About a problem of controlling a random walk on integer points plane [1]

E.O. Rapopoprt

Sobolev Instinut of mathematics SB RAN, Novosibirs
e-mail: rapoport@math.nsc.ru

There k productions, producing two products . Each of the plants is characterized by its set of transition probabilities for the production of j, this set will denoted by $\{p_{i,j}\}, i = 1, \cdots, n,\ j = 1, \cdots, k.$. Natural to assume that each of the industries is preferable to one of the products, wherein a plurality of all walks divided into two groups by preference.

Objective is to identify in each integer point plane random walk of a given set so that minimize the likelihood of the first quadrant .

Let $(\cos\varphi, \sin\varphi)$ - food prices . For each pair walks (i, j) (one from each group) we consider the walk on the line generated by these prices. Naturally consider only agreed prices (introduced [1]) as soon as they are associated with optimum control.

Asymptotics of degeneracy for c- policy generated agreed prices and a pair of walks (i, j), is defined dimensional parameters $\lambda_{i,j}$, which can be order .

In [2] it was shown that for the agreed price angle φ must be chosen so to satisfy the equation

$$\lambda_{i,j} = \sqrt{\mu^2 + \lambda^2}.$$

Here, the pair (λ, μ) - solution associated system (see [1]) that occurs for the corresponding pair of walks.

Thereby , a plurality of pairs should be chosen such that $\sqrt{\mu^2 + \lambda^2}$ is maximal.

REFERENCES

1. E.O Rapoport, Main strategy in the allocation indivisible resource // Discrete Analysis and Operations Research . Series 1 . T.4 , № 1, 1997, P.33 -45 .

2.Rapoport E.O, Indivisible resource distribution : optimal management and price // Siberian Journal of Industrial Mathematics. Volume XII, № 3 (39) . 2009, p . 75-84 .

[1]Supported by grants RFBR № 12-01-00667, № RFH 13-06-00311 and № 13-02-00226.