

Appendix. Detailed explanation of the selected variables

Factors which might explain stay-exit were derived from these three theories. From the *Efficiency theory* the potential related stay-factors we identified as having impact either on farm income and non-farm income are as follows. We used the dummy variable *INCENO* to capture the effect of farm income on the stay-exit intention (whether the farmer earns enough income from the farm to cover the expenses of the whole family). Since the farm income is a function of a particular combination of inputs to produce output(s), we included variables to capture the effect of the size of the farm (*HA*), and the production of one or more products (*MIXFARM*, *LIVSMIXFARM*, and *DIVERSIFICATION*). Land area has been recognised to provide benefit from economies of scale (Tauer, 2001; Pushkarskaya & Vedenov, 2009), while number of products has been recognised as increasing the farm income (Bragg & Dalton, 2004; Foltz, 2004; Baylina & Salamaña, 2006), and decreasing the risk at farm level. We expected all these variables to have a positive impact on the intention to stay. We used the dummy variable *OFFINCREL* to capture the effect of off-farm activities on the stay-exit intention (for importance of off-farm income). Off-farm income has been recognised for either (i) increasing the possibilities for maintaining a farm when there is low farm income or losses (Bragg & Dalton, 2004; Pushkarskaya & Vedenov, 2009; Zhan *et al.*, 2012), or (ii) increasing the farm exits since it lowers the transaction costs of leaving the farm (Goetz & Debertin, 2001), or increases the opportunity cost of farm labour (Boehlje, 1992; Bragg & Dalton, 2004; Pushkarskaya & Vedenov, 2009). We expected this variable to have either a positive or negative effect on the intention to stay. We also used four dummy variables to capture the effect of non-financial variables on stay intention, *i.e.* *ASSOCIATION*, *NETWORK*, *RECOGNIZE*, and *INDEPENDENCY*. Participation in associations and network status have been recognised as a location-specific social capital that provides information and mutual assistance (labor and machinery sharing) to the farmer (Gasson *et al.*, 1988; Fairweather & Keating, 1994). Farmer's pride (*RECOGNIZE*) and autonomy (*INDEPENDENCY*) have been recognised as increasing the expected utility provided by the farm (Gasson *et al.*, 1988; Fairweather & Keating, 1994; Chang *et al.*, 2011). We expected these four variables to have a positive association with the intention to stay.

From the *Exit barrier theory* the potential factors we identified as having either direct or indirect impact on stay-exit intention are as follows. We used the variable *BUILDINGS* and the dummy variable *LEACOST* (opportunity cost of leaving) to capture the effect of sunk

costs on the stay-exit intention. Since infrastructure allows a farm to remain operating at a low profit or even at a loss (Rosenbaum & Lamort, 1992; Karakaya, 2000; Goetz & Debertin, 2001; Foltz, 2004), the quantity of buildings has been recognised as critical to a farmer's decision to work part-time off-farm or even quit from farming (Zhan *et al.*, 2012). We expected these variables to have a positive association with the intention to stay. We used the variable *DISTANCE* (to the nearest city) to capture its effect on the stay-exit intention. Distance to the nearest city is an indirect natural barrier for accessing off-farm employment (Goetz & Debertin, 2001). We expected this variable to have either a positive or negative association with the intention to stay.

From the *Life-cycle theory* the potential factors we identified as having either direct or indirect impact on stay-exit intention are as follows. We used the variables *AGE* and *AGESQ* (age squared) to capture the effect of farmer's age on the stay-exit intention. The farmer's age has been recognised as having an impact on farmer's preferences, beliefs, and risk attitudes, which tend to change with different biological life cycle stages (Boehlje, 1992; Gale, 1994; Bragg & Dalton, 2004; Breustedt & Glauben, 2007; Huffman & Feridhanusetyawan, 2007; Pushkarskaya & Vedenov, 2009). We expected these variables to have a positive impact on the intention to stay. We used the variable *FEMALE* to capture the effect of farmer's gender on stay-exit intention. The crucial role women play in rural production has been recognised by the introduction of rural entrepreneurship programs specifically designed for them (Baylina & Salamaña, 2006; Charatsari *et al.*, 2013; INDAP, 2014). We expected this variable to have a positive association with the stay intention. We used the variables *SCHOOLING*, *AGRIEDUC*, and *NONAGRIEDUC* to capture the effect of the farmer's education level on the stay-exit intention. Education level has been recognised as increasing the farmer's ability to improve his knowledge and acquire new skills, which can improve either the adoption of management-intensive systems or opportunities for off-farm employment (Rettig, 1993; Bragg & Dalton, 2004; Huffman & Feridhanusetyawan, 2007; Schaber & Stum, 2007; Chang *et al.*, 2011). We expected these variables to have either a positive or negative effect on the intention to stay. We also included the variable *MARRIED* to capture the effect of farmer's marital status on the stay-exit intention. Marital status has been recognised as having impact on the career orientation of farmers and their children mainly because the attitudes of wives and mothers in the family (Gasson *et al.*, 1988). Wives and mothers had been motivated to work outside farming (Boehlje, 1992), however, nowadays they have become, and are becoming, more involved in farming (Baylina & Salamaña, 2006; Trauger *et al.*, 2010;

Charatsari *et al.*, 2013; INDAP, 2014). We expected this variable to have either a positive or negative effect on the intention to stay. We included the variables *FAMSIZE*, *FAMLAB*, and *SUCCESSOR* to capture the effect of the characteristics of farmer's family on the stay-exit intention. Farming has been recognised as providing the possibility of being self-employed and having more family members work (*FAMLAB*) on the farm (Chang *et al.*, 2011). It also has been recognised as an activity that allows and influences a farmer to pass the business down to the next generation (*SUCCESSOR*) and keep the farm in the family (Goetz & Debertin, 2001; Lobley *et al.*, 2002; Zollinger & Krannich, 2002; Gale, 2003; Glauben *et al.*, 2006; Breustedt & Glauben, 2007; Hennessy & Rehman, 2008). We expected these three variables to have a positive association with the intention to stay. We used the variables *RETIREAGE* and *SALEPRICE* to capture the effect of farmer willingness to exit from farming on stay-exit intention. These two variables have been recognised as indicators of exiting from farming (Pushkarskaya & Vedenov, 2009). We expected these two variables to have a negative association with the intention to stay. Finally, we include two variables to capture the effect of overall satisfaction (*SATISFY*) and positive expectation (*LIFEEXP*) on stay-exit intention. Both satisfied people and people perceiving positive changes have been recognized as increasing the likelihood to stay in their jobs (Hellman, 1997; Zollinger & Krannich, 2002). Since farming is a way of life that encompasses the place where farmers live and work (Kuehne, 2013), we expected these variables to have a positive association with the intention to stay.