



# Remittance inflow and smallholder farming practices. The case of Moldova

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## ABSTRACT

In the Republic of Moldova, a large number of households that received land shares after the break-down of the collective farm structure currently focus on semi-subsistence agriculture. Often, one or more members of these households have migrated abroad. This paper aims at assessing the impact of remittances on their agricultural production practices and investments. The authors rely on the rotating panel dataset of the Household Budget Survey for the period 2007–2013, and on an original survey carried out on a sample of 126 households in 2015. To test if remittance recipients replace family labour and self-produced inputs with mechanisation services and purchased inputs, a shadow agricultural wage is estimated. Logistic regressions are used to assess whether the occurrence of investments (farmland, machinery, or dairy cattle) is more probable in the case of remittance inflow. The results show that recipient households reduce their drudgery by substituting family labour and self-produced seeds and feed with mechanisation services and purchased inputs, without necessarily increasing production efficiency. The relationship between remittances and agricultural investments is very weak or negative. However, qualitative insights demonstrate that many investments (greenhouses, rototillers, walnut orchards, etc.) were possible thanks to remittances. Although most recipients do not invest in agriculture, the minority that does invest has access to remittances.

## 1. Introduction

In a number of formerly centrally-planned economies, the decollectivisation of agriculture and privatisation of land resulted in agricultural structures dominated by small farms. Romania, Latvia, Lithuania and Moldova, in particular, experienced an increase in the share of agriculture in employment, combined with a growing number of individual farms (Macours and Swinnen, 2005; Swinnen et al., 2005). Many of these smallholders focus on semi-subsistence farming. Indeed, apart from the small size of their plots, which is not enough to provide decent revenue, the shortage of agricultural credit and the unreliability of output markets obstruct the development of viable commercial farms. Furthermore, the lack of non-farm jobs on the rural labour market represents a constraint in pursuing alternative livelihood choices locally. International migration has thus become a widespread strategy, illustrated by the high inflow of remittances. The Republic of Moldova is a prime example of this development pattern. Here, the break-down of collective agriculture generated around 900,000 small family farms within a population of 3.55 million inhabitants (NBS, 2011), while, due to high rates of emigration, in the last decade remittances have accounted for 20–30% of the GDP (World Bank, 2017).

But whether households use this income for consumptive purposes or to invest in and develop their farming businesses remains an open question.

The literature on migration and agricultural change focuses either on developing countries in Latin America (Aguilar-Støen et al., 2016; Davis and Lopez-Carr, 2014; Gray, 2009; Gray and Bilsborrow, 2014; Jacoby, 1993; Taylor et al., 2016), Asia (Adams, 1998; Sunam and McCarthy, 2016) and Africa (Adams, 1991), or on emerging countries, primarily China (de Brauw and Rozelle, 2008; Liu et al., 2016; Qin and Liao, 2016; Rozelle et al., 1999). As for Eastern Europe, both the impact of remittances on the overall economy (León-Ledesma and Piracha, 2004), and the relationship between migration and agricultural labour (Macours and Swinnen, 2005), or land use (Baumann et al., 2011) have been investigated. Due to the huge proportions assumed by international migration in Moldova, the impact of remittances on its economy has been assessed in specific studies (Lücke et al., 2009; Pinger, 2010). The relationship between remittances and land use has been looked at by Bolganschi (2011). Based on the results of a qualitative survey and on secondary data, she argues that migration causes farming households to switch towards less labour-demanding production activities, and fosters farm exit, although most emigrants maintain the property of

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their land. She does not, however, provide an in-depth analysis as to whether remittance inflow generates any change in the agricultural practices of the households who do not exit farming.

Economic theory offers several channels for explaining how migration could affect labour-sending rural households. First, abstracting from hidden unemployment, migration of labour force should lead to an increase in the opportunity cost of labour (Singh et al., 1986). Second, remittances can enable households to overcome credit constraints (Stark, 1991). Conditional upon the possibility to hire labour as a compensation for migrated household members, remittances will be invested in productive or non-productive durable assets. The empirical evidence from a range of developing and transition economies is rather mixed. On the one hand, Taylor and Lopez-Feldman (2010) find for Mexicans migrating to the US that the incomes of sending households and their agricultural productivity increase due to remittances. Similarly, using Mexican data, Böhme (2015) finds that accumulated agricultural assets are greater in households receiving international remittances, but cannot find evidence of investment in riskier activities, like livestock husbandry. Furthermore, he shows that investments are subject to a life-cycle, that households with older heads invest less, and that migrant households even disinvest more at later stages of their life cycle than non-migrant households. Differentiating between productive and non-productive assets, and controlling for asset accumulation effect, Chiodi et al. (2012) find evidence that rural Mexican households tend to use remittances to invest in productive assets. On the other hand, using farm household data from Albania, Kilic et al. (2009) find that non-farm income is used to move out of crop production and, for commercial farms, to invest in livestock production. Also, the intensity of arable land use follows an inverted N-shaped curve as rural out-migration increases, due to the concurrent impact of labour shortage and intensified use of fertiliser and pesticide inputs (Liu et al., 2016). Qin and Liao (2016) analyse the relationship between migration, agricultural change and general regional development by qualitatively reviewing twenty case studies from rural China. They find that agricultural production declines in regions with high out-migration and general low economic development, while in more economically developed regions out-migration and agricultural production seem to be positively related. Thus, whether remittances are used for achieving agricultural modernisation depends on the context and, probably, on household-specific characteristics.

This paper aims at assessing the impact of remittances on the production practices of Moldovan smallholders. More specifically, it analyses whether households receiving remittances change their on-farm labour use, and whether they invest at least part of their remittances into agriculture. Differently from previous studies on this country, econometric analyses drawing from a rich database—the database of the Household Budget Survey (HBS) of the National Bureau of Statistics of the Republic of Moldova (NBS) for the period 2007–2013—were carried out, applying (and building on) the methodology developed by Skoufias (1994). A further contribution of this paper relates to the combination of quantitative analyses and qualitative insights from an original survey carried out by one of the authors in spring 2015 (hereafter, “2015-smallholder-survey”). To avoid endogeneity issues due to common characteristics driving households’ decisions related to migration, production, and consumption, here panel data allow for a more consistent modelling of the relationship between remittance inflow, and smallholders’ investment decisions. To our knowledge, this is the first study analysing the effect of remittances on agricultural investments in a transition country context. The case of Moldova is particularly relevant due to the paramount role played by family farming in the national economy and society, and to the signing of an Association Agreement between this country and the European Union (EU) in 2014, which is expected to generate interesting opportunities for commercial farmers.

The rest of the paper is structured as follows. Section 2 provides a short background on smallholder agriculture and international

migration in Moldova. Section 3 introduces the data and the methodology. Section 4 presents and discusses the results of the econometric analysis, putting them in perspective using the insights from the 2015-smallholder-survey. Section 5 concludes and provides some policy implications.

## 2. Smallholder agriculture and international migration in Moldova

Moldova is a small landlocked country in which agriculture has long been an important economic activity.<sup>1</sup> While a member of the USSR, the country was a net exporter of agro-food products to the rest of the Union (primarily wine, spirits, and fresh products, like fruits and vegetables)<sup>2</sup> (Gorton and White, 2003). Its agro-industrial complex was dominated by huge collective and State farms: the only form of family agriculture was the small plots allocated to the members of rural households and to urban workers, which accounted for 7% of the agricultural land. Households were also engaged in animal breeding, producing a large share of the national output of meat, milk, eggs, and sheep wool. Smallholders emerged as a result of the insider privatisation of collective and State farms. Although foreseen in the Land code of 1991, the process of land distribution didn’t begin until 1998, when the Parliament passed the National Land Program, and was carried out in the form of “shares”.<sup>3</sup>

The portion of privately-owned land grew from around nil to 67% in 2003. In 2001, over 500,000 individuals had received land shares, and over 200,000 had registered their household as a peasant farm, with an average size of 1.8 ha. However, the reform overlooked the role of collective and State farms as providers of social services and managers of rural infrastructure (including irrigation systems), which fell into disrepair. Furthermore, in many cases the privatisation process turned into a “grab what you can” at local level (Ibidem: 321). Reformers expected a structure of middle-sized commercial family farms to emerge gradually through market-based land transactions and investments, thus triggering the economic development of rural areas. Instead, the land market evolved slowly: in ten years, only 2% of the land changed ownership, the average transaction involving 0.1 ha (Cimpoies, 2010). As in other post-Soviet countries, commercial agriculture continues to be dominated by the large corporate farms that succeeded their socialist counterparts (Lerman and Sutton, 2008; Small, 2007).

In the same year that land began to be privatised (1998), Moldova was severely hit by the Russian financial crisis, which led to the beginning of mass migration. Estimates of the stock of international migrants vary: in 2014, Moldovan diplomatic missions gave a figure of 984,000, up from 505,000 in 2011, while State border authorities gave a figure of 762,000 (IOM, 2016). Since the country is located at the border between the Community of Independent States and the EU, Moldovans migrate in either direction. The common Soviet past reduces the transaction costs of moving to Russia, which has constantly attracted an absolute majority of migrants (550,000 in 2014), followed by Italy (150,000) (Ibidem). Migration to Russia tends to be short-term, so that numbers fluctuate more (Lücke et al.,

<sup>1</sup> All studies on the Republic of Moldova, including this one, focus on the western region of the country (Bessarabia), since eastern Moldova (Transnistria) is not controlled by the national government. The surface of Bessarabia is 30,355 square kilometres and, as of 2017, its population is 3.55 million inhabitants, of whom 57% live in rural areas (NBS, 2017c). The share of territory covered by arable land and permanent crops (64% in 2014) is one of the largest in the world (World Bank, 2017).

<sup>2</sup> Until 2005, agro-food products and drinks accounted for over 50% of Moldovan exports, and were still accounting for 33% in 2016 (NBS, 2017c).

<sup>3</sup> Home gardens and household plots were assigned to the households farming them as “small shares”. The land farmed collectively (arable land, orchards, and vineyards) was divided into “big shares”, whose size and composition were set at the level of municipality based on the local land endowment. Furthermore, “shares of values” of the assets of collective and State farms were created. All workers of these farms, including pensioners and former workers as of 1 January 1992, were entitled to a share. Furthermore, up to 50% of the local land was distributed to local residents belonging to certain categories, if none of their family members were eligible (Möllers et al., 2016).

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