

# Finding Generalized Walras-Wald Equilibrium.

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We show first that the classical Walras-Wald equilibrium is equivalent to John Nash equilibrium in n-person concave game.

Our main focus is generalized Walras-Wald model. We found conditions under which the Generalized Equilibrium (GE) exists and unique.

The GE is an extension of the classical LP duality. It allows overcoming some basic LP limitations.

We show that finding GE is equivalent to solving a variational inequality for a strongly monotone operator on  $\mathbf{R}^{m+n}_+$

The pseudo-gradient projection method (PPM) for finding GE was introduced and its Q-linear global convergence rate was established. The complexity of the PPM was compared with the classical LP complexity