Computer Life (CPL) ISSN: 1819-4818
DELIVERING QUALITY SCIENCE TO THE WORLD

The Task pricing of "Photography making money"

Zhongxiang Jia

School of North China Electric Power University, College of Computer Science and Technology, Baoding071000, China

1665014118@qq.com

Abstract: "Taking pictures to make money" [1] is a self-service mode of service under the mobile Internet. Whether the pricing of the task is reasonable is related to the success or failure of the inspection of the goods. First of all, we analyzed the location of the task and the members. Considering the influence of the number of members around the task on the pricing, we introduced the factor of membership density. Multiple regression of task location and membership density with MATLAB is used to establish a mathematical model of task pricing. At the same time, according to the experience of life, the member's letter is known. The intensive degree of reputation and task will have a certain impact on the pricing, and the success of the mission data reliability is higher, so the selected task successfully, the multiple regression of its credibility, task density, density and membership task position, the task of pricing new case.
Keywords: Multiple Regression ; MATLAB ; Optimization ; Fitting.

---

1. INTRODUCTION

"Photographing money" is a self-service model under the mobile Internet. The user downloads the APP, registers as an APP member, and then takes the task (such as going to the supermarkets to check the availability of a certain product) from the APP to earn the nominal fee of the APP for the task. This kind of self-service crowd sourcing platform based on mobile internet provides enterprises with a variety of business inspection and information collection. Compared with the traditional market research methods, it can greatly save the investigation cost, effectively ensure the authenticity of survey data and shorten the investigation The cycle. Therefore, APP has become the core of the platform operation, and the task of APP pricing is its core elements. If the pricing is not reasonable, some tasks will no one cares, which led to the failure of commodity inspection.

2. ASSUMPTIONS

- Assuming members will not give up due to weather, traffic jams and other reasons;
- Assume that a member will be able to complete the task after accepting the assignment;
- Assuming that members' selection of tasks is facilitated and their interests are maximized as their main consideration;

•Assuming that there is no collective search for tasks between members, the search for tasks alone;

•Assuming that the mission area is planar, regardless of the distance error caused by the Earth's surface;

3. NOTATIONS

Table 1. Notations

symbol	significance
Y	Ideal pricing
y	Actual pricing
J_1	Longitude of the mission location
W_1	Mission location latitude
J_2	Members Longitude
W_2	Member latitude
C_r	Member credibility
ρ	Member density
T	Mission density

4. MODEL ESTABLISHMENT AND SOLUTION

Considering the position of the task, the price tag and the implementation and other factors, and introduced the concept of membership density. Membership density is the number of members within the 0: 1 latitude and longitude of the mission. When the membership density is greater, from the common sense of life will be reduced its pricing will be accordingly, so member density and pricing should be inversely proportional relationship. Therefore, we use the latitude, longitude membership density of three elements of multiple regression, find the task of the ideal pricing. Again compared with the actual pricing of the task, if the actual pricing is too low, members will be subject to various unfavorable factors to give up the task, so the task failed.

The topic calls for the design of a new mission pricing scheme for the projects in Annex I and a comparison with the original scheme. On the basis of Annex I, we made some improvements to our pricing plan. First, let's go to the points in Annex I where we have already done the task. The pricing of such points is closer to the ideal price and the data is more accurate. Second, by analyzing the data in Annex 2, we can see that there is a certain correlation between pricing and creditworthiness, and the workload within a certain range also has some impact on pricing. Therefore, in the second question, we introduce the determinant of membership credit (Cr), and the task is too intensive will lead to increased competition, thus affecting the price, so the introduction of task density (T), task density that is 0: 1 latitude and longitude The number of tasks within. And three questions in the first three variables: longitude (J), latitude (W), membership density (ρ) together[2], that is : $Y = \beta 0 + \beta 1 J + \beta 2 W + \beta 3 \rho + \beta 4 C r + \beta 5 T$.

The key to solving this problem lies in the analysis of the task pricing and its rationality. To this end, we have designed the following model to solve the problem. After analyzing the data provided in the annex, we can see that the factors affecting the task pricing are shown in Figure 1:

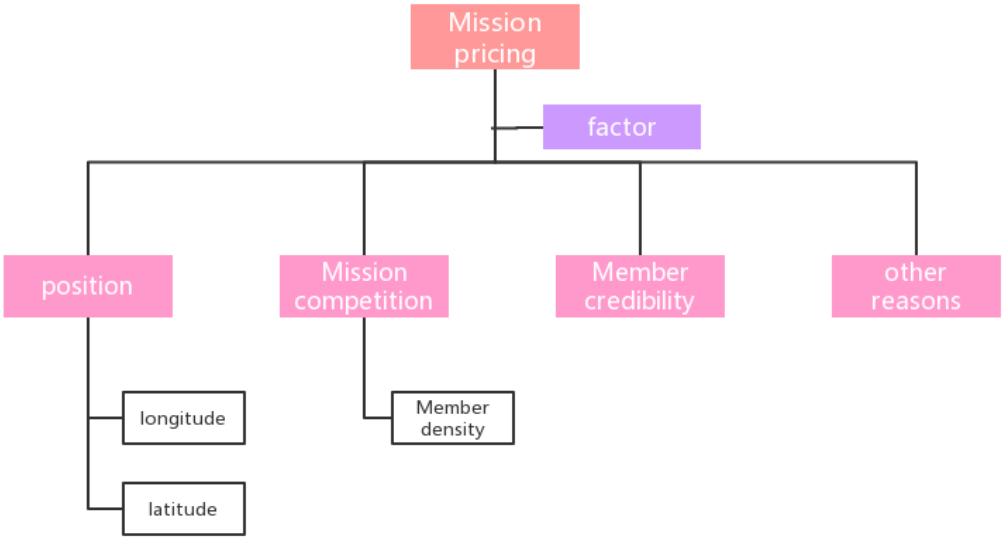

Figure 1 factors affecting the task pricing

Since the pricing rules in Annex I of the study have nothing to do with the success of the mission, we analyzed all the data and studied the mission location, pricing, completion status and membership location in Annex I in Annex I and we can see that the pricing and membership location No direct contact. From this, we make the membership position, the mission position and the completed and unfinished mission distribution map[3], as shown in Figure 2:

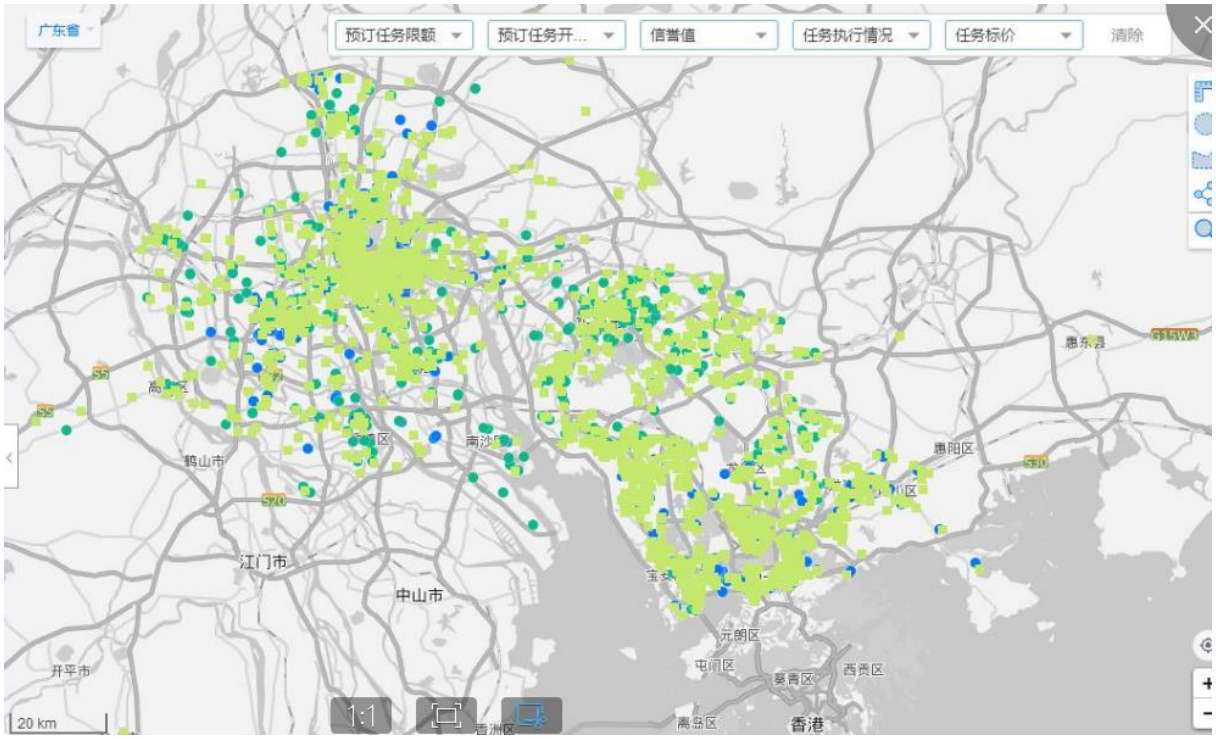

Figure 2 members and task information distribution 1

Part of the map will be enlarged, the division of information shown in Figure 3:

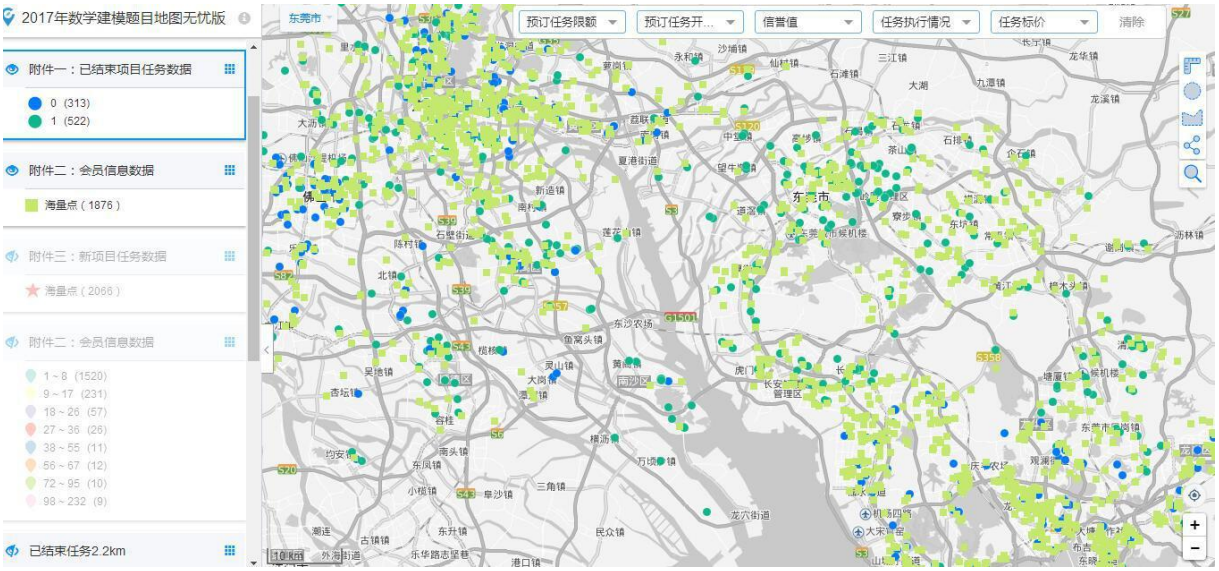

Figure 3 members and task information distribution 2

From the figure above, we can see that the members are more densely distributed, the task is completed well, and the task pricing is also affected. Therefore, we introduce the membership density (), that is, the total number of members within 0: 1 latitude and longitude of the mission the ideal pricing formula obtained through fitting is

$$Y = \beta 0 + \beta 1\ J + \beta 2\ W + \beta 3\rho \tag{1}$$

Through multiple regression of MATLAB, $\beta 0 = 9.9960$, $\beta 1 = 2.2435$, $\beta 2 = 0.0894$, $\beta 3 = -0.0203$ were obtained. Therefore, the pricing formula is obtained

$$Y = 9.9960 + 2.2435J + 0.0894W - 0.0203\rho \tag{2}$$

Test: Make the ideal pricing, the actual pricing and the completion of the task of the three-dimensional map, we can see that the task is not completed a large part of the point where the actual pricing is lower than the ideal pricing,that is, the task of pricing and task value disparity.

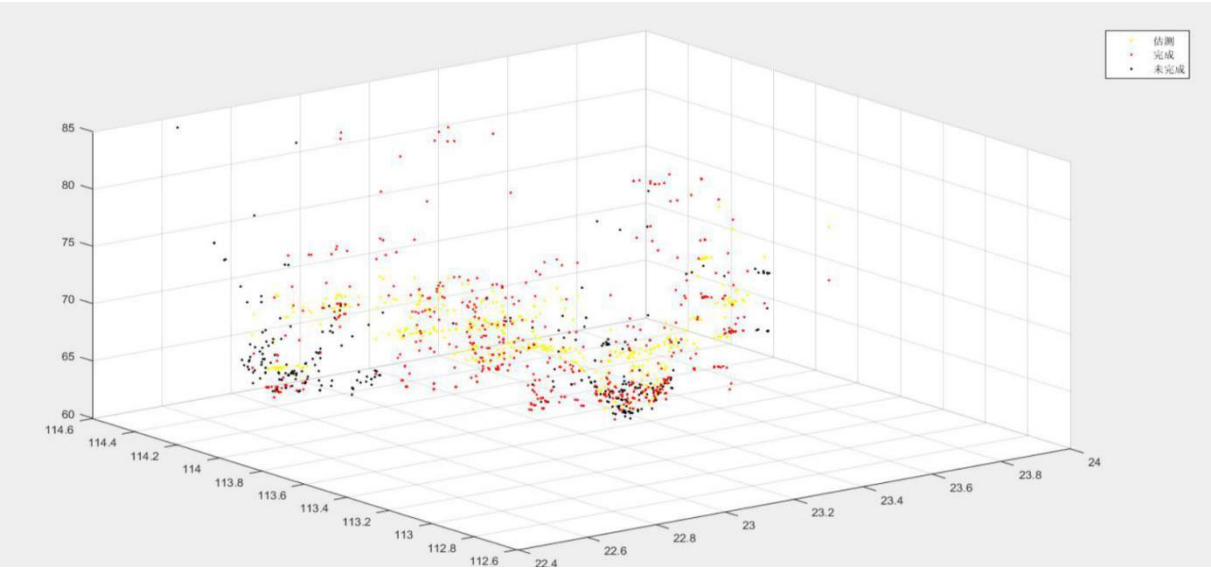

Figure 4 The ideal, the actual pricing and the three-dimensional map of the task completion degree

Error Analysis:

$$E = \sum_{i=1}^{835} \frac{1}{835} * \frac{|Yi - yi|}{yi} = 0.0386 \tag{3}$$

Summary: The ideal price formula shows that the relationship between pricing and longitude is the largest. This point can also be drawn from the distribution map: the distribution of tasks has a large span and the tasks in different geographical locations have different degrees of difficulty. At the same time, the pricing is inversely proportional to the membership density, that is, the more members, the oversupply, the falling prices of tasks, and the laws of daily life. Therefore, the main reason for the incomplete mission is that the actual pricing of the mission is lower than the actual value of the mission.

We need to study the new pricing scheme and we pick the completed task in Annex I. The actual pricing for this set is closer to the ideal pricing and the data is more accurate. Contact daily life shows that the number of tasks within a certain range of prices also have a certain impact, while pricing and membership have a certain degree of correlation, it is based on the introduction of a task density (T) and membership credit Cr, Get the following pricing formula by fitting:

$$Y = \beta 0 + \beta 1\ J + \beta 2\ W + \beta 3\ \rho + \beta 4\ C\ r + \beta 5\ T \tag{4}$$

Using MATLAB multiple regression to find β0 = 61.3065, β1 = 2.4374, β2 = -0.3947, β3 =-0.0251, β4 = -0.00003267, β5 = -0.0086 The resulting pricing formula is

$$Y = 61.3065 + 2.4374J + 0.3947W + 0.0251 -0.00003267Cr + 0.0086T \tag{5}$$

Compared with the original program, the pricing method is more similar to the successful pricing of the task and better than the original one.

Make the ideal pricing, the actual pricing and the completion of the three-dimensional map of the task, we can see that a large part of the task unfinished point is the actual pricing is lower than the ideal pricing, that is, the task pricing and task value disparity.

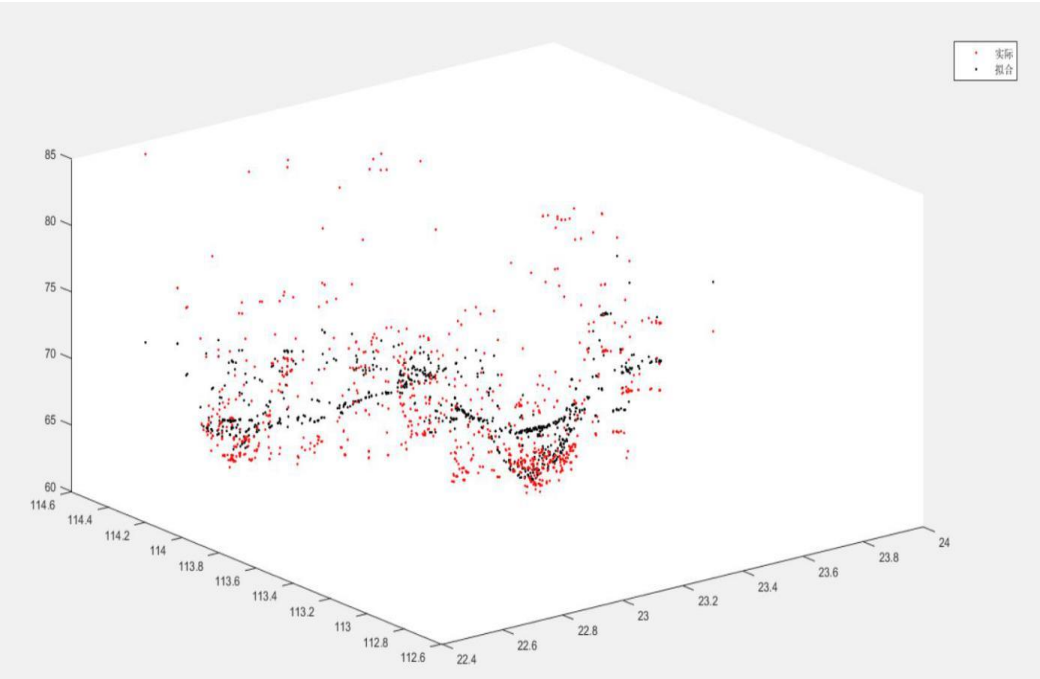

Figure 5 Figure 3 ideal, actual pricing and task completion

Error Analysis:

$$E = \sum_{i=1}^{486} \frac{1}{486} * \frac{|Yi - yi|}{yi} = 0.0295 \tag{6}$$

Compared to Problem 1, the new pricing scheme provides a more complete analysis of the factors that affect the pricing of tasks. The data analyzed are more positive and accurate, more realistic than the original program, and have a certain improvement in the success rate of the task completion.

5. MODEL PROMOTION

By our understanding of the subject, the use of multiple regression and optimization model, the final design of a new more reasonable task pricing program. We designed a comprehensive plan for a wide range of applications, can be applied in many areas, such as a taxi, taxi, etc., can be approximately to solve these problems, but the program there are still many deficiencies, there is still much room for improvement.

REFERENCES

[1] https://baike.baidu.com/item/%E5%A4%9A%E5%85%83%E7%BA%BF%E6%80%A7%E5%9B%9E%E5%BD%92%E6%A8%A1%E5%9E%8B/2437588

[2] Zhuo Jinwu, MATLAB in mathematical modeling [M]. Beijing: Beijing Aerospace Press, 2014: 21-22

[3] http://test.dituhezi.com/map/viewer?mid= wPriekmFnG-IbLqB6UmRTQ