Food delivery from restaurants

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1 Business research

1.1 A top-down estimation of market size

In this section we consider Moscow as a city. We are going to use a **TAM-SAM-SOM** methodology to perform an estimation of market size.

TAM. According to this source, for a total of 135B RUB spent last year in Russia.

$$\text{TAM} = 135\text{B} \cdot 0.45 \sim 60\text{B RUB}.$$

SAM. From all people in the city only 65% are ready to order a food delivery from restaurants

$$\text{SAM} = \text{TAM} \cdot 0.65 \cdot 0.95 \sim 37\text{B RUB}.$$

SOM. Top 5 delivery companies

$$\text{SOM} = \text{SAM}/5 \sim 7.4\text{B RUB}.$$

1.2 Unit economics with profitability per order

2 Data Anaysis

2.1 Modeling results

To compare quailty of different models RMSE metric is used. We perform train-test splitting and use the test dataset to obtain the following results.

Model	**RMSE**	**R^2**
Ridge regression	0.43178	0.98734
LightGBM	0.40342	0.98895
Random Forest	0.44910	0.98631
Dense neural network	0.55436	0.97914
Baseline	0.41872	

Table 1: Result table

2.2 Top opportunity to improve the upfront pricing precision

In addition to main features:

```
['gps_confidence', 'predicted_distance',
 'predicted_duration', 'eu_indicator',
 'overpaid_ride_ticket', 'dest_change_number',
 'prediction_price_type', 'change_reason_pricing',
 'entered_by']
```

Figure 1: Main features

I suggest we use features such as

```
['day_of_week', 'is_weekend',
 'part_of_day', 'speed',
 'isairport_2000', 'isairport_6000']
```

Figure 2: Additional features

As I mentioned before in *Data_Analysis.ipynb* that the next features `['isairport_2000', 'isairport_6000']` could be derived from GPS-coordinates. Also if I knew pickup and dropoff coordinates I would add:

- weather conditions,
- the most visited places,
- good/bad neighbourhoods,
- some data from similar ride-hailing applications.