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OUR PRICE BENCHMARK
METHODOLOGY

ROAD FREIGHT EMEA

CONTENTS

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*Upply data

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Our price comparison service provides you with a wealth of millions of prices for transport operations provided by our partners and users.

1. NATURE AND SOURCES OF COLLECTED DATA

Our Upply database now contains over **750 million prices from invoiced transactions.**

It is populated by over **4,000 companies** and updated weekly.
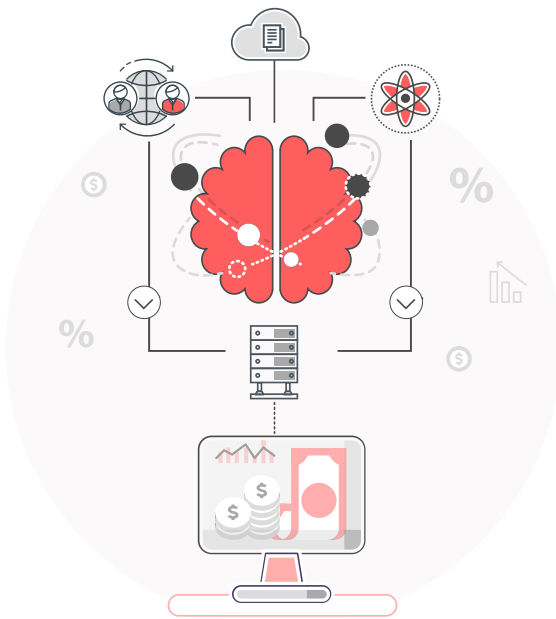
This data is collected automatically on a daily basis from specialised partners and our users. In order to guarantee a secure analysis, the data is **encrypted and stored anonymously.**

This pricing information is derived from billing data. Each price in our database corresponds to a shipment made on a given date.

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3 main data sources

1   **Our Connect solution**
This solution puts shippers and carriers in direct contact with each other who agree on contractual conditions for carrying out a transport operation. Upply then takes care of payment, invoicing and document management.

2   **Our partners**
These are shippers, carriers, freight forwarders or design offices with whom we have signed a partnership agreement. We are connected to their information systems and we retrieve their invoicing data. In return, these partners benefit from access to our SMART solution at a preferential rate.

3   **Our SMART users**
Several thousand users use our solution every day to analyse their transport prices. These prices are collected, filtered to verify their veracity and fed into our database.

Good to know

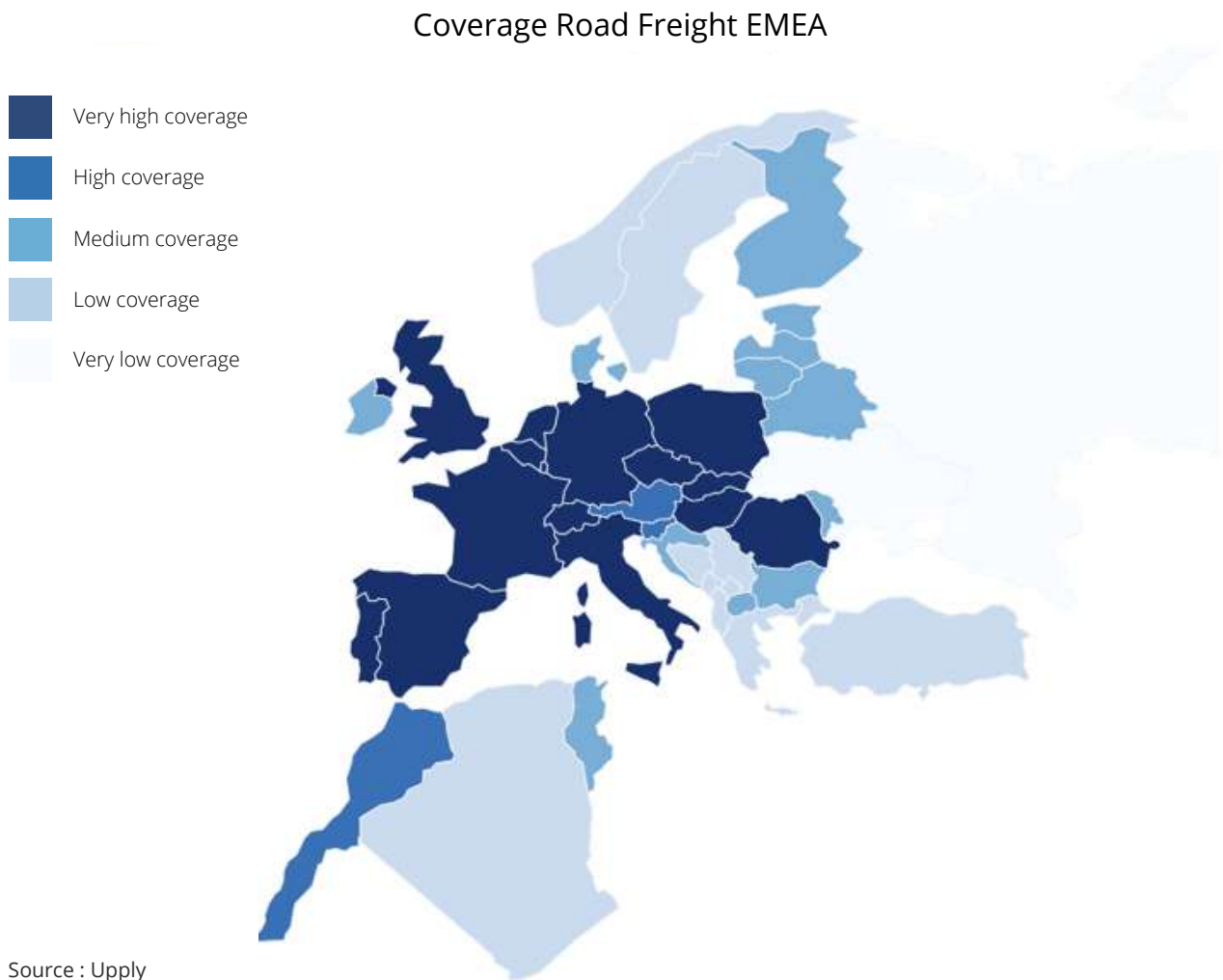More than 80% of our prices come from our Connect solution and from data provided by our partners.

Finally, to ensure unbiased price analysis, we process raw data to harmonise formats and remove outliers.

This processing ensures the quality of the data used by our proprietary algorithmic models, and therefore the reliability of the price estimates provided by Upply.

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2. GEOGRAPHICAL COVERAGE

The data collected daily from our various sources allows us to have a representative market in terms of price but also geographical coverage on **a EMEA scale**: we collect data from more than **40 countries.**

EMEA coverage of Upply for road freight transport

Coverage Road Freight EMEA

Very high coverage

High coverage

Medium coverage

Low coverage

Very low coverage

Source : Upply

We offer full EMEA coverage for road freight transport.

This geographical coverage allows users to analyze transport prices on any desired origin-destination.

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3. ESTIMATION OF THE MARKET PRICE DISTRIBUTION*
   BY OUR MACHINE LEARNING ALGORITHMS

a. Price definition

- **Loading - FTL & LTL**
  You can quickly benchmark the cost of a FTL (*Full Truck Load*) and LTL (*Less than Truck Load*) transport. The result is the total price for a load from 30 kg to a full truck load.

- **Fuel Surcharge**
  By default, Upply prices include fuel surcharge costs. You have the option to subtract this to get a view of the price excluding fuel surcharge.

In order to get the **price with and without fuel surcharge**, we rely on several parameters and data sources:

- The average monthly pump price per country (source CNR)
- The fuel surcharge rates applied by different transport companies
- A table of correspondence between the average monthly pump price in the country of origin and the fuel surcharge rate to be applied (table provided here).

Extract from the table :

Price at the pump	Overload rate
1,30€/L - 1,32€/L	9%
1,33€/L - 1,40€/L	10%
1,41€/L - 1,45€/L	11%

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Calculation example:
Let's assume that the price of a transport by FTL semi-trailer between Paris and Vannes in January 2022 is 904€. The average pump price in France (the country of origin of the transport) is 1.61€/L.

The fuel surcharge rate for such an average pump price in France therefore corresponds to 13% of the transport price excluding additional costs.

We therefore have:
- Total price of transport: €904
- Fuel surcharge rate: 13%
- Transport price excluding fuel surcharge: 904 / 113% = 800€.

Type of goods
You can choose between 8 types of goods available: general cargo, refrigerated, bulk, liquid, tray, rolling stock, food and container.

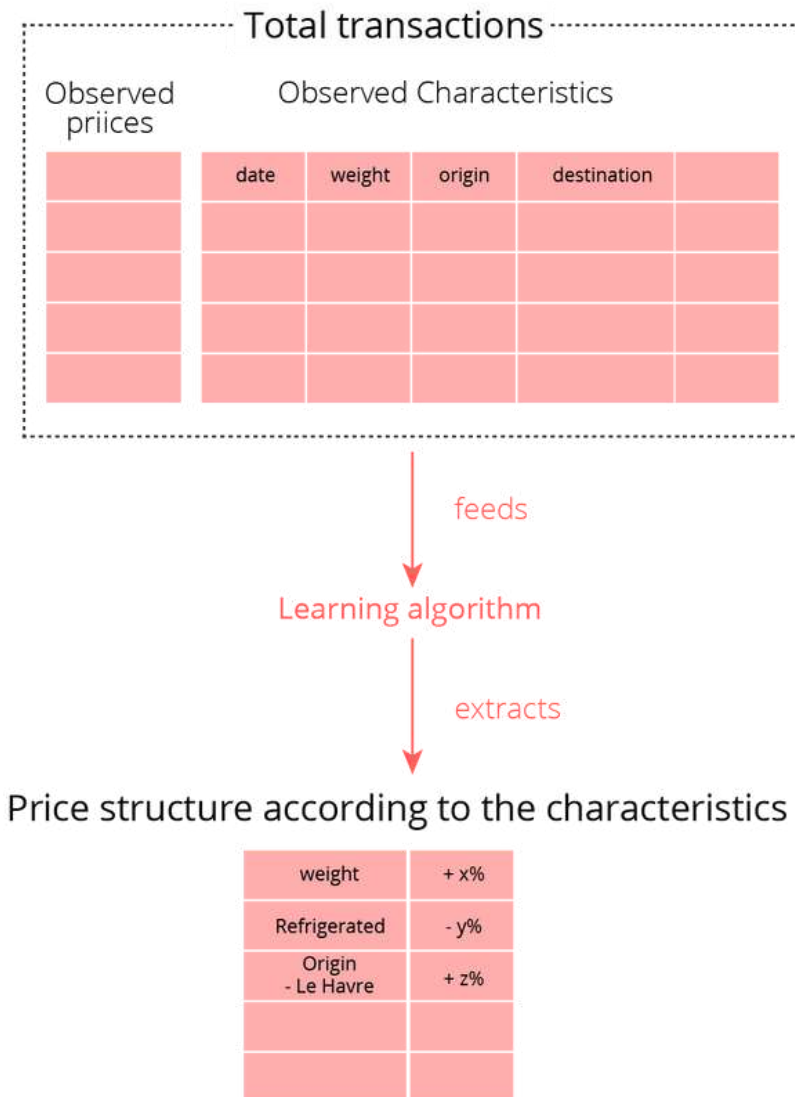## b. Median price modelling: Data Science algorithms for transport price transparency

An algorithm to extract the logic of price construction

By definition, the data collected by Upply does not cover all possible queries with the same level of quality. Thanks to proprietary algorithms developed by our team of data scientists, Upply is able to calculate transport prices for any query in the world. Without these algorithms, the results would be biased or incomplete.

Upply uses a so-called "learning" algorithm to extract all the value from the data collected. From this data and thanks to the statistical modelling work carried out upstream, Upply's algorithm is able to model the price construction logic by taking into account thousands of parameters simultaneously: origin, destination, weight, type of goods, date, etc.

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Once the price construction logic is extracted, our algorithm estimates the price distribution for any query, even those that have not been directly observed.

This is the strength of Upply's proprietary learning algorithms.

Total transactions

Observed priices	Observed Characteristics				
	date	weight	origin	destination	

feeds

Learning algorithm

extracts

Price structure according to the characteristics

weight	+ x%
Refrigerated	- y%
Origin - Le Havre	+ z%

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How can we be sure of the quality of an algorithm?

a. The amount of data

Since the algorithm relies on data to "learn" the logic of prices, the quality of its estimates varies according to the amount of underlying data.

*b. Market reality check**

To choose the best possible algorithm, we use a classical method of evaluating our models: we choose a set of transactions for which we know the characteristics, as well as their actual observed prices. From the characteristics of the transactions, the algorithm calculates a price distribution. By comparing these estimates provided by our models with the actual observed prices, we can measure the accuracy of our algorithm against the reality of the market*.

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Characteristics taken into account by the algorithm

Geographical data

- Cities of origin and destination

- Our geographical modelling is based on 47 logistics hubs in Europe, including 12 in France. The number of data allows us to go into greater detail in the analysis and to establish new hubs.

- We calculate the distance to each of the hubs: this "continuous" geographical modelling means that there is no border effect.

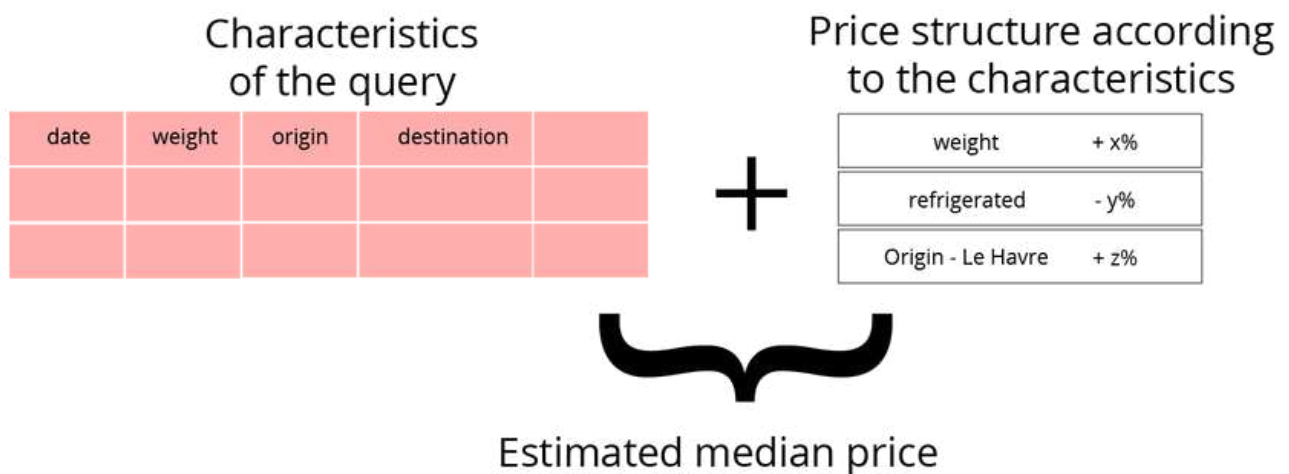### Logistics hubs

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Temporal data

The median price is estimated per week or per month depending on the frequency and quantity of data we receive.
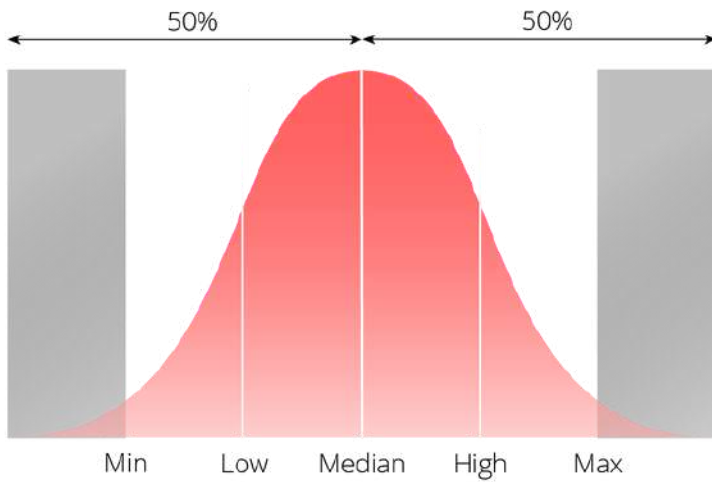
Loading characteristics

- Type of goods
- Load weight
- Quantity transported: in pallets, floor metres or cubic metres
- Fuel included or excluded

c. Estimated market price distribution*

Once the median price is estimated, our algorithms reconstruct the distribution of prices according to the distribution observed for the origin/destination pair.
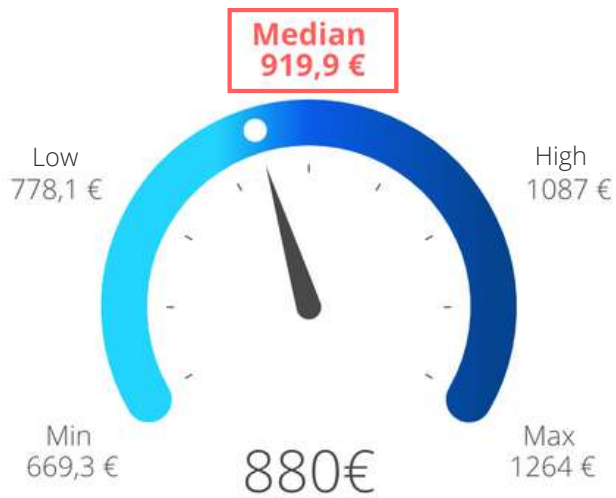
Characteristics of the query

date	weight	origin	destination	

Price structure according to the characteristics

weight	+ x%
refrigerated	- y%
Origin - Le Havre	+ z%

Estimated median price

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Median price

Median price
Half of the observed prices are below this value, the other half above.
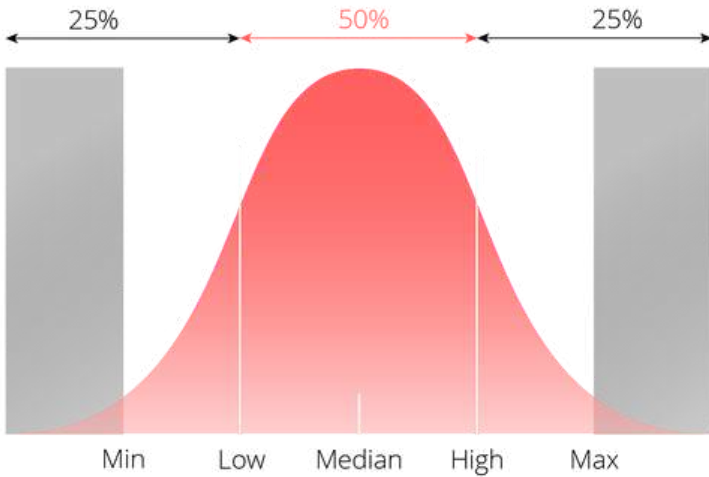

Example of reading
Half of the observed prices are below 919,9€, and half above.

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Low & high prices

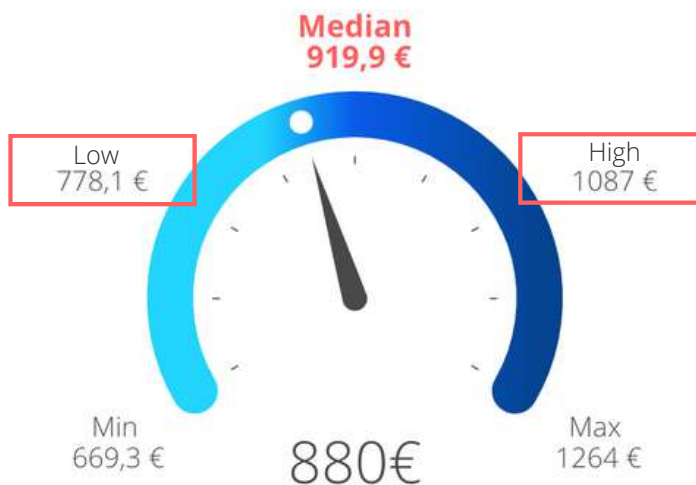Half of the observed prices are between these values.

Low price
25% of observed prices are below this value and 75% are above

High price
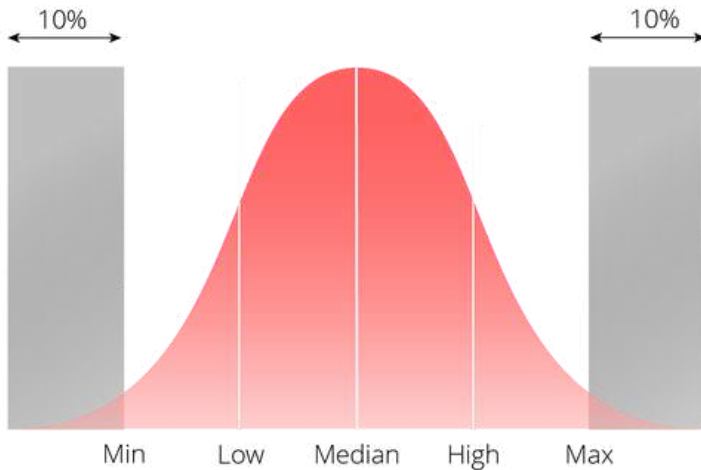75% of observed prices are below this value and 25% are above

Example of reading
25% of observed prices are below 778,1€. 75% of the prices are above this price.

75% of the prices are below 1 087€, 25% are above this price.

50% of the prices are between 778,1€ and 1 087€.

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Minimum & maximum prices

Minimum & maximum prices
Minimum and maximum values of observed prices after exclusion of outliers (10% of lowest and 10% of highest values)

d. History of price estimates

We receive new price data daily from our partners and users. This allows us to have the most up-to-date and accurate estimates possible. By integrating this data, we re-estimate the price distribution for earlier dates (e.g. a price estimate may differ depending on the date of the comparison).

The Upply price history thus represents the **distribution of the 5 prices (Min, Low, Median, High and Max) for a date over the last two years.**

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4. CONFIDENCE INDEX

Upply measures the quality of the estimated prices thanks to a confidence index. This was developed by our team of data scientists and is a guarantee of transparency: it informs our users of the reliability we have in the price displayed. This confidence index reflects **the amount of available data** as well as **the level of accuracy of the algorithm.**

This confidence index is based on **3 complementary criteria:**

1 – **The number of data items available** on the line being searched.

2 – **The diversity of data sources** on the line searched. In other words, the number of different companies that provided us with transport prices.

3 – **The frequency of receipt of data sources:** the more regularly the data arrive, the higher the confidence index.

a. A letter grade from A to E

The confidence index is characterised by **a letter from A, the highest confidence, to E, the lowest confidence.**

Upply's rating is based on a score that varies **from 0 to 1.**

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For each transaction, a score between 0 and 1 is obtained and it is categorized into one of 5 letters:

A – Very high confidence
B – High confidence
C – Moderate confidence
D – Low confidence
E – Very low confidence
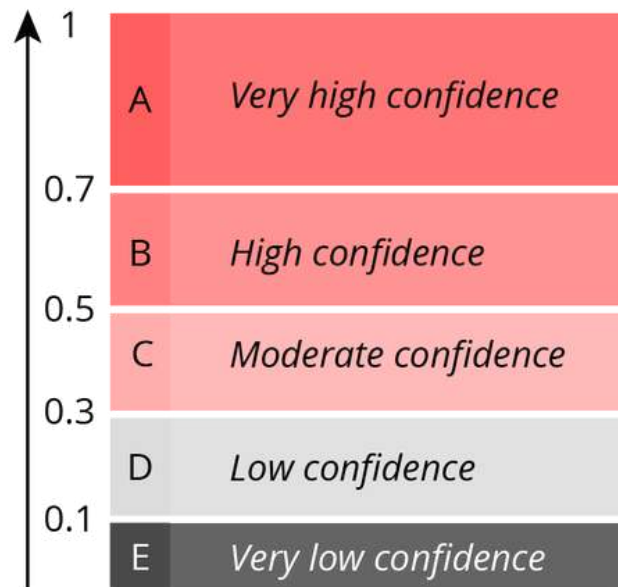
b. Score construction

### *A score depending on the parameters of the benchmark*

The confidence we have in the prices estimated by our algorithms for a query depends on the set of parameters chosen by the user.

In the road freight context:

- The line: city of origin, city of destination, corridor concerned
- The weight of the load as well as the quantity

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Taking into account the number of transactions

The more data we have, the better our algorithm is. However, after a certain threshold, adding data is no longer as impactful. We have therefore created a scaling system that allows us not to overvalue large amounts of data.
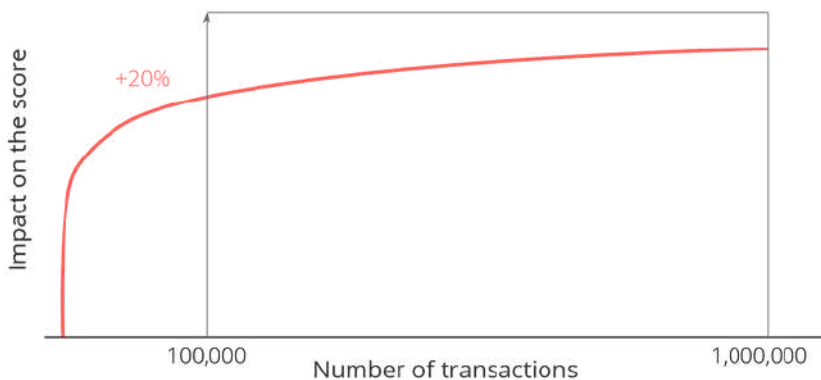
For example, between an originating port with 100,000 transactions and an originating port with 1,000,000 transactions, the score will be 20% higher for the latter.

Conversely, the score will be 5% higher for a port with 2 million transactions, compared to a port with 1 million transactions, because 1 million transactions allows for sufficient quality and representativeness for price estimation.

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Level of accuracy of the algorithm

The level of accuracy of the algorithm allows us to know if our estimate is close to the reality of the market*. We compare the prices estimated by our algorithm to the prices observed in the transactions. By definition, the accuracy level corresponds to the number of transactions for which the observed price is between the Low and High Price Bounds out of the total number of transactions.

In our example above, the accuracy is 4 out of 5 transactions or 80%.