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Mini presentation on “Repair and installation services of machinery and equipment in France”

**ISIC 4.0 : division 33
NACE rev.2 : division 33**

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The views expressed in this paper are those of the author alone and do not necessarily represent the position of Insee or any other organization with whom the author may be affiliated.

Introduction

The purpose here is to provide a brief overview of the structural and short term statistics established by Insee on “*Repair and installation services of machinery and equipment*” (ISIC and NACE 33), especially what France does and wants to do for Producer Price Indices. The content of this ISIC and NACE division 33 differs slightly from the “*commercial and industrial machinery repair and maintenance*” (NAICS 8113), but the whole division makes sense for France and *a priori* for all European countries, as it constitutes 1 of the 64 items of European Supply and Use Tables framework.

These PPI are not true SPPI, as these divisions belong to industry according to NACE and CPA rev.2. These PPI have always (since 2009 and the entry into force of NACE and CPA rev.2) been managed by the site of Paris as part of “**industrial PPI**”, disseminated as such, aggregated in “total industry” price series and transmitted to Eurostat.

Moreover, this topic has been treated in chapter 5 “*Pricing industrial services*” (together with contract processing and printing services), pages 83 to 88 of the upcoming “*Handbook on industrial producer price indices (PPI)*” of Eurostat, result of a dedicated task force “*PPI methodology*” (2009-2010). It quotes that “*The IMF manual on PPIs, the IMF manual on export and import price indices as well as the Eurostat STS methodological manual do not provide any specific recommendations on the treatment of prices of industrial services*”. Hence, we can qualify this chapter of 5 pages as the first international guidance on this topic. It can of course be studied more in detail by the Voorburg Group, but the question of coordination between international organizations is raised, as PPI and SPPI teams are not always coordinated within countries (they nevertheless are in France).

1 Classification

The French classification of products (CPF 2008) is fully identical to the European classification (CPA 2008), at six digit level. The French classification of activities (NACE 2008) is fully identical to the European classification (NACE 2008) for repair services (group 33.1), itself quite consistent with ISIC classes (except more detail for repair of transport equipment), but it is more detailed for installation services, consistently with the classification of products subclasses:

Table1: European and French activities and products

Group	Class (EU)	Sub-Class (FR)	Description of activities	Associated products
33.1			Repair of fabricated metal products, machinery and equipment	33.1: Repair services of fabricated metal products, machinery and equipment
33.1	33.11	33.11Z	Repair of fabricated metal products	33.11: Repair services of fabricated metal products
33.1	33.12	33.12Z	Repair of machinery	33.12: Repair services of machinery
33.1	33.13	33.13Z	Repair of electronic and optical equipment	33.13: Repair services of electronic and optical equipment
33.1	33.14	33.14Z	Repair of electrical equipment	33.14: Repair services of electrical equipment
33.1	33.15	33.15Z	Repair and maintenance of ships and boats	33.15: Repair and maintenance services of ships and boats
33.1	33.16	33.16Z	Repair and maintenance of aircraft and spacecraft	33.16: Repair and maintenance services of aircraft and spacecraft
33.1	33.17	33.17Z	Repair and maintenance of other transport equipment	33.17: Repair and maintenance services of other transport equipment
33.1	33.19	33.19Z	Repair of other equipment	33.19: Repair services of other equipment

Together in ISIC

Table1: European and French activities and products (continued)

Group	Class (EU)	Sub-Class (FR)	Description of activities	Associated products
33.2	33.20		Installation of industrial machinery and equipment	33.2: Installation of industrial machinery and equipment
33.2	33.20	33.20A	Installation of metallic, boiler structures and pipes	33.20.1: Installation services of fabricated metal products, except machinery and equipment
33.2	33.20	33.20B	Installation of machinery and mechanical equipment	33.20.2: Installation services of general-purpose machinery 33.20.3: Installation services of special-purpose machinery
33.2	33.20	33.20C	Overall conception and assembly of industrial process control equipment in industrial plant	33.20.6: Installation services of industrial process control equipment
33.2	33.20	33.20D	Installation of electrical equipment, electronic and optical equipment or other equipment	33.20.4: Installation services of electronic and optical equipment 33.20.5: Installation services of electrical equipment 33.20.7: Installation services of other goods n. e. c.

We can see that the organization of products follows the same logic in repair services and in installation services, *i.e.* they are associated with goods repaired and installed: first fabricated metal products (division 25), then machinery (division 28), electronic and optical equipment (division 26, except the main part of computers), electrical equipment (division 27) and at last others (especially divisions 30 - other transport equipment and parts of 32 - other manufactured goods as repair of motor vehicles is classified elsewhere).

We should also point out that repair and installation of lifts, elevators is classified in activity and product 43.29 - Other construction installation works, although lifts, elevators belong to class 28.22 - Lifting and handling equipment.

In previous classifications (NACE and CPA rev.1), repair and installation services were included in classes of (fabrication of) goods (repaired and installed), and identified as sub-classes: xx.xx.9 "repair and installation services of xx.xx". It was then possible to prepare the change of classification with a logic conversion of old subclasses into new classes.

We can wonder why repair and installation services are now classified in section C: manufacturing, defined as "*physical or chemical transformation of materials, substances, or components into new products*". This transformation cannot be too important, as "*rebuilding or remanufacture of machinery*" is classified with fabrication of the corresponding goods, not with repair services. Transformation between "potential" and "effective" machinery or equipment? Some repair services are by the way classified in trade (for motor vehicles) or in (other) services (for main part of computers), perhaps because they are more oriented BtoC and organized in outlets?

Before 2007, the new classifications and the new rules for subcontracting and external trade and services, the goods sent abroad for repair or after repair were already excluded from international merchandise trade statistics (they were compiled in another file) and repair services were definitely recorded in Balance of Payment of services, while the case is still not adopted by customs statistics for goods sent abroad for or after processing.

2 Definition of the service

The guidance on activity 33 in NACE rev.2 defines repair services “with the aim to restore these metal products, machinery, equipment and other products to working order” and excludes “rebuilding or remanufacture of machinery and equipment”. With this definition, we can guess that repair services will be mainly used as intermediate consumption, and should be accounted “provision of goods (patches) included”, generally invoiced separately. In some repair activities like 33.11, the provision of goods can account for 60 % of turnover.

Maintenance is classified with repair and is defined in NACE rev.2 “to ensure they [machinery and equipment] work efficiently and to prevent breakdown and unnecessary repairs”. Provision of goods should be of lower importance than for repair. If the maintenance is yearly, it should be classified in intermediate consumption; if it is programmed every five years or so, it should be classified in gross fixed capital formation.

Installation is defined by the Oxford advanced learners dictionary as “the act of fixing equipment or furniture in position so that it can be used”, hence with an aim similar to repair, but as an initial action. Provision of goods should be of lower importance or null (the good itself is classified as machinery or equipment). Installation services are mainly recorded as gross fixed capital formation, as they constitute a part of “cost of acquisition” of machinery and equipment.

The relation between goods and services (are goods incorporated in the service provided?) is of high importance when the prices of the service are to be collected (gross or net?). In the case of installation services, the case of “conception / studies” is a supplementary question. If it is preliminary to fabrication, the value/cost of the studies should be included in the value of the goods (if not invoiced separately). But the studies could concern the installation only, notably for the activity “installation of industrial process control equipment”... The enterprises engaged in this activity do not invoice conception / machinery and equipment / installation separately and their book keeping practice can change. For instance, IBM answered for long to our SBS survey that it was installing big computers for a large amount, before it decided that in fact it was studying and providing big computers, which it was installing for free, or almost for free (perhaps 3 % of the large amount); hence all was declared in services and another year in goods.

3 Market characteristics

a. Small and big firms

As previously mentioned, the activity is well balanced between the different sizes of enterprises: ~ 1/3 for less than 20 FTE employees, ~ 1/3 for 20 to 249 FTE employees, ~ 1/3 for more than 250 FTE employees. It is generally less concentrated than the corresponding activities of fabrication.

Table 2: structure of turnover in enterprises of repair and installation services, by size

in millions €

Industries (main activity)	Repair and installation services of machinery and equipment - 33	Repair services of fabricated metal products, machinery and equipment - 33.1	Installation services of industrial machinery and equipment - 33.2
Size of enterprise			
0-9 full time employees equivalent	6 894	4 017	2 877
10-19 full time employees equivalent	3 108	1 226	1 882
20-249 full time employees equivalent	10 637	5 843	4 795
>250 full time employees equivalent	10 961	7 125	3 837
total	31 600	18 210	13 391

Source: Insee, Esane 2010

b. Repair services are mainly a secondary activity

As regards the composition of the Make Matrix, we can observe that repair services on one side and installation services on the other side have little in common, but the particular point is that the main part of repair services is provided by firms engaged in the fabrication or the distribution of the products.

However, we can guess that many firms engaged in the fabrication of the products provide also their installation but do not invoice it separately (as IBM already quoted), so that the size of installation services identified in business statistics is minored relatively to its importance in economic processes and people employed. Hence, according to business statistics, installation services are mostly provided by legal units classified in this activity. The same phenomenon exists for transport firms repairing their own transport equipment: for instance, when SNCF decided to “autonomize” its factories dedicated to maintenance, the size of the activity was more than doubled, but the presentation of SNCF’s activity has changed since that time.

Table 3: structure of Make matrix industries x products *in millions €*

Products	Industries	Repair of fabricated metal products, machinery and equipment - 33.1	Installation of industrial machinery and equipment - 33.2	Industry, except repair & installation	Trade	Trans-ports	Other services	Total
Repair services of fabricated metal products, machinery and equipment - 33.1		11 706	1 330	9 028	6 170	776	111	29 121
Installation services of industrial machinery and equipment - 33.2		741	8 896	3 401	266	0	248	13 552
Industry, except repair & installation		994	520					
Trade		4 206	2 145					
Transports		27	0					
Other services		535	498					
Total		18 210	13 391					

Source: Insee, Esane 2010

c. Exposition to international trade

Table 4: Turnover and part exported, by industry *in thousands €*

Activities	Description	Turnover	Of which: exported
33.11Z	Repair of fabricated metal products	2 953,1	157,0
33.12Z	Repair of machinery	7 834,4	625,5
33.13Z	Repair of electronic and optical equipment	821,7	128,5
33.14Z	Repair of electrical equipment	2 491,2	232,1
33.15Z	Repair and maintenance of ships and boats	972,6	231,0
33.16Z	Repair and maintenance of aircraft and spacecraft	2 518,6	1 384,7
33.17Z	Repair and maintenance of other transport equipment	205,3	26,3
33.19Z	Repair of other equipment	412,8	21,0
33.20A	Installation of metallic, boiler structures and pipes	3 074,2	182,6
33.20B	Installation of machinery and mechanical equipment	4 229,1	392,6
33.20C	Overall conception and assembly of industrial process control equipment in industrial plant	3 109,9	930,0
33.20D	Installation of electrical equipment, electronic and optical equipment or other equipment	2 977,4	255,8

Source : Insee, Esane 2010

Repair and maintenance of aircraft and spacecraft is the main activity opened to non-domestic markets (although Air France is not recorded in the industry), accounting for nearly 50 % of repair exports and 30 % of total repair and installation exports (strictly speaking: sales of the enterprises to foreign customers).

A non-domestic producer price index for product 33.16 - repair and maintenance of aircraft and spacecraft is already compiled and disseminated.

4 Measure of turnover/output

a. Structural Business Statistics

The French Structural Business Statistics survey in industry (“EAP”) is coupled with ProdCom statistics. By this source, enriched by annual tax declarations, we know both the breakdown of turnover by activities sub-classes (they are 12, cf. table 1 above) and by products sub-categories (they are 52), but also by ProdCom and even ProdFra items (they are 115).

The EAP survey does not collect any quantity for industrial services, but questions on principal – subcontracting relations:

Table 5: the Structural Business Survey framework in thousands €

Total turnover of the enterprise	140041	k€
To breakdown in:		
Sales of industrial products	107359	k€
Including industrial services belonging to manufacturing or extractive industries (except installation, repair and maintenance)		
Installation	10909	k€
of industrial products		
REPAIR AND MAINTENANCE	21773	k€
of industrial products		
Other sales of industrial products		k€
Not belonging to manufacturing or extractive industries <i>Includes production and distribution by network of electricity, gas, steam and air conditioning, or production and distribution of water, sewerage, waste management and remediation services.</i>		
Sales of non industrial goods and services		k€
<i>Includes sales of products like issued from publishing, telecommunications, rentals, packaging, consultancy, engineering, R&D and other business support services ...</i>		

INSTALLATION of industrial products [help for filling in](#)

Description of products	Turnover	Breakdown of turnover		
		Installation		
		sub-contracted to another enterprise (including an affiliate of the same group)	operated by the enterprise	
On its own	As sub-contractor			
3320d Installation of electrical equipment, electronic and optical equipment or other equipment				
332041000D Installation of irradiation, electromedical and electrotherapeutic equipment				
Total of the row:	<input type="text" value="100"/> %	<input type="text" value="10909"/> k€	<input type="text" value="100"/> %	<input type="text" value=""/> %

REPAIR AND MAINTENANCE of industrial products [help for filling in](#)

Description of products	Turnover	Breakdown of turnover		
		Repair and maintenance		
		sub-contracted to another enterprise (including an affiliate of the same group)	operated by the enterprise	
On its own	As sub-contractor			
3317 Repair and maintenance of railway and tramway locomotives and rolling-stock and of mechanical (and electro mechanical) signalling, safety or traffic control				
3317110010 Repair and maintenance of railway and tramway locomotives and rolling-stock				
Total of the row:	<input type="text" value="100"/> %	<input type="text" value="21773"/> k€	<input type="text" value="100"/> %	<input type="text" value=""/> %

Table 6: the Structural Business Survey main results

in thousands €

cpf4	cpf6	description	Total turnover	as principal	on its own	as contractor	more detail in ProdFra (e. g.)
3311	331112	Repair and maintenance services of tanks, reservoirs and containers of metal	285 481	42 469	164 300	78 713	
	331113	Repair and maintenance services of steam generators, except central heating hot water boilers	2 057 842	61 130	1 861 000	135 719	of which nuclear
	331114	Repair and maintenance services of weapons and ammunition	620 063	211 981	278 983	129 099	
	331119	Repair and maintenance services of other fabricated : metal products	1 579 865	98 465	1 258 920	222 487	
Total 3311 Repair services of fabricated metal products			4 543 251	414 045	3 563 202	566 018	
3312	331211	Repair and maintenance services of engines and turbines, except aircraft, vehicle and cycle engines	338 485	17 556	249 721	71 210	
	331212	Repair and maintenance services of fluid power equipment, other pumps, compressors, taps and valves	421 969	21 690	371 599	28 683	
	331213	Repair and maintenance services of bearings, gears, gearing and driving elements	193 189	1 208	183 801	8 179	
	331214	Repair and maintenance of furnaces and furnace burners	53 222	1 503	46 693	5 027	
	331215	Repair and maintenance of lifting and handling equipment	998 803	45 132	931 155	22 521	
	331216	Repair and maintenance services of office machinery and equipment (except computers and peripheral equipment)	329 733	11 051	315 492	3 190	
	331218	Repair and maintenance of non-domestic cooling and ventilation equipment	731 318	56 820	662 805	11 693	
	331219	Repair and maintenance of other general purpose machinery n.e.c.	613 677	19 103	578 315	16 261	
	331221	Repair and maintenance services of agricultural and forestry machinery	285 128	20 620	234 550	29 961	
	331222	Repair and maintenance services of metal forming machinery and machine tools	240 516	17 456	205 689	17 373	
	331223	Repair and maintenance of machinery for metallurgy	38 216	3 084	32 117	3 016	
	331224	Repair and maintenance of machinery for mining, quarrying and construction	353 141	21 277	325 230	6 635	
	331225	Repair and maintenance of machinery for food, beverage and tobacco processing	268 648	7 776	254 101	6 771	
	331226	Repair and maintenance of machinery for textile, apparel and leather production	18 052	39	16 381	1 632	
331227	Repair and maintenance of machinery for paper and paperboard production	23 583	1 883	21 592	109		
331228	Repair and maintenance services of machinery for plastics and rubber	39 248	4 245	30 116	4 888		
331229	Repair and maintenance services of other special-purpose machinery	814 798	51 866	691 619	71 316		
Total 3312 Repair services of machinery			5 761 725	302 310	5 150 972	308 465	
3313	331311	Repair and maintenance services of instruments and appliances for measuring, testing and navigation	1 469 349	141 280	1 244 597	83 474	
	331312	Repair and maintenance of medical and surgical equipment	688 557	25 300	634 619	28 642	
	331313	Repair and maintenance of professional photographic, cinematographic and optical instruments	17 987	63	17 925	0	
	331319	Repair and maintenance services of other professional electronic equipment	78 155	14 051	62 673	1 432	
Total 3313 Repair services of electronic and optical equipment			2 254 047	180 694	1 959 814	113 548	
3314	331411	Repair and maintenance of electric motors, generators, transformers and electricity distribution and control apparatus	1 258 751	46 379	946 062	266 315	
	331419	Repair and maintenance of electrical equipment (excluding electricity distribution and control apparatus, motors, generators and transformers, television and radio transmitters)	701 970	50 400	631 963	19 612	
Total 3314 Repair services of electrical equipment			1 960 721	96 779	1 578 024	285 927	
3315	331510	Repair and maintenance services of ships and boats	1 538 697	61 948	1 428 769	47 986	of which military
3315	331515	Repair and maintenance services of ships and boats	1 538 697	61 948	1 428 769	47 986	
3316	331610	Repair and maintenance of civil aircraft and aircraft engines	4 416 363	489 937	3 690 609	235 818	of which military
Total 3316 Repair and maintenance services of aircraft and spacecraft			4 416 363	489 937	3 690 609	235 818	
3317	331711	Repair and maintenance of railway and tramway locomotives and rolling-stock and of mechanical (and electro mechanical) signalling, safety or traffic control equipment	280 829	2 679	252 491	25 660	of which railway
	Total 3317 Repair and maintenance services of other transport equipment			280 829	2 679	252 491	25 660
3319	331910	Repair services of tarpaulins and camping equipment, and other made-up textile articles	219 862	8 222	201 505	10 137	
Total 3319 Repair services of other equipment			219 862	8 222	201 505	10 137	
3320	332011	Installation services of steam generators, except central heating hot water boilers, including installation services for metal pipe systems in industrial plants	2 010 425	106 350	1 706 796	197 290	
	332012	Installation services of other fabricated metal products, except machinery and equipment	205 126	28 035	158 314	18 777	
	332021	Installation services of office and accounting machinery	7 254	100	7 154		
	332029	Installation services of other general-purpose machinery n.e.c.	2 572 698	391 467	1 926 721	254 524	of which non-domestic cooling and ventilation equipment
	332031	Installation services of industrial machinery and equipment for agriculture	51 240	2 495	47 710	1 038	
	332032	Installation services of metal forming machinery	54 769	3 332	41 488	9 949	
	332033	Installation services of industrial machinery and equipment for metallurgy	54 706	9 880	40 456	4 370	
	332034	Installation services of industrial machinery and equipment for mining	33 989	8 240	23 886	1 864	
	332035	Installation services of industrial machinery and equipment for food, beverages and tobacco processing	342 795	21 522	311 736	9 540	
	332036	Installation services of industrial machinery and equipment for textiles, apparel and leather production	21 696	6 835	14 648	212	
	332037	Installation services of industrial machinery and equipment for paper and paperboard production	11 731	4 345	7 387		
	332038	Installation services of industrial machinery and equipment for plastic and rubber production	23 644	6 189	12 941	4 514	
	332039	Installation services of other special-purpose machinery	28 394	733	26 756	905	
	332041	Installation services of professional medical machinery and precision and optical instruments	408 584	2 641	405 857	86	
332042	Installation services of professional electronic equipment	1 421 132	228 060	871 222	321 862	of which fixed telecommunication	
332050	Installation services of electrical equipment	1 495 826	42 263	1 355 389	98 177		
332060	Installation services of industrial process control equipment	3 124 358	576 686	2 368 972	178 709		
332070	Installation services of other goods n.e.c.	5 182	517	4 632	33		
Total 3320 Installation services of industrial machinery and equipment			11 873 549	1 439 690	9 332 064	1 101 849	
Total général			32 849 043	2 996 304	27 157 453	2 695 408	

Turnover by products / Insee: EAP 2010

b. Short Term Statistics: turnover

France collects and calculates turnover at class level for repair and maintenance of machinery and equipment (8 classes), but publishes nationally only at group level (33.1 as a whole). The same for installation (33.2 as a whole).

These data rely on a large sample of VAT returns, transmitted by the tax administration.

c. Short Term Statistics: output

For the compilation of output of repair and maintenance, and installation in volume (industrial production index), France collects a survey on a large sample of enterprises, except for classes 33.17 - repair and maintenance of other transport equipment and 33.19 - repair of other equipment, because of their small amounts.

The enterprise is asked either on hours worked (parts of 33.11, 33.12, whole activities 33.15, 33.16, 33.20A), either on turnover in an activity beyond 4 digits level (~ CPA 5 or 6 digits), afterward deflated by PPI at 4 digits level. The survey on activity 33.12 - repair of machinery is particularly rich, with 7 different series collected. Globally, 33.1 - repair and maintenance is measured at 66 % by hours worked and 33 % by deflated turnover; 33.2 - installation at 40 % by hours worked and 60 % by deflated turnover.

France publishes the industrial production index at the group level (33.1, 33.2) and at the class level (33.11 to 33.20 except 33.17 and 33.19).

Table 7: Elementary series for calculation of IPI in repair and installation

Elementary serie	Description	Weight in millions euros	Weight in Nace 33.1	Indicator
E3311Z1	Repair and maintenance services of tanks, reservoirs and containers of metal	25	0.7 %	Worked hours
E3311Z2	Repair and maintenance services of steam generators	36	1 %	Worked hours
E3311Z3	Repair and maintenance services of nuclear reactors	65	1.7 %	Worked hours
E3311Z4	Metal pipes : repair and maintenance	422	11.2 %	Worked hours
E3311Z5	Body repair services, except of motor vehicles	74	2%	Deflated turnover
E3312Z1	Repair and maintenance of lifting and handling equipment	153	4%	Deflated turnover
E3312Z2	Repair of non-domestic cooling and ventilation equipment	204	5.4 %	Deflated turnover
E3312Z3	Repair of packing or wrapping machinery	34	0.9 %	Deflated turnover
E3312Z4	Repair and maintenance services of weighing machinery	48	1.3 %	Deflated turnover
E3312Z5	Repair and maintenance services of machinery for metallurgy	39	1 %	Deflated turnover
E3312Z6	Repair and maintenance services of machinery for food industry	41	1.1 %	Deflated turnover
E3312Z7	Repair services of mechanics, except of motor vehicles	1 026	27.1 %	Worked hours
E3313Z1	Repair of irradiation medical equipment	275	7.3 %	Deflated turnover
E3313Z2	Rep. and maintenance of scientific and technical instruments	70	1.9 %	Deflated turnover
E3314Z1	Rep. and maintenance of electric motors, generators and transf.	304	0,08	Deflated turnover
E3314Z2	Repair and maintenance of electrical apparatus for low voltage	67	1.8 %	Deflated turnover
E3315Z1	Repairing of military ships	337	8.9 %	Worked hours
E3315Z2	Maintenance and repair of pleasure and sporting boats	75	2%	Worked hours
E3315Z3	Repairing of civil ships	61	1.6 %	Worked hours
E3316Z1	Repair and maintenance of aircraft motors	201	5.3 %	Worked hours
E3316Z2	Repair and maintenance of aircraft cells	226	6 %	Worked hours

Elementary serie	Description	Weight in millions euros	Weight in Nace 33.2	Indicator
E3320A1	Steam generators - metal pipes : installation on industrial site	1 959	39.8 %	Worked hours
E3320B1	Assembly and installation of pumps	52	1.1 %	Deflated turnover
E3320B2	Installation of non-domestic cooling and ventilation equipment	409	8.3 %	Deflated turnover
E3320B3	Installation of weighing machines for industrial purposes	13	0.3 %	Deflated turnover
E3320B4	Installation of equipment for chemical industries	58	1.2 %	Deflated turnover
E3320B5	Installation of machines for metallurgy	78	1.6 %	Deflated turnover
E3320B6	Installation of machines for food industry	27	0.5 %	Deflated turnover
E3320C1	Concept°& assembly of process control equipments	1 900	38.6 %	Deflated turnover
E3320D1	Installation of computers and peripheral equipments	67	1.4 %	Deflated turnover
E3320D2	Installation of electric motors, generators and transformers	34	0.7 %	Deflated turnover
E3320D3	Installation of electrical apparatus for low voltage	39	0.8 %	Deflated turnover
E3320D4	Installation of radio or television transmission apparatus	67	1.4 %	Deflated turnover
E3320D5	Installation of communication equipment	140	2.8 %	Deflated turnover
E3320D6	Installation of navigating equipment	82	1.7 %	Deflated turnover

5 Producer Price Indices in repair and installation services of machinery and equipment

a. Sampling, implementation of PPI still in progress

France practices a cut-off sampling and aims a rate of coverage of 60 % or 40 % according to the indicators (domestic market, non-domestic market, imports); each activity at 4 digits is “renewed” every five years. But only repair and maintenance of transport equipment (33.16 and 33.17) have been really renewed since 2008 and the change of classification. The other activities of repair and installation are covered by the heritage of old activities in NACE rev.1 (classified mainly in fabrication of goods). As the enterprises engaged in repair are smaller in average than enterprises engaged in fabrication, and as enterprises engaged in both activities achieve a greater turnover in fabrication, the cut-off sampling and the choice of more representative elementary series had originally under-sampled the activities of repair within the activities of fabrication and repair... But activities 33.11 and 33.20 are currently under renewal.

Table 8: Number of enterprises sampled and sampling rate

Products	Number of enterprises sampled	Sampling rate (when sampled)
33.11: Repair services of fabricated metal products	10	10%
33.12: Repair services of machinery	42	7%
33.13: Repair services of electronic and optical equipment	20	31%
33.14: Repair services of electrical equipment	5	2%
33.15: Repair and maintenance services of ships and boats	4	2%
33.16: Repair and maintenance services of aircraft and spacecraft	8	39%
33.17: Repair and maintenance services of other transport equipment	7	64%
33.19: Repair services of other equipment	not followed	not followed
33.2: Installation of industrial machinery and equipment	23	4%

b. Types of prices collected

Table 9: Number of elementary series by type of prices

Products	pricing method					Total
	repeated service	unit value	model pricing	percentage fee	time based	
33.11	1	2			13	16
33.12	15	3	2		36	56
33.13	14	3	1		23	41
33.14					14	14
33.15					7	7
33.16	22	25	2		9	58
33.17	14	5	3			22
33.20	17	13	14	6	31	81
Total	83	51	22	6	133	295

One-off products, customized repair or installation services are very common in these activities, but it has been possible to collect repeated services and unit values for approximately a half of the elementary series, the other half relying on time based measures.

Repeated services

Some tariffs exist, for instance for standard installation of a standard machinery:

Definition of price series with kind of customer	Precisions on prices
Installation of machinery XXX "new generation" for food industry, calibration	Package by machine, in euro, VAT deducted
Installation of machinery XXX "old generation" for food industry, calibration	Package by machine, in euro, VAT deducted

Some contracting prices exist, either absolute prices or escalation indices:

Definition of price series with kind of customer	Precisions on prices
Contract of maintenance reference pack infinity Agoris 5890, for 3 years - Customers in euro area	Average price of the active contracts (price of the whole 3 years)
Contract of maintenance on several years with EDF	Index of revision (escalation) included in contract, reference 100 in June 2007

Or some standard services:

Definition of price series with kind of customer	Precisions on prices
Repair of a marine engine 80 CV Perkins cylinder head, piston	Average selling price of the month - by engine - all discounts deducted - VAT deducted - packaging and carriage paid - French customers
Package A of repair services - equipment in workshop - for the army	Average selling price of the month - by package

Unit values

Unit values are less homogeneous on the kind of product or on the kind of customer:

Definition of price series with kind of customer	Precisions on prices
Renovation of bottle of liquefied petroleum gas - all French customers	Average selling price of the month - ex works
General maintenance of small motors - French army	Average selling price of the month
Repair of [specific piece of rolling stock in railways] - United Kingdom	Average selling price of the quarter - in sterling pounds

Few model pricings

Some firms have accepted to answer every quarter to such a model pricing, especially for installation services:

Price sheet Model pricing for 2012 and onwards

Studies and execution			
Studies	Term (hours)	euros per hour	Total price
Project	8,86	125	1 108
Studies - Engineers / technicians	45,67	92	4 202
Execution			
production 40%	32,75	66	2 162
material purchase / subcontracting 60%			3 242
Subtotal (1)			10 712
Assembly and conditioning			
Assembly and conditioning	Term	euros per hour	Total price
Assembly and conditioning	12,72	85	1 081,20
Subtotal(2)			1 081,20
Sale price			
Total factory price = (1) + (2)			11 793
Margin (average)	20%		2 359
Total			14 152

Only the « assembly and conditioning » part (subtotal(2) = 1 081,20 €) is reported to Insee every quarter. Theoretically, it should be adjusted by the margin rate. Subtotal(1) adjusted by

the margin rate could get an elementary serie for a machine of division 28. The pending question is where to classify the conception part; here, we have implicitly decided to attribute it to the machinery and equipment, consistently with what was apparent in our EAP survey for the global breakdown of the enterprise's turnover.

Very few percentage fees

The percentage fees concern enterprises that report only the total invoice of machinery and equipment installed (in the previous case 14.152 €), mentioning that the installation part accounts for 13 % of the total (for instance), and rebasing this ratio every year.

Many daily or hourly rates

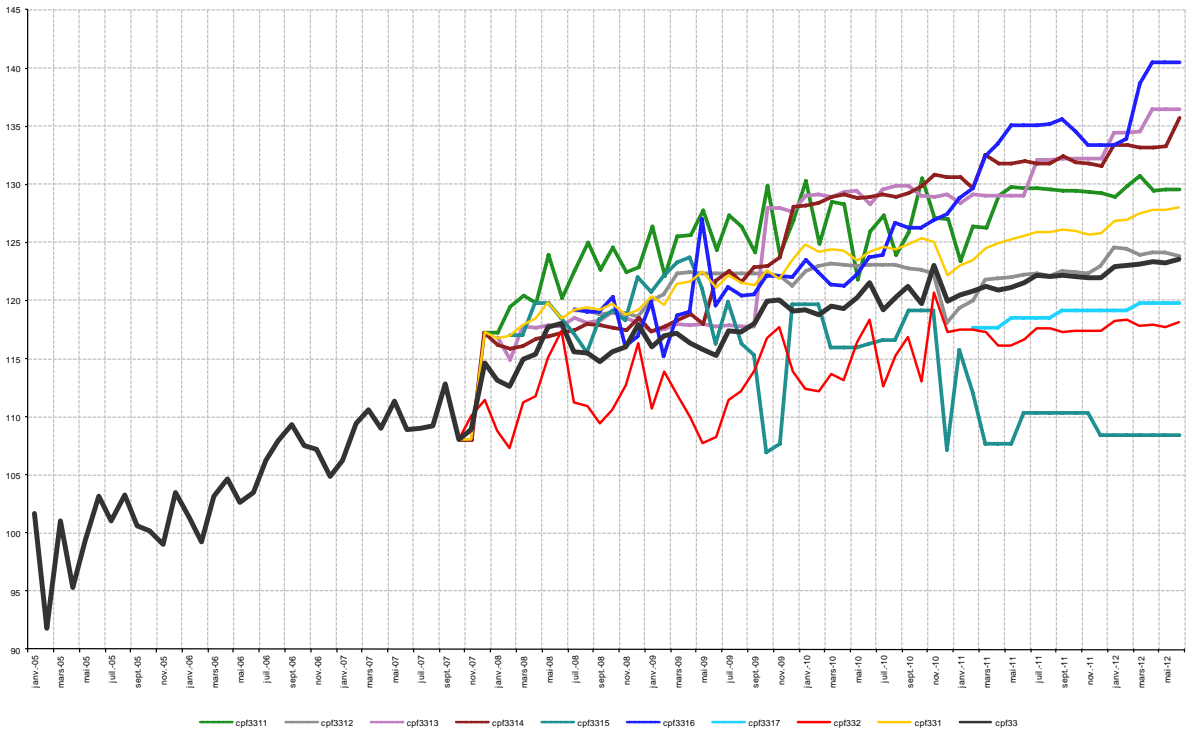
Some of these daily or hourly rates are contractual... However, they cannot allow us to extrapolate any productivity in the activity.

Definition of price series with kind of customer	Precisions on prices
Preventive maintenance on a conditioner, planified	Tariff of a worked hour, in euro, VAT deducted (subsistence costs included)
Preventive maintenance on a conditioner, not planified, intervention within 48 h	Tariff of a worked hour, in euro, VAT deducted (subsistence costs included)
Corrective maintenance on a conditioner, planified	Tariff of a worked hour, in euro, VAT deducted (subsistence costs included)
Contracts of maintenance for EDF - after call for tenders - hourly charged out rates	Average price of manpower / hour, as sold during the month (after negotiation).
Hourly charged out rate of maintenance on site - all kinds of French customers	Based on the turnover of the month
Repair and maintenance of other machinery - index reference 100 in January 2007	Based on manpower sold during the period - (cost of patches excluded)

In these cases, we must control if goods are incorporated in the provision of the service (for instance, price or cost of patches), for which proportion, and we must not forget to include them additionnally to the price of manpower. A possibility is to use for them a manufacturing PPI.

c. The series

Chart 1: Producer Price indices followed for cpa 33



The prices of repair and installation are increasing more or less smoothly (between +8 % and +40 % in seven years, in average +20 %)... It is not easy to understand why prices of activity 33.15 - Repair and maintenance of ships and boats are the less increasing: the time based series could have biased upwards, but we observe the opposite phenomenon; the activity is above all fragile, with few elementary series and a great heterogeneity. The markets of air transport and sea transport have also opposite dynamics, and they could explain opposite trends in price indices of activity 33.16 - Repair and maintenance services of aircraft and spacecraft and 33.15 - Repair and maintenance of ships and boats.

6 How National Accounts use value, volume and price indicators

French National Accountants compile only one commodity flow and one branch production account for the whole division 33.

They use a price index for production equal to $95 \% * \text{PPI of division 33 sold on the domestic market} + 5 \% * \text{PPI of total industry sold on foreign markets}$. 5 % is the proportion of exports related to production, and no PPI of division 33 sold on foreign markets is disseminated (except for class 33.16)...

We (the PPI team) have told them (the NA team) that, in our opinion, either domestic PPI of division 33, either foreign PPI of class 33.16, either foreign PPI of capital goods would provide a better indicator, but we have above all promised that in short term, we would be able to provide PPI of division 33 (as a whole) sold on foreign markets.

The import prices of total industry are used for the change in price of imports, as they do for exports, for the same reason that we do not disseminate any import price in division 33.

Except for definitive accounts, when Esane delivers the "exact" amount of sales, French NA estimate the change in value of production as the product of IPI in volume and of the price index (~ PPI) that we have mentioned above.

At last, French NA apply the same kind of formula ($\text{IPI} * \text{domestic PPI}$) for each group (33.1 - repair and maintenance, 33.2 - installation) in order to get an estimate of GFCF, as GFCF is reputed equal to 20 % of production for repair and maintenance (80 % in IC except exports and imports) and to 80 % of production for installation.

We have also advised French NA that they could use the information on subcontracting compiled by EAP (Structural Business Survey in industry).