiopia, Aguilar et al. (2014) propose the Recentered Influence Functions (RIF) regression method, which makes it possible to estimate heterogeneous differences in productivity over the distribution (rather than the average, as in the OB method).

The microeconomic evaluation tools presented above (and others), together with appropriate data, can help to evaluate and provide policy recommendations about:

- Changes over time in labour productivity in the farm sector, and how sectoral investments and overall economic growth affect it, also in comparison with the non-farm sector.
- The imperfection in labour and other factor markets in rural areas, and how this affects rural sector development and the effectiveness of policy interventions in the agricultural sectors.

- Patterns of employment and migration between the rural and urban sectors, and which factors (e.g. skills, inequalities, expected revenues) or policy interventions (e.g. investment in infrastructure) affect such internal and sectoral flows, especially for youth.

The table below shows a selection of recent PEP-supported projects using microeconomic approaches focusing on some of the research issues proposed in this section.

Research title	Authors
Land tenure policy and women's off-farm employment in rural China	Chang et al.
Spillovers from off-farm self-employment opportunities in rural Niger	Dedehouanou et al.
The effect of price of intermediate imported product on nonfarm participation of households in rural Vietnam	Hoang et al.
Estimating economic effects of remittances on the left-behind in Cambodia	Roth et al.

### b. MPIA approaches

CGE modelling is a compelling tool for examining labour productivity provided that adequate data are available to construct an adequate Social Accounting Matrix. Various data sources such as the National Accounts and the Balance of Payments can be complemented by additional information derived from employment, household and sectoral surveys. Once a balanced Social Accounting Matrix has been constructed, an analysis of the economic structure is conducted to take into account the capital and labour intensity in different sectors. The focus on the labour market is fundamental. Indeed, skilled workers may be employed in sectors where unskilled workers are scarce and vice-versa. The analysis needs to be conducted in such a way that the wage disparities between level of expertise and qualification in different sectors are well captured. The trade-off between higher wage and greater skill of workers may have important implications on job creation and welfare for the economy. On the other hand, it is important to take into account a sectoral decomposition of the labour market and the linkages between formal and informal sectors. Researchers often decompose the agricultural sector into different subcategories such as modern and traditional farming, big farms and small farms, irrigated and non-irrigated farming, formal and informal agricultural sector, etc.

In summary the agricultural sector need to be divided into at least in three categories:

- Small-scale farms, which are essentially family farms for subsistence consumption and rely on household labour
- Medium-scale farms that hire some external labour and partially sell their produce to the market
- Large-scale farms that employ significant labour and target the production for commercialisation

For each category, the impact of public interventions can be analysed using CGE modelling. The government, through various policies, could affect the composition of the labour market. For example, the government may use fiscal measures to reduce the cost to operate as a formal firm or introduce a tax on products from informal sectors in order to shift factors of production (especially labour) to formal sectors and thus reduce the size of the informal sector (Medard et al.). On the other hand, in order to encourage formal economic sectors, the government may reduce tax rates on their goods and services and labour migration could be observed in the process.

Alternatively, the government may decide to invest in human capital and education, which will lead to an improvement in worker's skills. This policy was suggested for Cambodia (Heng et

al.). The government could also organise training programmes for low-skilled workers in order to compensate (offset) the negative impact of an increase of indirect taxes on the agricultural sector. Alkassoum et al. found that a subsidy to agriculture leads to an increase in agricultural production and a decrease in food insecurity in Niger, while a subsidy for electricity for the industrial sectors creates more jobs.

Unemployment among different type of workers should also to be taken into account. Alkassoum et al. developed a model of the Nigerian economy with unemployment. The model observed that the unemployed workers in the formal sector will try to find a job on the informal sector, pushing the informal wage rate down. On the other hand, a minimum wage generates frictions on the labour market that could explain the unemployment level. Modelling of different minimum wage rates can help answer the question of how much the minimum wage should be.

Another related issue is the effects of international trade and FDI on the labour market. Depending on which economic sectors receive the FDI, it could lead to an improvement of the total factor productivity and an increase in the capital stock (Sawadogo et al., PAGE ii).

For countries with abundant natural resources, it is important to take into account the resource curse and its impact on the labour market. Indeed, exploitation of natural resources could lead to an appreciation of the exchange rate, which in turn decreases other exports and increases imports. The increased imports will reduce the demand for local goods and will have a negative impact on economic growth. The fall in production will eventually lead to a decrease in labour demand by the affected sectors. Therefore the government should ensure a fair allocation of income from natural resources in order to avoid the consequences of what is known as the Dutch Disease (Alkassoum et al., PAGE ii).

- What policies should the government implement in order to support the transformation of informal to formal sectors, particularly in the agricultural sector?
- How can the wage disparities between formal labour and informal labour, and between the different labour skills (and the gender differences in these disparities) be taken into account?
- How should the minimum wage be set to provide incentives for job searching and job creation?
- What are the effects of education on skilled labour and wages? Do they differ between men and women?
- How do social welfare programmes (e.g. unemployment insurance) affect the labour market and sectoral production?
- What factors explain labour migration between sectors? Do different factors explain male and female migration?
- How can the government support the production of small-scale family farms? Which policies should it implement in order to help farmers to raise physical capital and farm income?

The table below shows a selection of recent PEP-supported projects using MPIA approaches focusing on some of the research issues proposed in this section.

Research title	Authors
Assessing the Impact of China's Economic and Trade Expansion on Poverty in Burkina Faso	Sawadogo et al.
Assessing the impacts of trade policies on growth, employment and poverty in Cambodia	Heng et al.

Assessing the impact of oil and mining sectors' boom on the labor market and economic development in Niger	Alkassoum et al.
The effects of minimum wages on the labour market and income distribution in Kenya: a CGE analysis	Mwangi et al.
The Impact of Wage Policy on poverty, informality and growth	Morales et al.
Impact of Increased Public Education Spending on Growth and Poverty in Uganda	Robichaud et al.

### c. Field experiments

Please consult [Field experiments summary paper.](#)

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