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PATRICK De Leenheer (iitmanu@gmail.com), Auburn Hill, MI 48326, **Anushaya Mohapatra***, amohapatra@oakland.edu, and **Haley Ohma** and **Dave Lytle**. *THE PUZZLE OF PARTIAL MIGRATION: ADAPTIVE DYNAMICS PERSPECTIVES*.

The phenomenon of partial migration is exhibited by populations in which some individuals migrate between habitats during their lifetime, but others do not. First, using an adaptive dynamics approach, we show that partial migration can be explained on the basis of negative density dependence in the per capita fertilities alone, provided that this density dependence is attenuated for increasing abundances of the subtypes that make up the population. We present an exact formula for the optimal proportion of migrants which is expressed in terms of the vital rates of migrant and non-migrant subtypes only. We show that this allocation strategy is both an evolutionary stable strategy (ESS) as well as a convergence stable strategy (CSS).

Secondly, we use an evolutionary game theory approach, and confirm, once again, that partial migration can be attributed to negative density dependence alone. In this context, the result holds even when density dependence is not attenuated. In this case, the optimal allocation strategy towards migrants is the same as the ESS stemming from the analysis based on the adaptive dynamics. (Received January 31, 2017)