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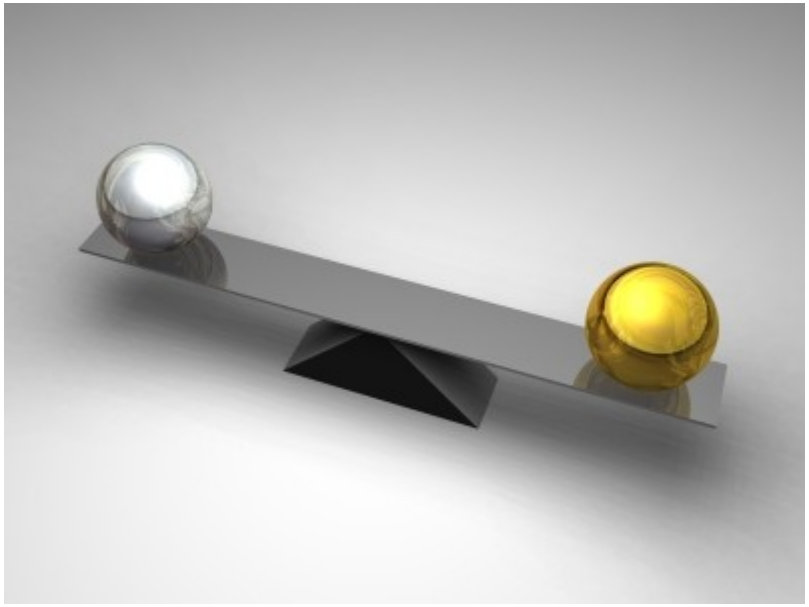
Software Rates vs Price of Function Points:

A Cost Analysis



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Goals of the presentation

Nowadays, in Software Development Contracts the key elements determining the price are:

- The Rate.
- The Effort.

The possibility to measure the quantity of software produced (the size in Function Points) allows us to assess whether there is a logical connection between:

- The price of the projects.
- The software actually produced.

The main goal of this presentation is to:

- ✓ **Determine if there is a logic relation between rates and the price of the Function Point.**
- ✓ **Draw conclusions on the economic management of software development.**

Agenda

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Background

Over the last five years, LEDAmc (www.leda-mc.com) has managed the productivity of more than 10,000 development projects of 10 significant clients in Spain (primarily telecommunication and financial companies).

They were mainly small enhancement projects.

The main goal of the measures is to control big contracts of Adaptive Maintenance, which implies the highest percentage of our clients development budget.

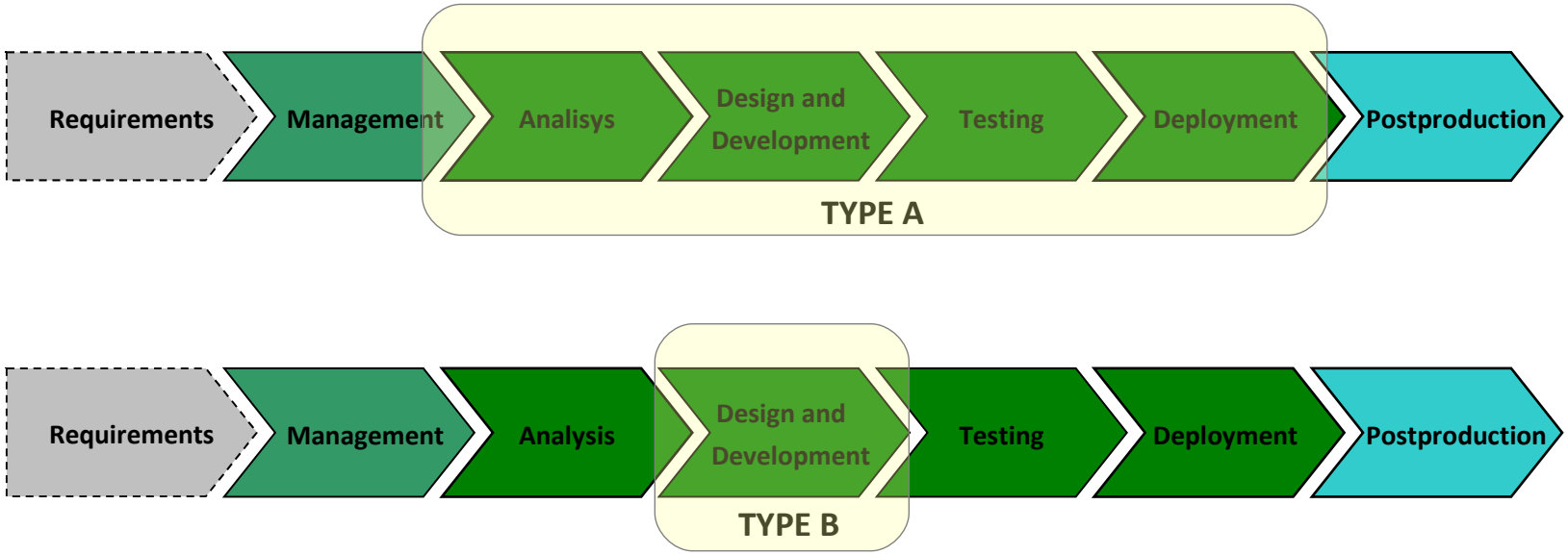
Out of these 10,000 projects we have selected 3,405 for the study.

These 3,405 projects were carried out by 14 different providers. The most significant are multinational providers working in other countries with the same or similar clients.

Background

The 3,405 projects were selected by periods and homogenized considering that:

- The data sets of every provider of each client were statistically consistent.
- The measured effort was equivalent within all the projects.



- The prices were applied to the same concepts.
- The method used to measure the projects was the same (IFPUG v4.2 and v4.3).
- The measurement have been executed or audited by CFPS.

Background

The basic magnitudes of the sample are:

- 10 Clients
- 14 Providers
- 3405 Projects
- 196,356 UFP
- 2,168,192 Hours
- 69,926,907 Million Euros

Most of the measures belong to Adaptive Maintenance of small size:

- Mean: 58 UFP
- Median: 32 UFP

Data Confidentiality

The main problem of carrying out this study is the confidentiality that LEDAmc is obliged to keep to its clients.

It is obvious that we cannot tell that the productivity of the provider X in our client Y is Z.

And not to mention that the rate of the provider XX in our client YY is ZZ.

In order to solve this problem, the following precautions have been taken:

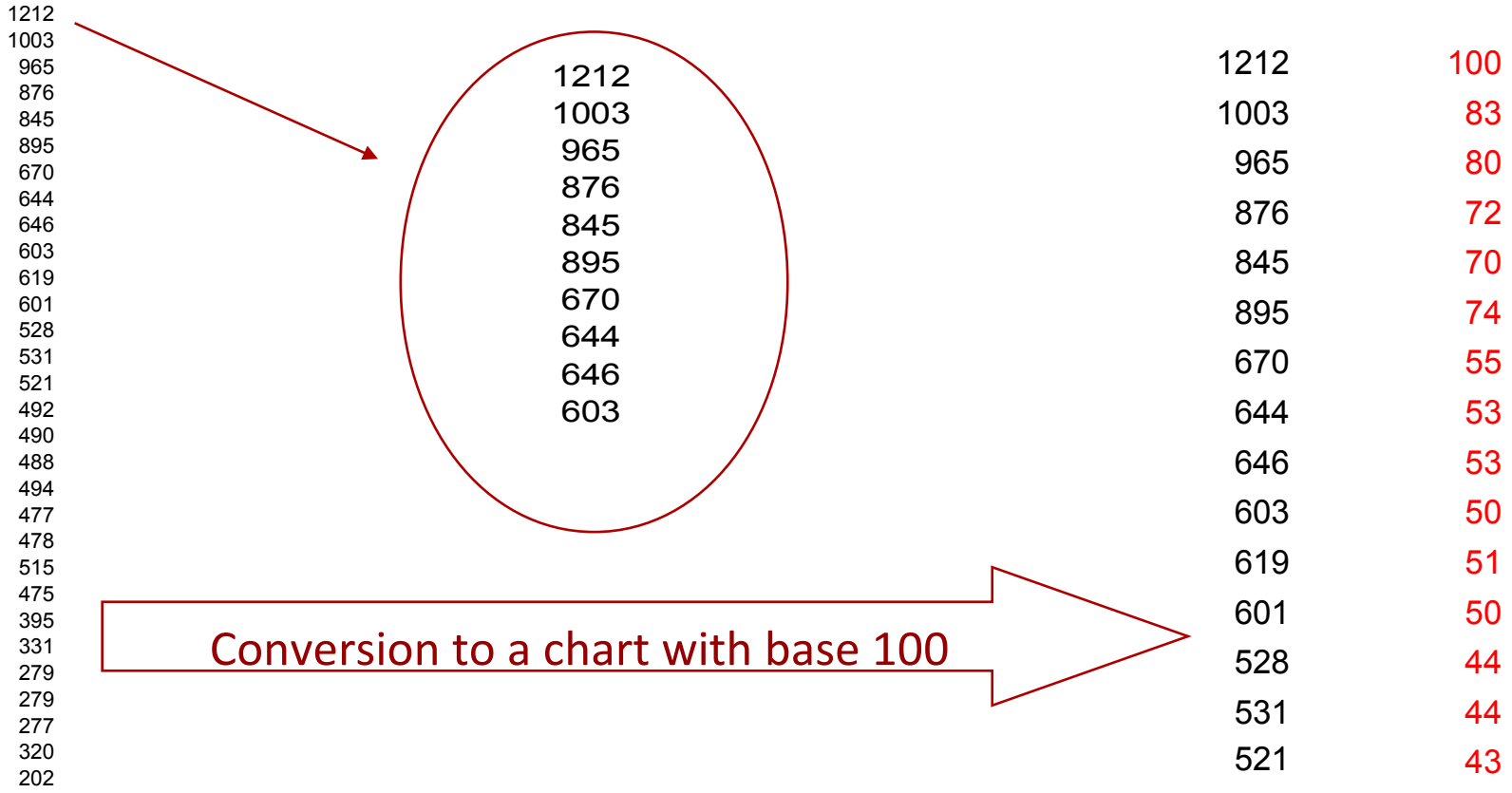
1. The clients are anonymous and they vary from CL-A to CL-J.
2. The providers are also anonymous and they vary from P1 to P14.
3. The data used is:
   - Productivity (FP per manday) (*).
   - Price of the Function Point (*).
   - Rate.

It was converted into base 100, as the following slide explain.

(*) only the effort and price related to the functional requirements

Data Confidentiality

The list of prices of the Function Point (from the highest to the lowest) for every provider in each client is something like (this is an example, not the real list):



Proceeding this way with the real data we obtain the starting matrix for the study:

Data Confidentiality

Client	Provider	Productivity (Base 100)	FP Price (Base 100)	Rate (Base 100)
CL-A	P1	12,2	**100**	65,1
CL-B	P1	18,5	64,9	64,0
CL-C	P11	12,7	60,4	40,7
CL-D	P2	81,0	13,2	56,7
CL-D	P3	60,1	18,8	60,1
CL-D	P4	38,6	30,0	61,5
CL-D	P5	45,9	25,3	61,8
CL-D	P7	50,8	21,8	58,8
CL-D	P8	56,6	19,3	58,0
CL-E	P12	35,5	33,8	63,7
CL-E	P13	30,4	45,1	72,9
CL-E	P3	35,5	33,7	63,5
CL-E	P4	26,2	40,2	55,9
CL-E	P5	34,4	37,2	68,0
CL-E	P7	19,8	56,0	59,0
CL-E	P8	35,1	34,5	64,2
CL-E	P9	32,8	36,0	62,7
CL-F	P2	24,6	36,9	48,3
CL-F	P5	26,4	34,6	48,5
CL-F	P3	26,8	34,5	49,1
CL-G	P1	28,2	33,8	50,7
CL-G	P3	22,0	44,3	51,8
CL-G	P6	25,7	34,7	47,4
CL-H	P1	23,6	42,5	53,3
CL-H	P2	18,2	58,2	56,3
CL-H	P4	21,8	46,4	53,8
CL-H	P5	53,8	19,7	56,3
CL-H	P6	25,2	42,3	56,7
CL-I	P10	**100**	13,8	73,3
CL-I	P14	96,1	19,6	**100**
CL-J	P3	14,5	68,4	52,6

The basic element of the matrix
is CLIENT-PROVIDER (and there are 31)
The data:

- Productivity
- FP PRICE
- Rate

Reference data:

- Mean Productivity: 0,62 FP/Manday
- Mean price of the FP: 456 €

Analysis Results

The results that we are going to show are quite obvious for anyone who has managed productivity models with clients.

However, they are not that obvious for the ones who either do not use or do not want to use these type of models.

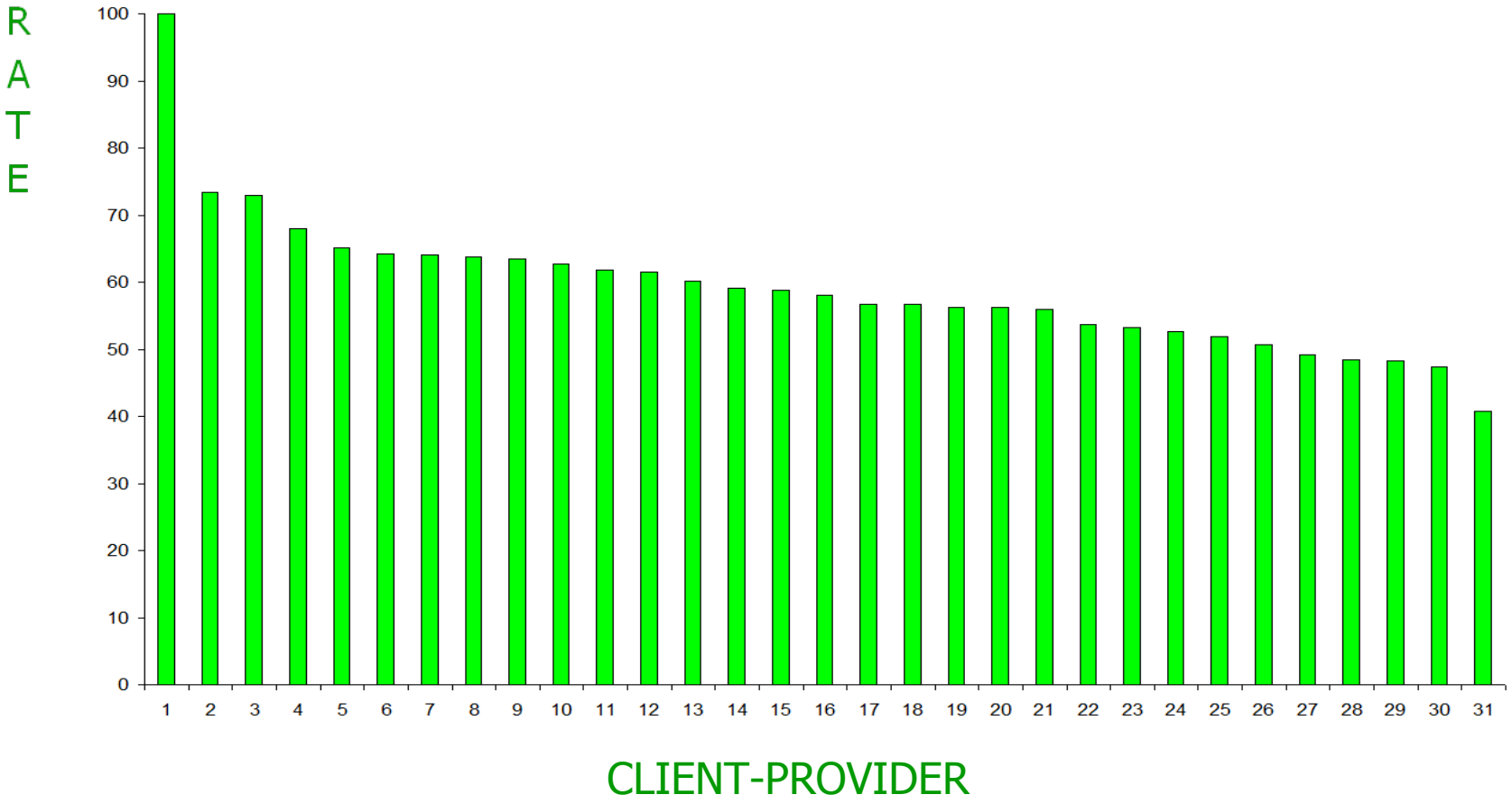
(Or for the ones who do not understand them or do not want to understand them)

The focus of this presentation is:

- To prove the obvious with data.
- Draw conclusions for economic management of the software development.

Results:

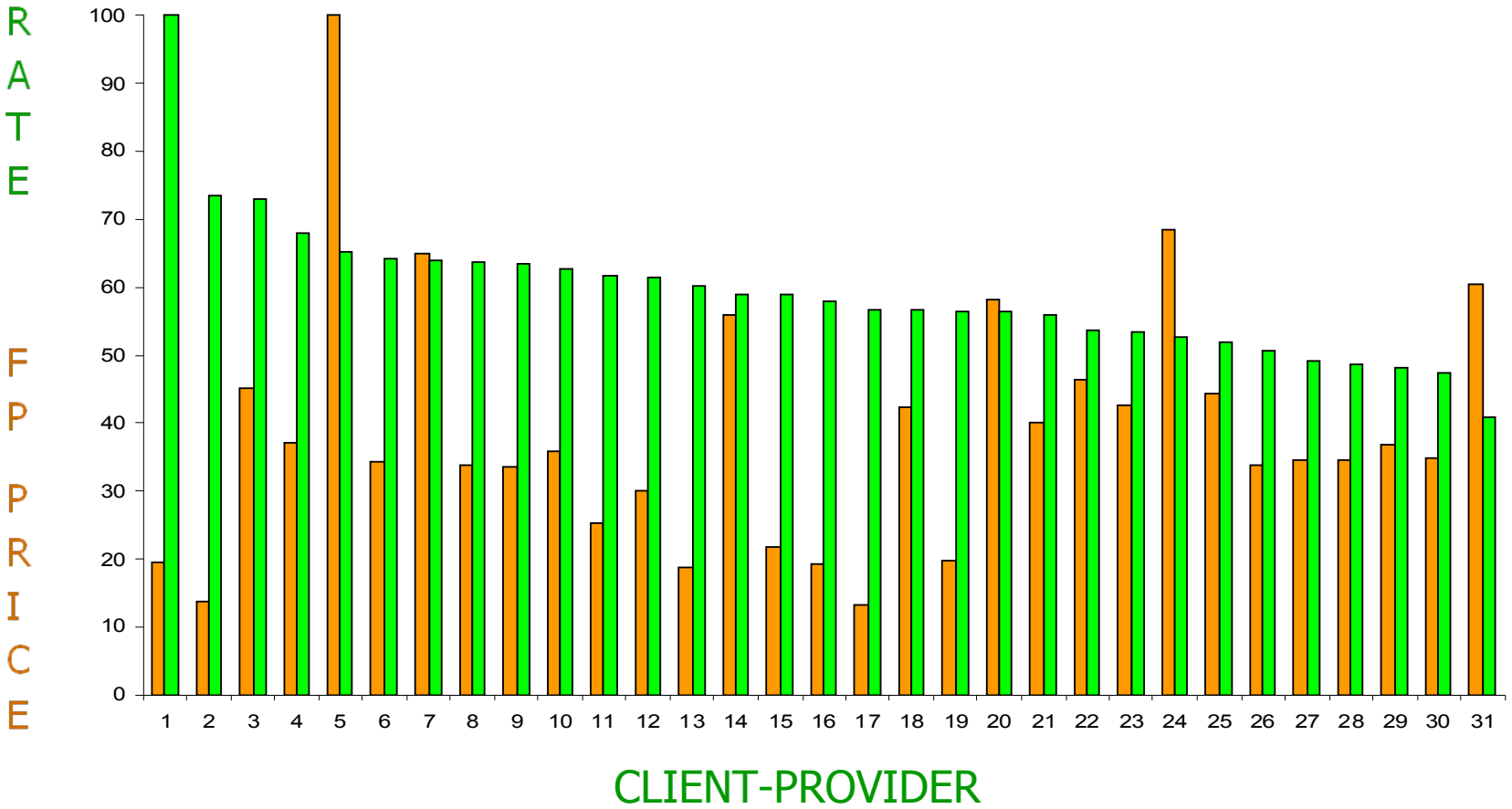
1 The relationship between Function Point Price and Rate is not logical



- This is the ranking of the rates.

Results:

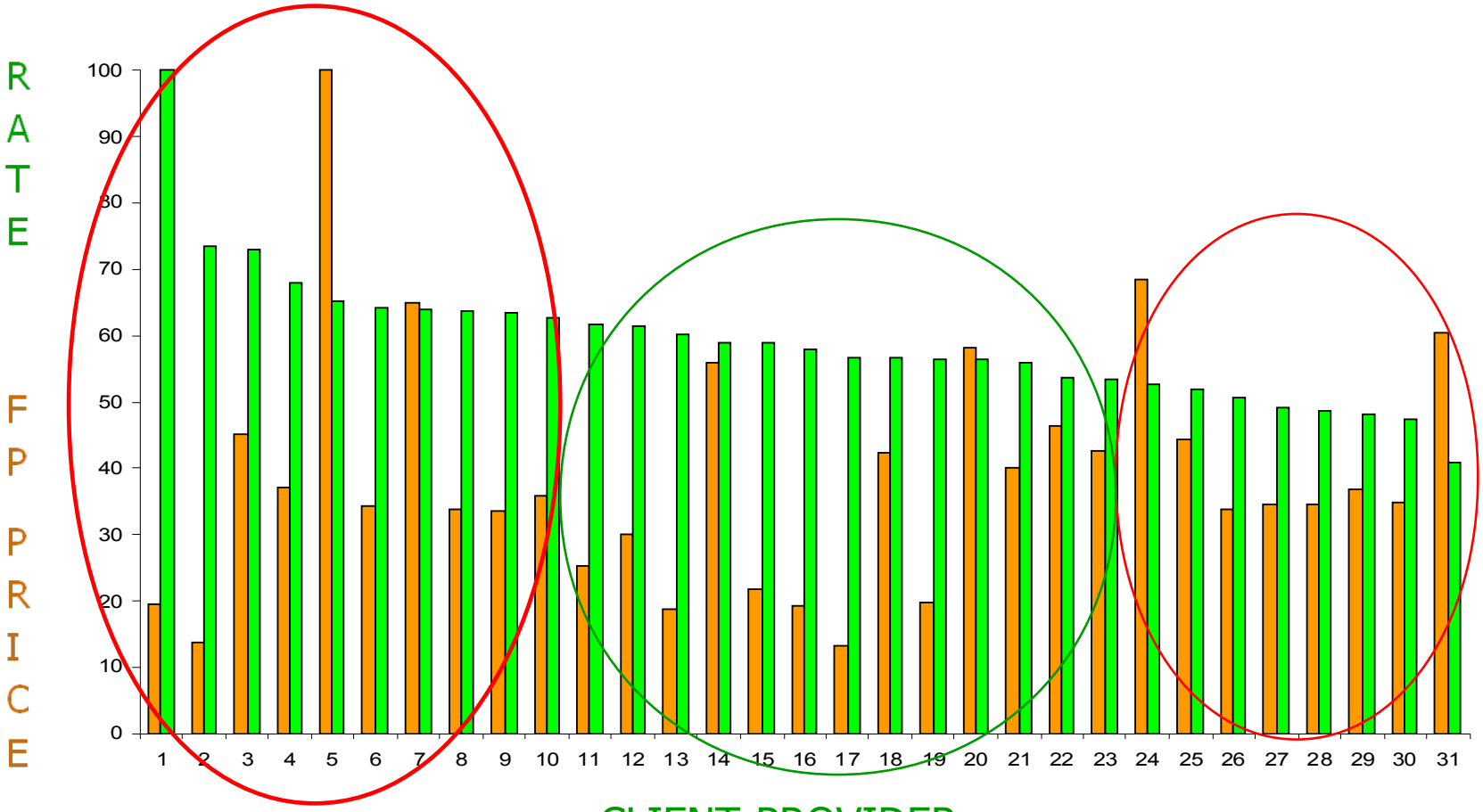
1 The relationship between Function Point Price and Rate is not logical



- This is the ranking of the rates (green) and FP Price (orange).

Results:

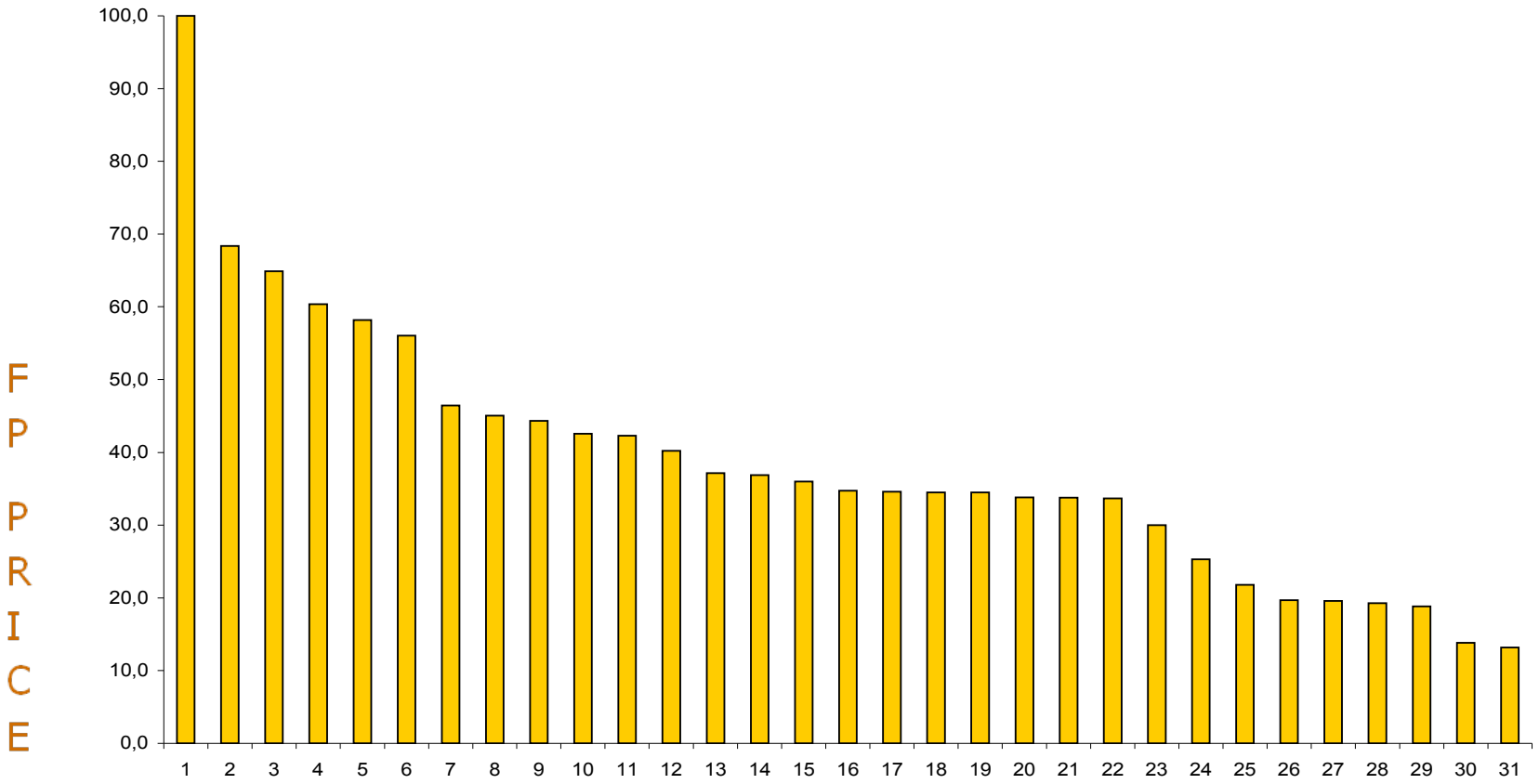
1 The relationship between Function Point Price and Rate is not logical



- Low rates have high FP Price.
- Medium rates have generally low PRICEs (much lower than low rates).
- High rates have very low PRICEs and very high PRICEs.

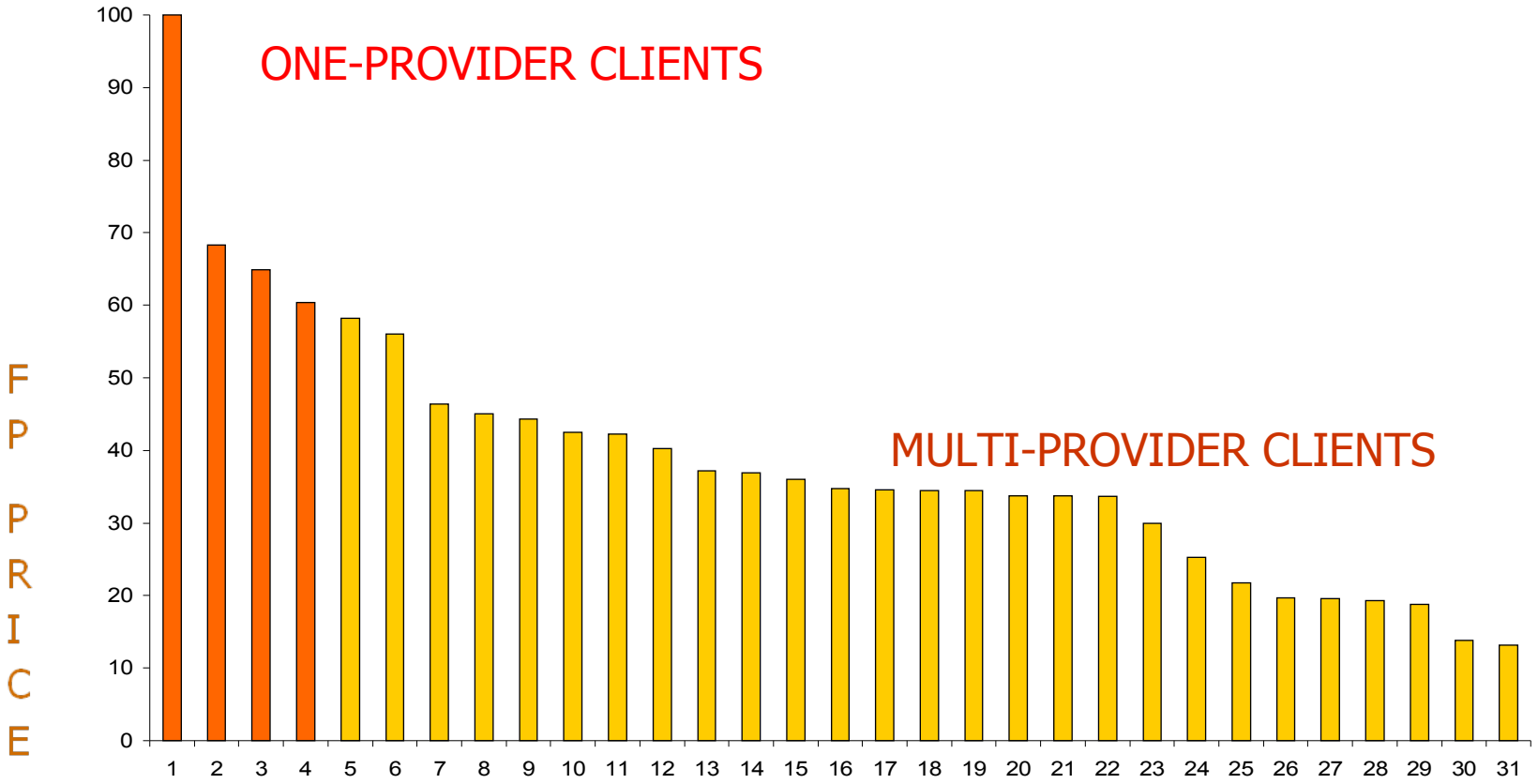
Results:

2 The price of the FP using only one provider is higher



Results:

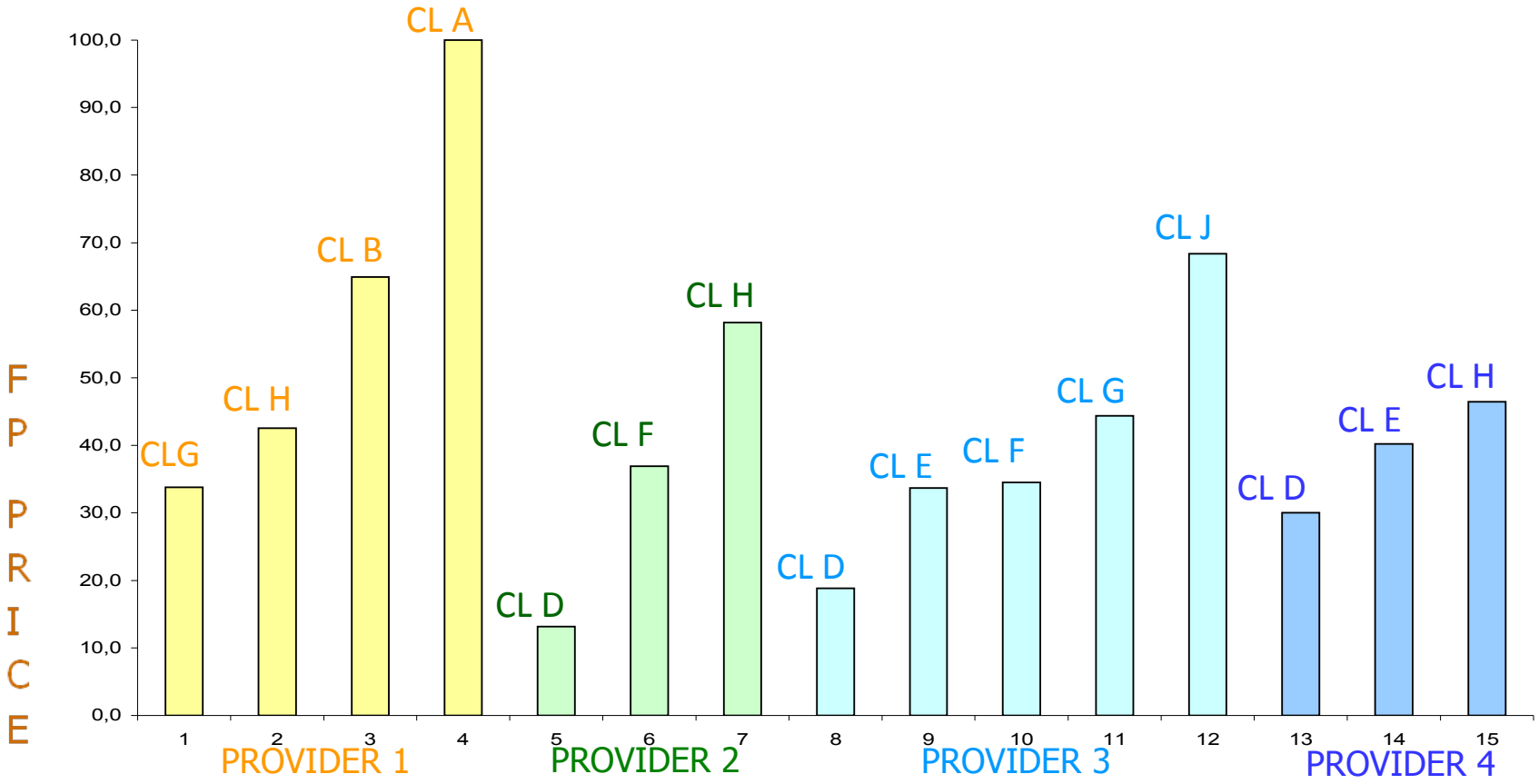
2 The price of the FP using only one provider is higher



- Even though the chart looks "too perfect", it is real.

Results:

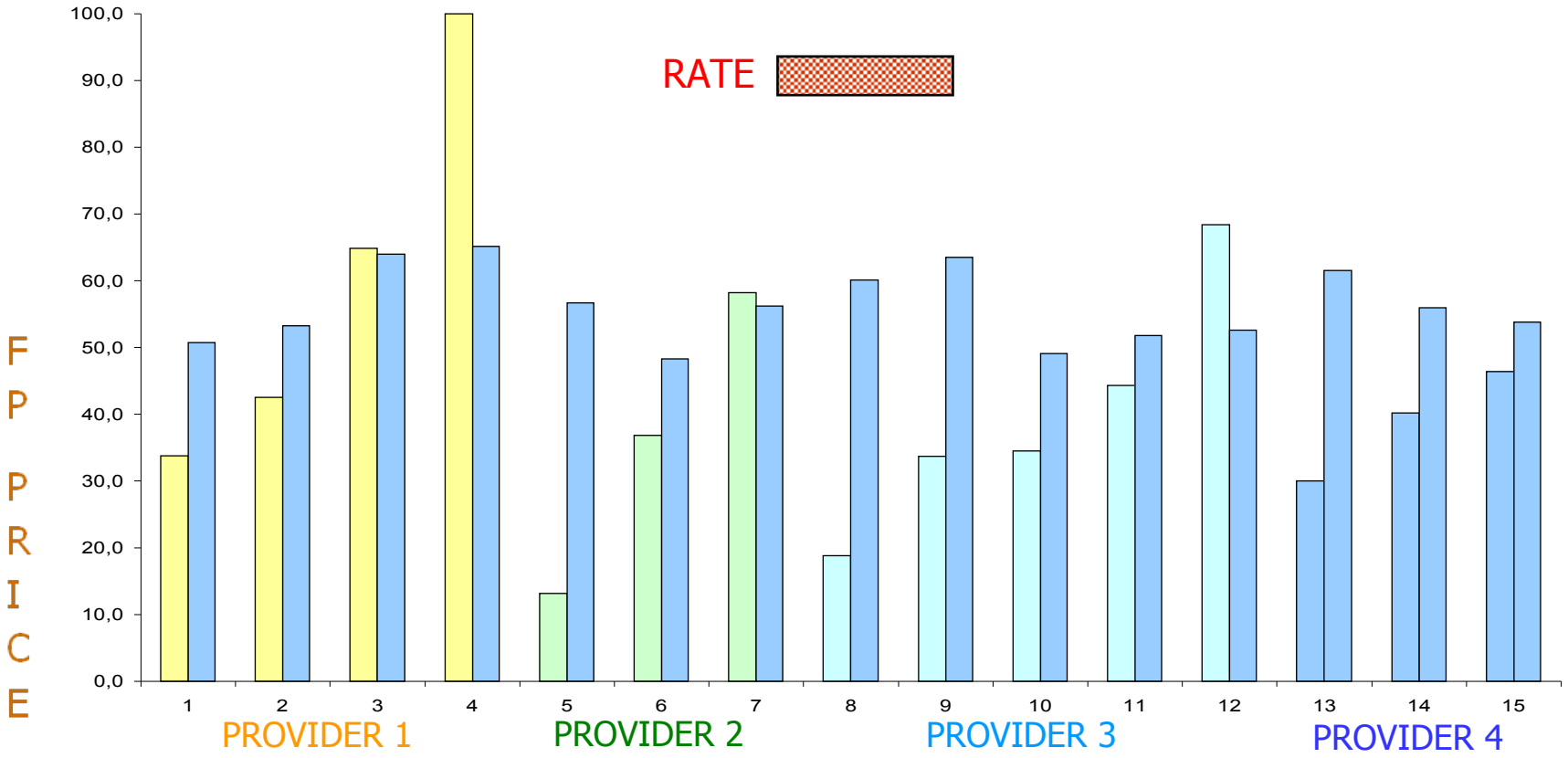
3 The behaviour of the providers is uncertain



- The differences in FP price among the various clients are clearly unjustified.
- The differences within the clients should not have this impact.

Results:

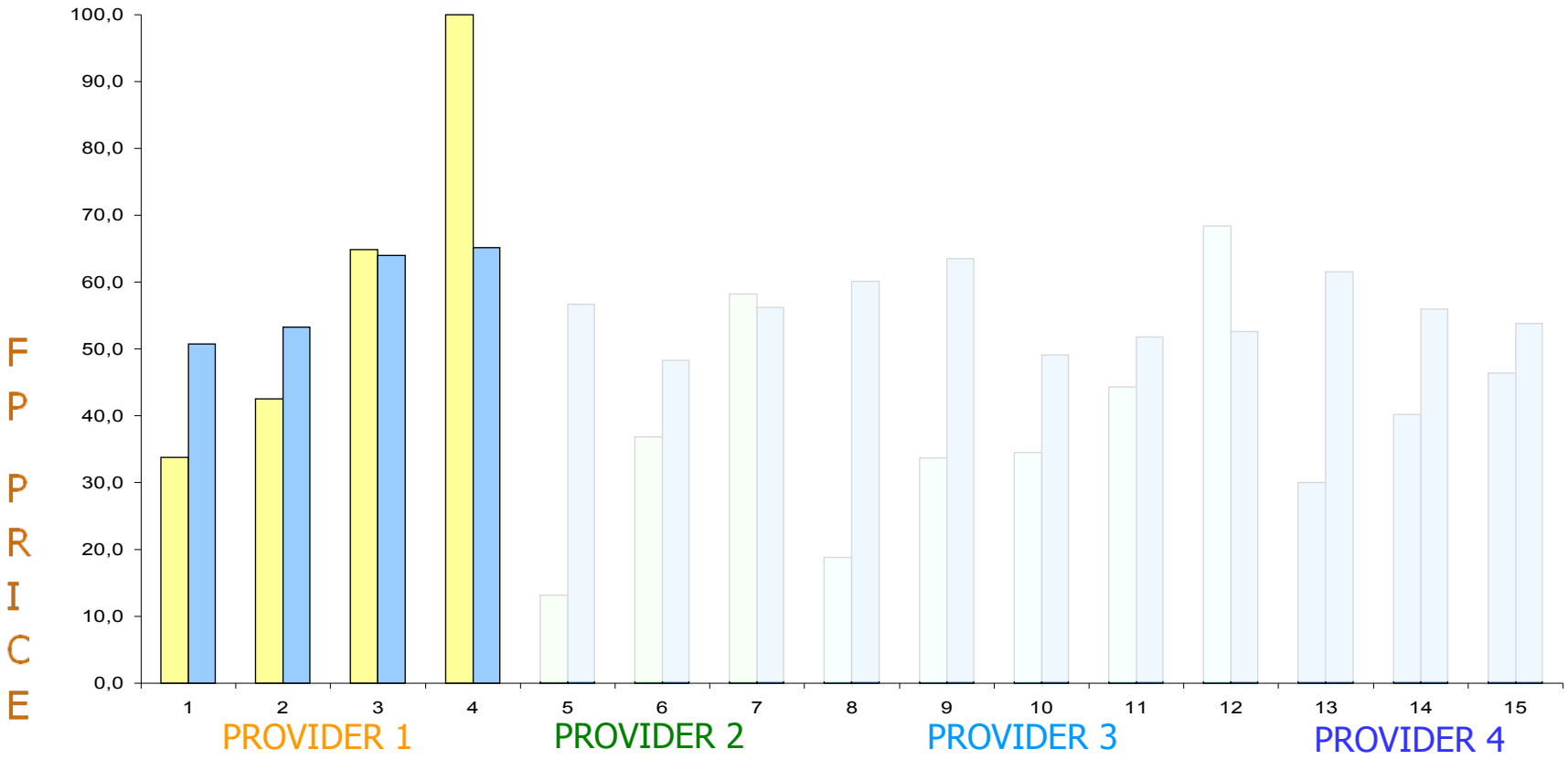
3 The behaviour of the providers is uncertain



- When we include the rates, the results become even more odd.

Results:

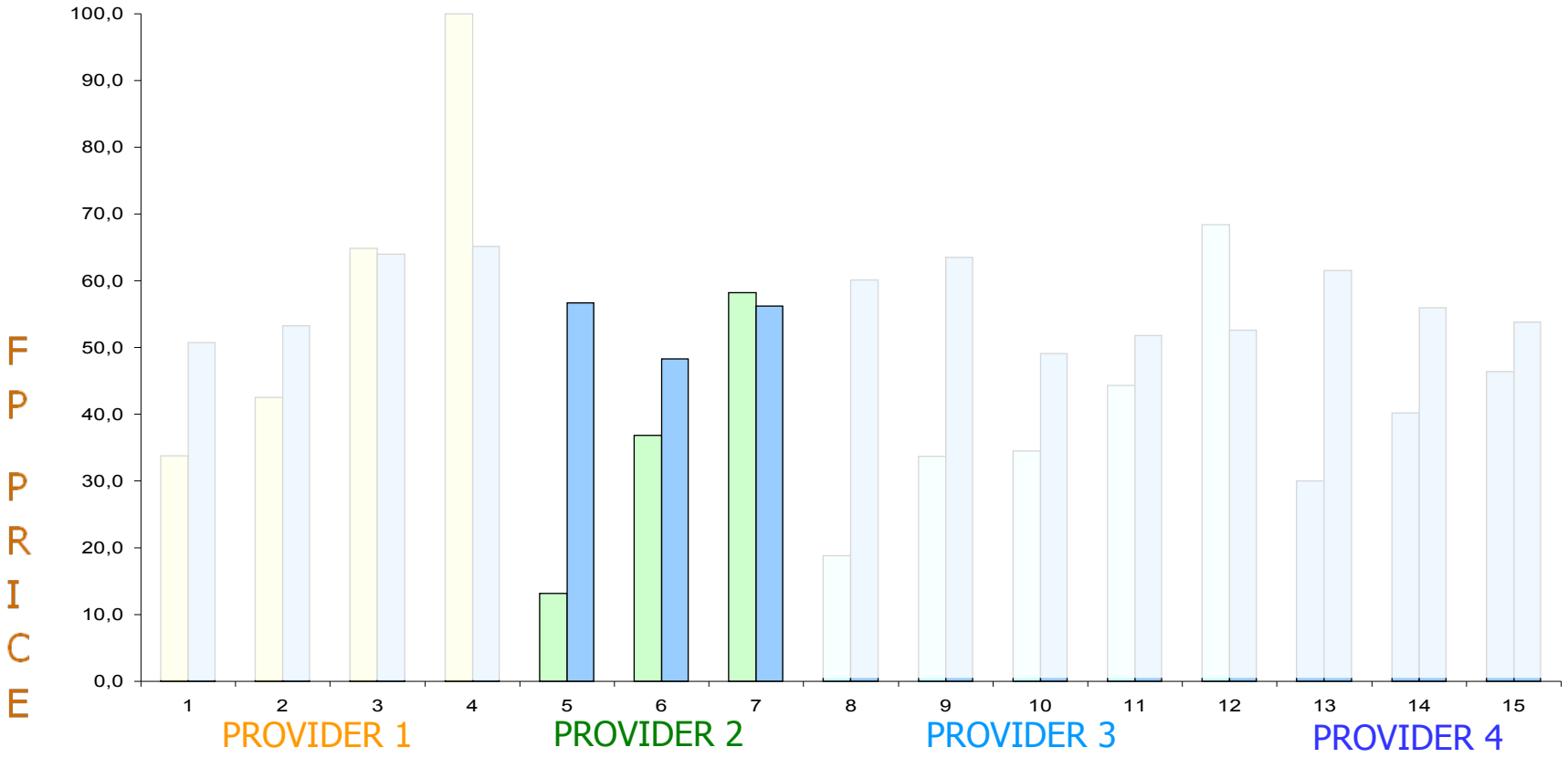
3 The behaviour of the providers is uncertain



- The relation of the rates in this provider (higher vs lower) is 1,3.
- Between PF PRICEs the relation is 3.

Results:

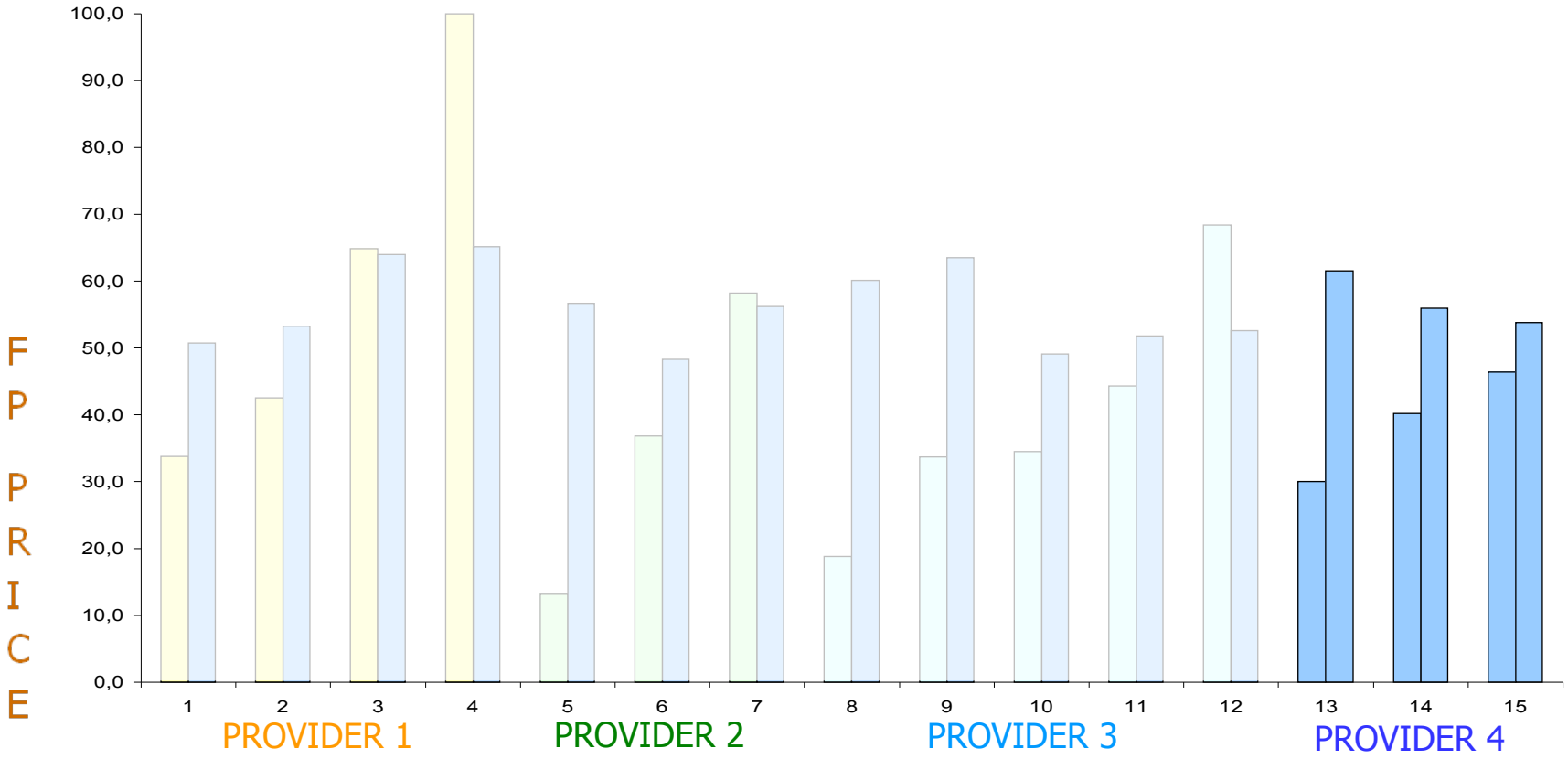
3 The behaviour of the providers is uncertain



- This provider has similar rates for its three clients.
- However, the higher FP PRICE is 4,4 times the lowest price.

Results:

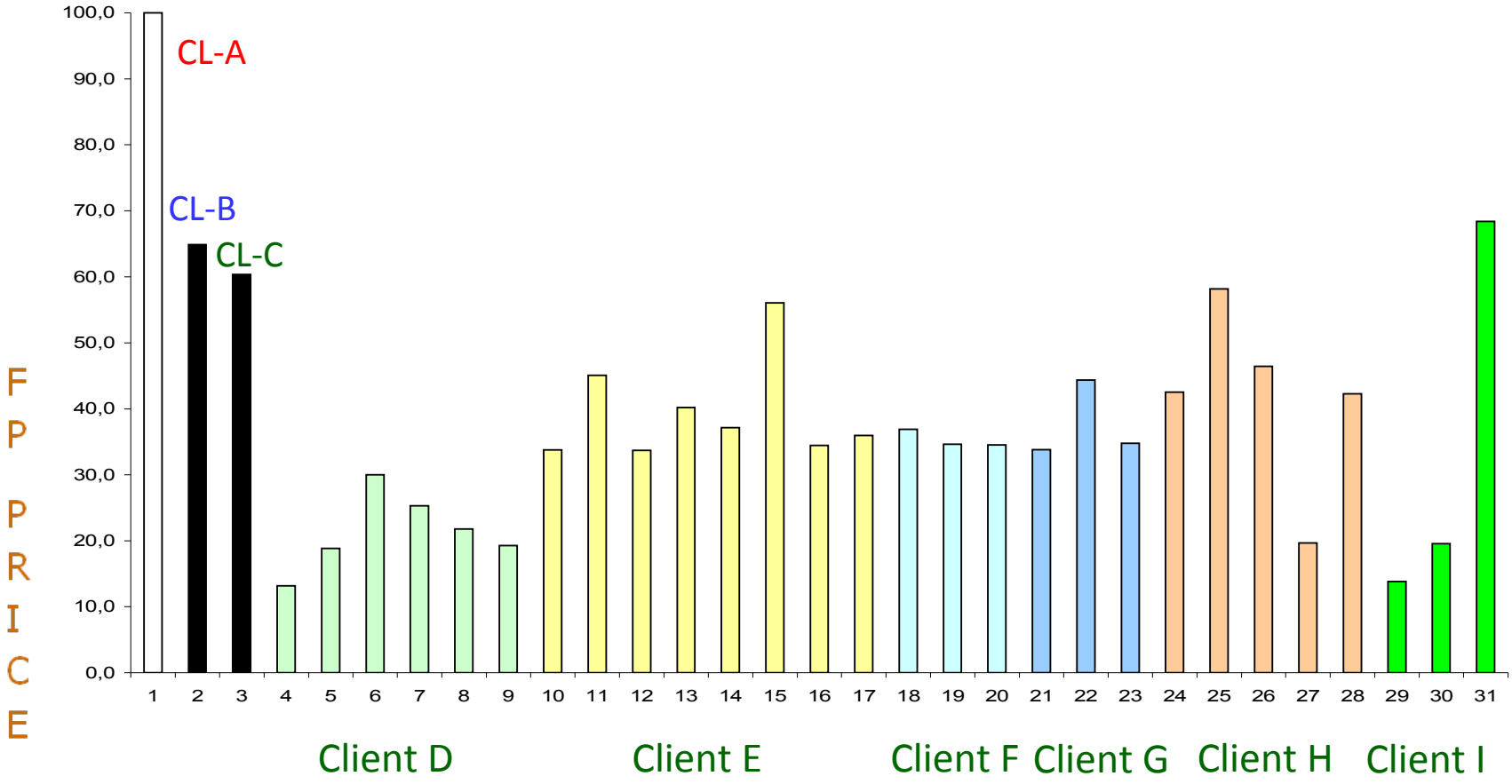
3 The behaviour of the providers is uncertain



- In this provider, the higher the rate, the lower the price for the FP (not bad).
- And the highest PRICE is only 1.5 the lowest.

Results:

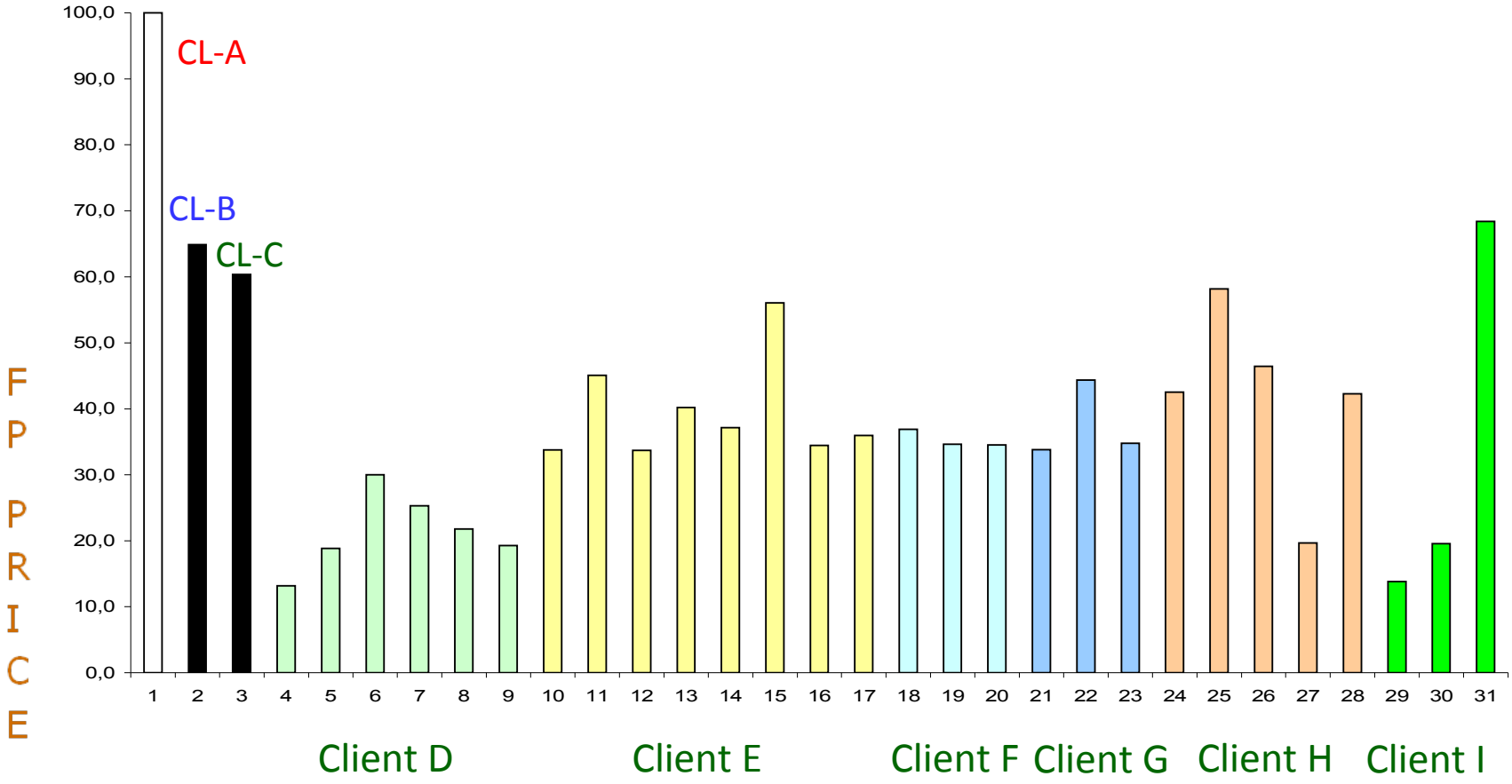
4 When looking at the Clients, the situation changes



- The price of the Function Points does not vary so much for each client, because they control it.
- It changes between clients (because they don't share information, it's not a standard)

Results:

4 When looking at the Clients, the situation changes



There are references when talking about rates.

There are no references when it comes to FP price.

Conclusions

Before dealing with the conclusions we need to answer two questions:

Do the differences between the clients justify the detected inconsistencies?

Are these results significant for other countries?

Conclusions

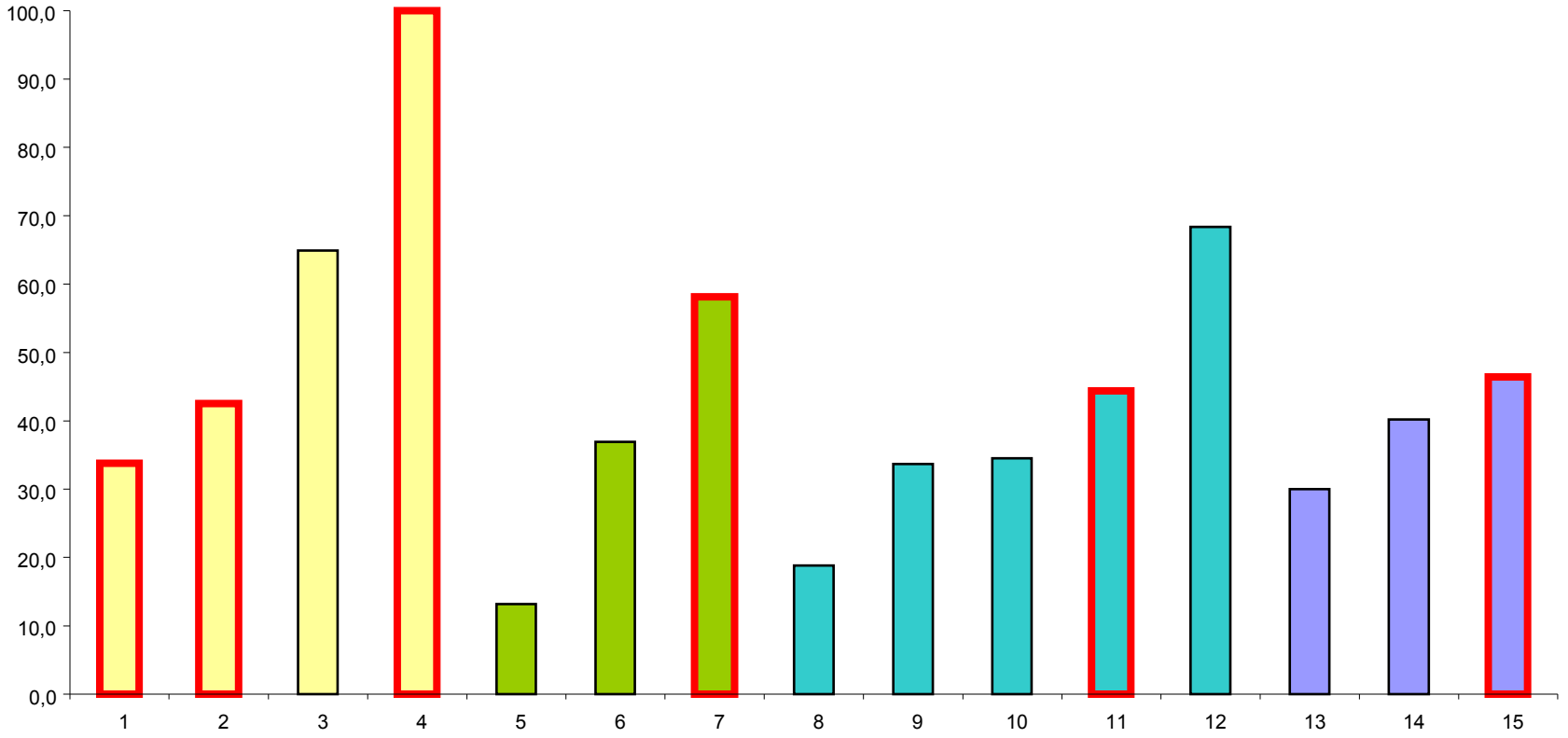
Do the differences between the clients justify the detected inconsistencies?

1. The client's maturity level is similar.
2. So is the type of the contracts.
   (Big maintenance contracts based on small petitions)
3. The competence of the providers is high, and similar.
4. Their activities within the clients are similar and in any case they've been homogenized in order to cover: management, analysis, design and development, testing and deployment.
5. Both technological platforms and systems structure are very complex (Size + history). All of them are MIS applications. Some of them are more complex than average, and some are easier.
6. This also happens whit the management of the contracts and of the development life cycle.

We identified 4 clients "more difficult to work with than average", 5 average and 1 easier.

Conclusions

Do the differences between the clients justify the detected inconsistencies?



But even introducing this factor, we don't find significant changes

Conclusions

Are these results significant for other countries?

1. The most significant companies of the sample are multinational.
2. In some cases, the RFP are identical with others around the world.
3. Many of the providers works for the same clients in different countries.
4. In many cases the providers use out of Spain software factories (India, Latin-American) which give support to different countries.
5. The local data is consistent with ISBSG data.
6. There might be local differential characteristics regarding three aspects:
    - Salaries.
    - Productivities.
    - Training.

Accepting local variations, the results should be generally applicable to a wider context.

Conclusions (I)

1. There is not a logical relationship between Rates an FP Price.

>>> The market works with rates (effort), not with FP Price (product).

>>> Software development remains a an artisan activity, not as an industrial one.

1. The performance of the providers changes dramatically between clients.

>>> The only reason for the size of such changes is the lack of information.

>>> With FP Price standards in the market the differences should shorten sharply.

1. Pressure to lower rates ends up in lower productivity and higher FP price.

>>> The real problem is shared between clients and providers.

Conclusions (II)

4. It is vital to advance in the concept of "product software management"

>>> IT governance metrics should be focused on the product (not on effort).

>>> "FP are the only metric that can measure quality, productivity, costs, value and economics without distortion." (Capers Jones).

5. Benchmarking is the way to convert theoretical standards in market standard

>>> Sharing information is the way to proceed.

>>> Benchmarking information should not be a secret.

>>> Any industrial good has a price, and is public.

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