

Effet qualité et mesure de l'inflation

Comparaisons internationales

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Section 1

Introduction

Mesure de l'inflation

- L'Indice des Prix à la Consommation est l'une des **statistiques économiques les plus diffusées** dans le monde. Il précède la comptabilité nationale.
- **En France**, l'indice des prix à la consommation (IPC) existe **depuis 1914**. Il en a connu **plusieurs générations méthodologiques**.
- Dernière : **9ème génération (base 2025, publiée à partir de 2026)**. Résultats définitifs dans 2 jours pour l'inflation de janvier 2026, avec la nouvelle base 2025 = 18 février 2026.
- Il joue un rôle majeur dans la vie économique et sociale, avec pour usages principaux :
 - ▶ Diagnostic : **mesure de l'inflation**. Politique monétaire, mesure de la croissance...
 - ▶ **indexations automatiques : Smic, prestations sociales**, importantes en France.
 - ▶ **référence pour les négociations salariales**.

Plusieurs indices coexistent : IPC, IPCH, IPC hors tabac...

- L'**IPC** est produit sur divers champs géographiques : la France entière (métropole + DROM), la France métropolitaine, chacun des DROM.
- L'**IPC hors tabac** utilisé pour les indexations.
- Il existe un **IPC hors tabac hors loyers** pour le calcul de l'Indice de Référence des Loyers (IRL).
- L'Insee diffuse aussi l'**IPCH** (IPC « harmonisé »), conformément au règlement européen n°2016/792 :
 - ▶ utilisé notamment pour la **politique monétaire**,
 - ▶ L'Insee précise qu'il ne se substitue pas à l'IPC pour les usages dans le cadre nationaux, notamment les indexations.
- Différence principale (pour l'effet qualité qui nous occupe ici) : les **dépenses de santé remboursées** par la sécurité sociale, incluses dans l'IPC - pas dans l'IPCH.

Utilisations dans le diagnostic

- Calcul des **évolutions « en euros constants »** : pour les salaires, les niveaux de vie. (en France, avec l'IPC)
- Les indices de prix IPC/IPCH sont souvent utilisés en **comptabilité nationale** pour réaliser le partage volume / prix au niveau fin.
- En France : le déflateur de la consommation de la comptabilité nationale est utilisé pour mesurer ce que l'Institut statistique français appelle “le pouvoir d'achat”, à partir du Revenu Disponible Brut des ménages. (voir ici)

Exemple de questions :

- **Comment évolue le pouvoir d'achat des ménages** en France ?
- **La France décroche-t-elle** par rapport à l'Italie / l'Allemagne / le reste de l'Europe ? Et par rapport aux Etats-unis ?

“Effet qualité” / renouvellement de produits

- Esprit de la mesure de l'inflation : panier constant.
- Mais le renouvellement de produits est incessant : comment comparer les produits entre eux ? = “effet qualité” = ajustements qualité. Exemples : habillement, téléphonie, etc.
- Changements de qualité : travaux dans les logements, etc.
- Comment traiter l'apparition de “vrais” nouveaux produits ? Disquette, cassette (au moment du rapport Boskin), nouveaux logements performants énergétiquement.
- Ajustement qualité / renouvellement de produit **difficile pour toutes les agences statistiques**. Problème aussi vieux que la mesure de l'inflation / la comptabilité nationale.
- Ordre de grandeur : Effet des ajustements qualité / renouvellement des produits selon BLS, aux Etats-Unis = 2.5% / an. (au moment de Boskin)

Importance de l'effet qualité. Source : TEF 2020

Quelques hausses et baisses de prix en 2018

glissement annuel de déc. à déc. en %

Hausses	18/17	Baisses	18/17
Gaz	+ 21,0	Matériel de téléphonie et de télécopie	- 12,3
Combustibles liquides	+ 19,0	Appareils photographiques et caméras	- 6,8
Pommes de terre	+ 15,0	Fer à repasser	- 6,3
Tabac	+ 12,8	Appareils d'enregistrement et de reproduction du son et de l'image	- 6,1
Légumes frais, hors pommes de terre et autres tubercules	+ 11,4	Ordinateurs personnels	- 5,5
Gazole	+ 11,4	Services de télécommunication	- 4,2
Services d'expédition de courrier	+ 8,6	Produits pharmaceutiques	- 4,1
Essence	+ 7,5	Matériel de nettoyage	- 3,9
Huiles et graisse	+ 5,8	Supports d'enregistrement	- 3,5
Journaux	+ 5,3	Gros outillage et équipements motorisés	- 3,4
Forfaits touristiques	+ 5,2	Jeux et passe-temps	- 3,0

Champ : France hors Mayotte. Note : évolution de l'indice de décembre 2018 par rapport à l'indice de décembre 2017.

Source : Insee, indice des prix à la consommation.

Plan :

- 1 Quelques généralités sur l'effet qualité
- 2 L'effet qualité au cas par cas : habillement, technologie, santé, loyers, écologie, alimentation
- 3 Comparabilité et transparence des indices de prix français

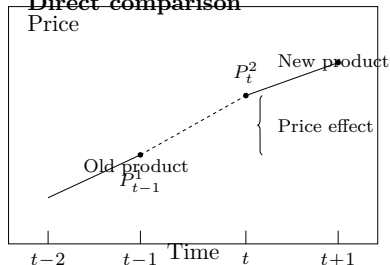
Section 2

Effet qualité : quelques généralités

Méthodes principales

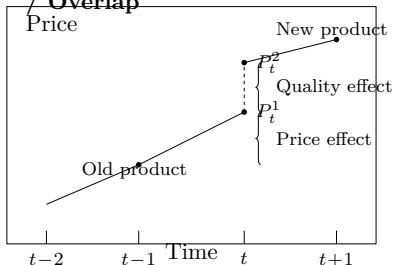
1. Comparable replacement /

Direct comparison



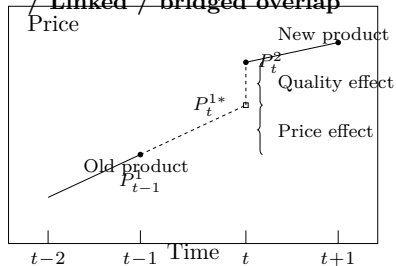
2. Non-comparable replacement

/ Overlap



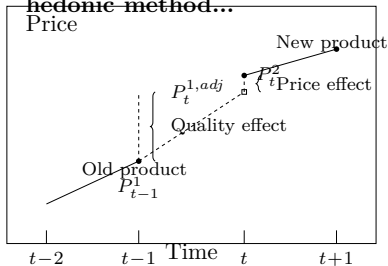
3. Non-comparable replacement

/ Linked / bridged overlap



4. Direct quality adjustment:

hedonic method...



Méthodes d'ajustement qualité selon Eurostat

Table 6.1: Summary of aspects on quality adjustment methods

Method	Explicit/ Implicit	Advantages	Limitations	Remarks
Direct price comparison	(Explicitly decided)	Transparent	Overlooks quality change	For convention where needed
Package-size adjustment	E	Straightforward	Assumes proportionality	Only for modest differences
Single-variable adjustment	E	Transparent	Assumes form of variable impact	Example: Excess in insurance (14.2)
Option pricing	E	Transparent	Needs option prices	Assumption of fraction of option price needed
Supported judgement	E	Flexible	Lack of control	Lack of criteria for 'supported'
Hedonic re-pricing	E	Strong theory	Needs detailed data. Assumes regression equation	Practically, the most useful hedonic form
Other hedonic regression methods	E	Strong theory	Needs detailed data. Assumes regression equation	
Combined methods (Not strictly a separate method)	E and I	Adapts to individual conditions	Complex	E.g. to split major/minor changes
Bridged overlap	I	Flexible. Easier than hedonics	Assumes free stable market, etc.	Not suitable for clothing or similar products
Monthly chaining and replenishment (MCR)	I	Flexible. Easier than hedonics	Assumes free stable market, etc.	Similar to bridged overlap
Backcasting	I	Computationally fits to December link	Slightly less accurate (than bridged overlap)	Other methods better

Normalisation

Beaucoup de place pour la subjectivité / les choix discrétionnaires $\Rightarrow$ harmonisation internationale à visée de **comparabilité** :

- Manuel BIT (2004) / manuel FMI (2020) : BIT, FMI, Eurostat, Nations Unies, OCDE, Banque Mondiale :
 - ▶ Manuel BIT 2004 : *Theory and Practice*,
 - ▶ Manuel FMI 2020 : *Concepts and Methods*.
- Manuel du BIT de 2004 traduit en français...
- Manuel des Nations Unies (2009) pour les pays en développement, également traduit en français.

Et de l'harmonisation européenne :

- Manuels européens : Eurostat. 2 versions : 2018 et 2024.
- Recommandations européennes sur des sujets spécifiques.
- CENEX HICP Quality Adjustment avec Allemagne, Italie, Pays-Bas, Royaume-Uni, Belgique, Autriche, Portugal, Irlande, Suède... mais pas la France.

Manuels internationaux, européens



Jugement, choix discrétionnaires

Part de jugement, de choix discrétionnaires dans les ajustements qualité $\Rightarrow$ nécessité plus forte encore de suivre les recommandations internationales / européennes...

Elements of judgement

Quality adjustment procedures rely on both observed physical attributes of a product, such as the screen size of a television, and **some judgement**. Judgement involves making decisions with regards to quality adjustment other than strictly applying automatic procedures or rules. For example, **one uses judgement when choosing quality adjustment methods** and replacement individual product; sometimes also judgement is used when assessing the monetary value of the quality change for individual replacements. Also, and not least, when quality adjustment uses hedonic regression techniques, a judgement must be made when deciding which relevant characteristic variables to use in the model, the frequency for which the coefficients need to be updated, and the functional form of the regression model.

The basis for making judgemental decisions should not however be arbitrary. They must be supported by knowledge of the product and applied with due diligence, following clear instructions and documentation.

Source : Manuel Eurostat 2024, page 165.

- Ne pas appliquer une seule méthode systématiquement, faire du cas par cas.
- Attention aux pondérations élevées, et aux substitutions de produit fréquentes...

7.33 Il ressort de ce qui précède que les ajustements de prix aux différences de qualité ne se réduisent pas à l'application systématique des mêmes méthodes au prix d'un groupe de produits donné. Diverses méthodes sont proposées ci-dessous. Certaines d'entre elles sont mieux adaptées à certaines catégories de produits. Pour effectuer des ajustements de qualité satisfaisants, il faut bien comprendre le fonctionnement du marché de la consommation, connaître les caractéristiques technologiques des activités de production et avoir accès à diverses sources de données. Il faut aussi accorder une attention particulière aux catégories de produits dont les pondérations sont relativement élevées et où les substitutions de produit sont fréquentes. Certaines des méthodes sont re-

Au cas par cas

- Différences sur l'effet qualité déjà mentionnées en 2024 dans « Mesurer “le” pouvoir d'achat », mais en fait le problème est **bien plus large que les seuls biens technologiques**, il est lié plus généralement aux **substitutions de produits** :
 - ❶ **Habillement** et **chaussures**, mais aussi **l'ameublement**. Problèmes de mode, des soldes, etc.
 - ❷ **Technologie** : téléphones portables, ordinateurs, téléviseurs, montres, lave-linges, mais aussi services de téléphonie, etc.
 - ❸ **Santé** : médicaments, matériel médical. Prix contrôlés et remboursés.
 - ❹ **Loyers** : problème de champ, difficile partage volume prix avec contrôle des loyers.
 - ❺ **Produits écologiques** : voitures, rénovation thermique des logements... Nouveaux produits en partie contraints réglementairement.
 - ❻ **Alimentation** : données de caisse, prix moyen, méthodes implicites.
- Contrairement à ce qu'affirme le blog de l'Insee du 4 juin 2025 qui répond également à ce papier (en le citant dans le texte, sans le citer en biblio), **le problème d'harmonisation sur les effets qualité n'a pas disparu** récemment...

Quelle part du panier ?

Au total, plus de 50% du panier (en 2018, au moins 5029 dix-millièmes) est concerné par ces **biais dans l'ajustement qualité**, pas juste les biens technologiques !...

Évolution de l'indice des prix à la consommation par fonction de consommation en 2018

en %

Fonction de consommation	Pondération ¹ 2018	Évolution 18/17		Fonction de consommation	Pondération ¹ 2018	Évolution 18/17	
		Moyenne annuelle	Glissement déc. à déc. ²			Moyenne annuelle	Glissement déc. à déc. ²
Ensemble (y c. tabac)	10 000	1,8	1,6	Transport	1 520	4,2	3,0
Ensemble (hors tabac)	9 807	1,4	1,6	Achats de véhicules	386	1,4	1,5
Alimentation, boissons non alcoolisées	1 436	2,0	2,6	Utilisation de véhicules personnels	846	6,7	4,5
Produits alimentaires	1 313	2,1	2,7	Services de transport	288	0,9	0,5
Boissons non alcoolisées	123	1,0	2,1	Communications	268	-2,0	-5,0
Boissons alcoolisées et tabac	384	7,6	7,4	Services postaux	15	6,8	6,9
Boissons alcoolisées	191	1,1	2,0	Matériel de téléphonie et de télécopie	45	-7,4	-12,3
Tabac	193	14,2	12,8	Services de téléphonie et de télécopie	208	-1,5	-4,2
Habillement et chaussures	430	0,2	-0,3	Loisirs et culture	867	0,8	0,8
Habillement	341	0,0	-0,6	Équipements audio-visuels,			
Chaussures y c. réparation	89	1,0	0,8	photo et informatiques	117	-2,3	-2,9
Logement, chauffage, éclairage	1 399	2,4	2,7	Autres biens durables (loisirs)	47	1,7	1,5
Loyers d'habitation	615	-0,3	-0,7	Autres articles et équip. de loisirs	241	0,0	-0,1
Entretien et réparation courante du log.	170	1,9	2,1	Services récréatifs et culturels	309	0,9	1,8
Distribution d'eau et autres services	159	1,3	0,7	Presse, livres et papeterie	137	2,5	2,4
Chauffage, éclairage	455	6,5	8,1	Voyages touristiques tout compris	16	12,9	5,2
Meubles, équip. ménager, entretien maison	523	0,2	0,2	Éducation	4	1,0	1,6
Meubles, tapis, revêtements de sol	154	0,0	-0,3	Hôtellerie, cafés, restaurants	770	2,2	1,9
Articles de ménage en textile	38	0,1	-0,6	Restauration et cafés	602	1,5	1,7
Appareils ménagers	86	-1,6	-1,2	Services d'hébergement	168	4,4	2,5
Verrerie, vaisselle, ustensiles de ménage	70	1,2	1,1	Autres biens et services	1 326	1,1	1,3
Outils pour la maison et le jardin	48	0,3	-0,7	Soins personnels	276	0,3	0,3
Entretien courant de l'habitation	127	1,3	1,8	Effets personnels (non définis ailleurs)	115	0,7	-0,1
Santé	1 073	-0,4	-1,4	Protection sociale	480	1,3	1,7
Médicaments et produits pharmaceutiques	456	-2,2	-2,8	Assurances	294	1,8	2,2
Médecine non hospitalière	617	0,9	-0,4	Services financiers	35	1,1	1,0
				Autres services	126	1,3	1,4

1. Les pondérations de l'indice sont calculées chaque année à partir de la consommation des ménages au sens de la comptabilité nationale.

2. Évolution de l'indice de décembre 2018 par rapport à l'indice de décembre 2017.

Champ : France hors Mayotte, ensemble des ménages. Note : base 100 en 2015.

Source : Insee, indice des prix à la consommation.

Section 3

Habillement et chaussures

Taux de remplacement infra-annuel

Estimation de 2004 ne prend en compte que les **remplacements infra-annuels**...

Tableau 2 : impact annuel des ajustements pour effets qualités

code	Fonctions de consommation	Effet qualité	Evolution déc 2002/déc2003	Evolution simulée sans correction pour la qualité	taux de remplacement en différent	Nb de relevé mensuel	Poids
1	Produits alimentaires et boissons non alcoolisées	0,1%	2,4%	2,5%	0,6%	29 477	1 548
2	Boissons alcoolisées et tabac	0,3%	17,3%	17,6%	1,2%	4 248	376
3	Habillement et chaussures	1,7%	0,0%	1,7%	6,4%	20 183	499
4	Logement, eau, gaz, électricité et autres combustibles	0,0%	2,1%	2,1%	0,7%	2 931	1 333
5	Ameublement, équipement ménager et entretien courant de la maison	0,6%	1,2%	1,9%	3,9%	14 015	628
6	Santé	0,0%	0,5%	0,5%	1,2%	1 550	964
7	Transport	0,3%	1,9%	2,3%	0,7%	9 660	1 644
8	Communications	0,2%	0,4%	0,7%	11,2%	163	263
9	Loisirs et culture	0,5%	-0,6%	-0,1%	4,2%	12 287	861
10	Education	n.s	2,0%	n.s	0,7%	93	23
11	Hôtellerie, cafés, restauration	0,4%	2,8%	3,2%	1,1%	7 986	820
12	Autres biens et services	0,2%	2,2%	2,5%	2,1%	10 642	1 041
Total	ENSEMBLE	0,31%	2,16%	2,47%	2,7%	113 235	10 000

Lecture :

Effet qualité : impact annuel des ajustements pour effets qualité

Evolution déc 2002/déc2003 : évolution de l'indice des prix à la consommation

Evolution simulée : évolution de l'indice des prix en l'absence d'ajustement de qualité

Taux de remplacement « en différent » : part mensuelle des produits remplacés « en différent » (donc avec ajustement de qualité) dans l'ensemble des produits suivis

Nb de relevés mensuels : nombre de relevés de prix pour les produits du secteur, hors sources administratives et produits frais

Poids : poids de la fonction de consommation dans l'indice des prix en 2003 (correspond au poids dans la consommation des ménages)

n.s : non significatif car le nombre de relevé concerné est trop faible

Attention au bridge overlap

- Eurostat **met en garde** contre l'utilisation systématique de la méthode par bridged overlap / recouvrement. Il existe une **recommandation spécifique d'Eurostat** en juin 2021 sur le sujet.
- Les recommandations Eurostat établissent des **bonnes pratiques** pour l'établissement des IPCH.
- « Elles ne sont donc pas juridiquement contraignantes », mais « elles occupent une place prépondérante dans la mesure où elles sont officiellement approuvées par les directeurs des statistiques macroéconomiques du système statistique européen (SSE) ».



EUROPEAN COMMISSION
EUROSTAT

Directorate C: Macro-economic statistics

Unit C-4: Price statistics. Purchasing Power Parities. Housing statistics

HICP recommendation on bridged overlap ⁽¹⁾

I. The recommendations

Bridged overlap is an implicit quality adjustment method that can be applied in the HICP when a disappearing product-offer is replaced with a new product-offer. Bridged overlap implicitly imputes a price for the new product-offer in the previous period and thereby values the quality difference as the price difference between the old and new product-offers in that period. The **main principle of the recommendation** is to **monitor** and identify replacement situations in which the assumptions underlying bridged overlap are either **significantly** or **systematically not satisfied** and **modify the replacement and quality adjustment procedures as appropriate.**

Eurostat : attention à la méthode par recouvrement

Recommendation 1: Cases in which bridged overlap should not be used

It is recommended to avoid applying bridged overlap in the following situations, unless duly justified:

1. The last price of the replaced (old) product-offer is a reduced price.
2. The first price of the new product-offer is a reduced price.
3. The first price of the new product-offer is unusually high.
4. The matched sample of product-offers includes reduced or atypical prices, or shows a downward price trend during the product life cycle.

Recommendation 2: Impact assessment of bridged overlap

It is recommended to regularly analyse the impact of bridged overlap on indices for relevant product groups over longer periods. Such an analysis can be conducted, for example and where possible, by comparing bridged overlap with other quality adjustment methods such as direct comparison, link-to-show-no-price change, or hedonics.

Recommendation 3: Alternatives to bridged overlap

When bridged overlap is considered inappropriate, another quality adjustment method should be used instead. There is no single best alternative to bridged overlap and the choice depends on circumstances. In practice, the following treatments could be considered: apply direct comparison, implement explicit quality adjustment procedures, adjust the products that enter the bridge, impute a normal price following a reduced price, optimise the timing of replacements, or apply bridged overlap with respect to a previous period.

3.2. Recommendation 2: Impact assessment of bridged overlap

For most products, the bias tends to be in the same direction (most commonly downward) month after month. In any one month it does not make much difference, but when accumulated over a long period it can cause extreme results. In order to identify such situations and improve the replacement and quality adjustment procedures, a more structural analysis over a longer period is needed. This is especially relevant in product categories with a high number of bridged overlap replacements compared to sample size. It may also apply to product categories with price trends that appear to be less consistent with other indicators.

Such an analysis can be conducted by comparing the use of bridged overlap with other quality adjustment methods. For example, instead of applying bridged overlap, replacements could be handled either through direct comparison or link-to-show-no-price-change. In principle, it should be possible to conduct such an analysis without further data for example on product characteristics. If product characteristics are available, it can be possible to compare bridged overlap methods with hedonic index. Although hedonic methods have their own challenges, such an analysis could give some further insights on possible biases that result from the bridged overlap.

Habillement

“only in exceptional cases”...

Bridged overlap

With bridged overlap it is assumed that the price difference between a replaced and a replacement model is captured by the price difference of a similar product or a group of similar products.

A key question is whether the last observed (reduced) price of the replaced product offer should be imputed or the last observed normal price. If the last observed (reduced) price is used, this may introduce a bias when the seasonal pattern of the other products in the group is different. It is not unlikely that products that are less affected by **fashion** and that continue to be available are less heavily discounted during sales periods, because of which a downward bias is introduced if sales prices are imputed. Another possibility is that some products continue to be available, but gradually fall out of fashion, as a result for which their price movement over time stays below the price movement of the latest fashionable (in season) products. If this is the case, the bridged overlap method will bias the index downward.

If this method is used, then the last observed normal price should be used to minimise any potential downward bias in the index.

Bridged overlap is sometimes useful but it has pitfalls ⁽²⁸⁴⁾. **This method should be used only in exceptional cases.** A problematic point is the dependence on the assumption that price differences at a given time correspond to quality differences, as this is easily severely distorted by **changes in fashion**.

“downward bias in the index”...

6.7.1 Bridged overlap

The method of *bridged overlap* means that the relative price change in a replacement since the preceding period (last month) is estimated as the relative price change since the preceding period from other individual product. In fact, with the bridged overlap method, the quality difference is implicitly measured by the ratio of prices of the old and new products in the common, overlapping period.

Aliases: bridged overlap is in some forms also known as mean imputation, sometimes further specified as overall mean imputation versus targeted mean imputation ⁽¹⁴³⁾.

Basic usage: bridged overlap is applicable in product areas where the underlying assumption is deemed not to yield unacceptable bias.

Underlying assumptions: the applicability of the method rests on the assumption that the aggregate used for imputation has price changes representative of pure price changes. In addition, according to the HICP recommendation on bridged overlap, the bridged overlap relies on the idea that the prices of the product-offers that are sampled within an elementary aggregate react to each other instantaneously, and that when a price difference is observed it must arise from a difference in quality, such as product characteristics, timing, location, or conditions.

Comment: the underlying assumptions can be violated where sales discounts occur, as they disrupt the market equilibrium and are liable to create a downward bias in the index. The problem becomes apparent when a discounted individual product is replaced by one with a *normal* higher price. Then an imputation with an aggregate with mainly unchanged individual product can result in an obvious downward bias, as the price increase due to the return to normal price level is eliminated.

⁽¹⁴³⁾ In Triplett, J. (2006), [Handbook on Hedonic Indexes and Quality Adjustments in Price Indexes: Special Application to Information Technology Products](#), Paris: OECD Publishing.

BLS, 1997 : overlap method

Recommendation xii. BLS should investigate the ramifications of the embedded assumption of price equilibrium and the implications of it sometimes not holding.

Any systematic method for distinguishing quality change from price change must be based on some theoretical framework and set of assumptions. In most cases the BLS, like academic economists who do research in this field, relies on one or another assumption about price equilibrium. An equilibrium assumption underlies hedonic methods for quality adjustment, for example, as well as the matched model price comparisons commonly used by the BLS.⁴⁸ Although virtually all systematic methods for quality adjustment are based to some extent on assumptions about price equilibrium, the nature of the assumptions differs between methods. Of the methods used for quality adjustment by BLS, two (the “overlap method” and the “link method”) are based on a particularly strict equilibrium assumption—that quality differences can be inferred from the price differences between individual items.⁴⁹ The hedonic method, in contrast, allows for random deviations of prices from equilibrium values and may allow for differences in rates of price change between items of different vintages.

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particularly for long run comparisons. Indeed, the BLS already has made considerable progress in doing this. Recent tabulations indicate that item replacements adjusted for quality using the methods that embody a strong price equilibrium assumption (i.e., the “overlap method” and the “link method”) declined from about 2 percent of prices collected in 1983 to 0.62 percent in 1995.⁵⁰ In addition, the CPI for prescription drugs now reflects consumers’ savings from buying therapeutically equivalent generic substitutes for branded products. We plan to continue research on avoiding bias from unwarranted price equilibrium assumptions.

6.3.7 Principle 7: Specified recommendations apply for quality adjustment in specific product areas

Between product groups there are differences in the need for, feasibility of and relevance of approaches to be applied for quality adjustment. Therefore, guidance has been developed for specific product areas (e.g., clothing and footwear, etc.), which is elaborated in other chapters of this manual.

Some methods (these methods will be discussed in detail below) are more suitable for certain product groups than others. For example, many NSIs have found that hedonic methods are the best option for quality adjusting electronic goods such as computers and other digital-type equipment. The option cost approach is often used to adjust for quality change in cars. Changes in package sizes are mostly adjusted by NSIs by assuming a linear relationship between price and quantity. Finally, bridged overlap is a very popular method, and it is frequently used for many of the other product groups such as, furniture, appliances, clothing. However, care must be taken when using bridge overlap ⁽¹³⁸⁾. Recommendation 1 of the *HICP recommendation on bridged overlap* states the conditions under which this method should be avoided as follows:

⁽¹³⁸⁾ [HICP recommendation on bridged overlap - June 2021 \(europa.eu\)](#).

Attention à la méthode par recouvrement...

- Eviter la méthode par recouvrement quand il y a une baisse de prix avant le remplacement, le prix du produit remplaçant est anormalement élevé, etc.

6

Replacements and quality adjustments

'It is recommended to avoid applying bridged overlap in the following situations, unless duly justified:

- 1. The last price of the replaced (old) product-offer is a reduced price.*
- 2. The first price of the new product-t-offer is a reduced price.*
- 3. The first price of the new product-t-offer is unusually high.*
- 4. The matched sample of product-t-offers includes reduced or atypical prices or shows a downward price trend during the product life cycle'.*

Attention à la méthode par recouvrement...

Méthode par recouvrement = méthode implicite

Theoretical basis for implicit methods

Implicit methods assume that in case of a replacement individual product the price development of other individual product within the same aggregate may be used to estimate that of the replacement. Economic theory explains why this assumption has some merit. In a free market where prices converge towards their equilibrium, any price differences that may persist among products that are considered close substitutes at any point in time must be explained by the product's quality differences. This implies that price differences at a given point in time can confidently be used to assess the value of the quality differences among the replacement and replaced product.

Cases where the implicit quality adjustment method may not be appropriate to use, thus leading to spurious results, is when a new individual product replaces one that has been available in the market for some time. In such a scenario, the price of the product **can be deeply discounted to clear the remaining stock to make room for the new line of products.** At this point, it is likely that supply and demand are not in equilibrium and therefore basing the value of the quality difference on this **abnormally low price will bias the index.**

Eurostat, comptes nationaux : partage volume/prix

Secteurs qui posent problème : habillement, ameublement, etc.

A/B/C methods for output by product

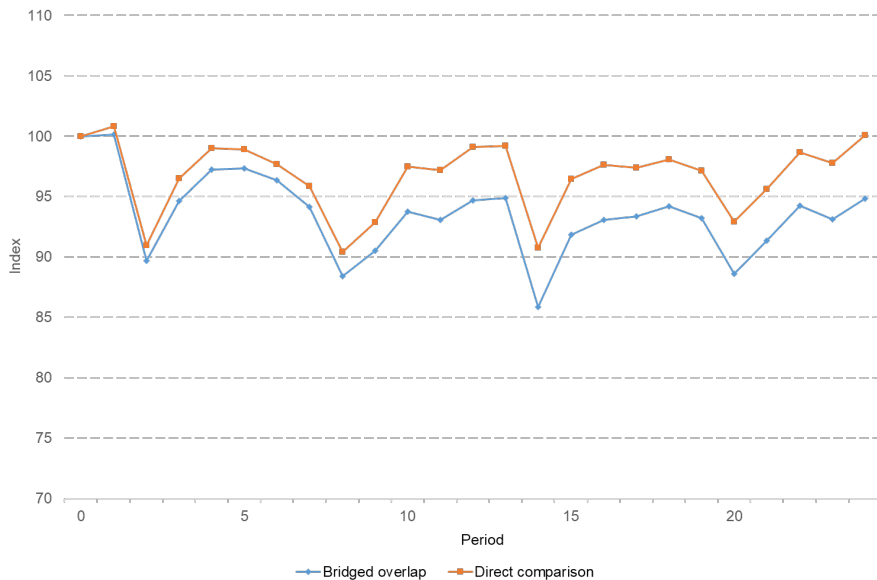
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straightforward than for some other CPA categories. However it is important to ensure that the general issues mentioned earlier in the handbook are satisfactorily covered, in particular:

- Quality — Changes in the quality of a product should be properly reflected as changes in volume. Section 2.4 discusses possible methods in more detail. For some products in CPA C, such as **fashion goods (clothes, footwear)** or **high technology electrical goods**, the definition of 'quality' is not always straightforward. It may be, for example, that the **hedonic methods** described in section 4.3.3 on computers will need to be applied to other electrical products where the technology is changing rapidly (for example mobile phones).
- Price basis — The value of output should be deflated by a price index based on basic prices, and these should be based on actual prices not list prices (so that discounts are reflected in the price).
- Accrual basis — The data should relate to transactions in the period in question, not when the goods are paid for. This is particularly important for quarterly data collection (see chapter 5).

Biais de la méthode par recouvrement - Habillement

Figure 3: Impact of bridged overlap for men's garments (CSO Ireland)



Eurostat, comptes nationaux : partage volume/prix

Source : Handbook on prices and volume measures in national accounts, 2016 edition.

It is then implicitly assumed that the price difference between A and B in period t is a measure of the value of the quality difference. As made clear in the previous section, whether or not this is a reasonable assumption depends on the market situation of the product in question. In situations that are close to perfect competition, the overlapping method will give appropriate results.

However, in certain circumstances, e.g. when new varieties of the product are introduced frequently and prices change quickly, the overlapping method may not give good results. The main problem is that very different results can be obtained depending on when items are introduced into, or dropped out of, the price sample. For example, if new models of computers are introduced into the price sample as soon as they appear and kept in the sample as long as they are sold, then it is likely that a rapidly declining price index will be the result because of the large discounting which applies to an old model once a new one is introduced. On the other hand, price indexes which declines little (if at all) can be obtained if the prices of old models are dropped out of the sample as soon as a new model is introduced. For other products, other patterns may prevail. For example, cars are often introduced at reduced prices.

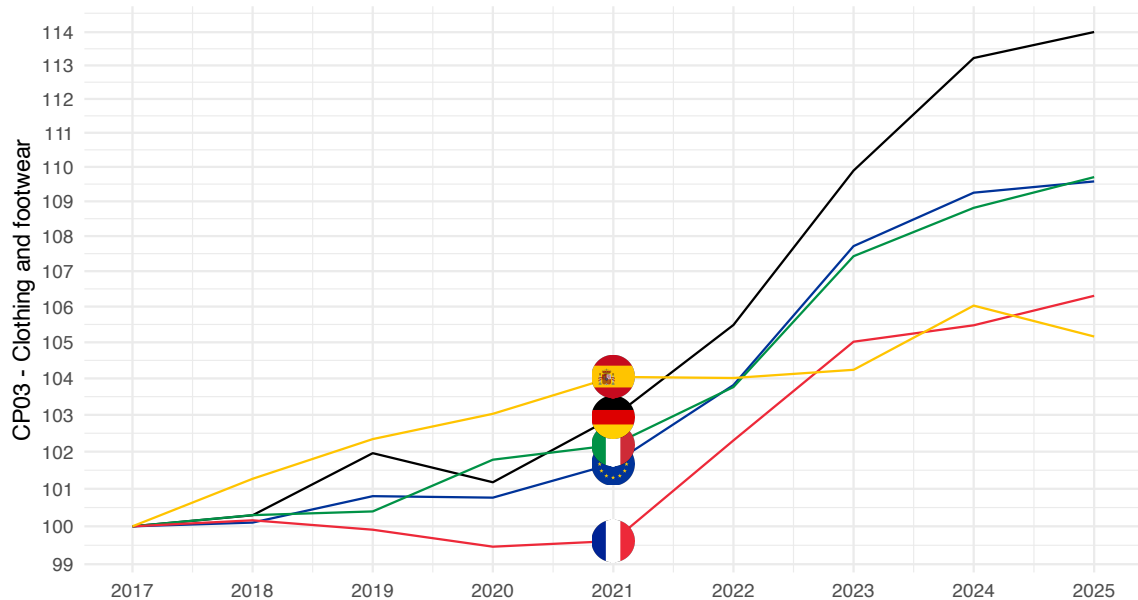
Baisse de prix en fin de saison ne reflète pas une moindre qualité par rapport au nouveau modèle suivant. Idem : ameublement, etc.

Clothing

11.48 The treatment of seasonal clothing can be challenging, especially because fashion is involved. In many countries, the price patterns of clothing are the result not just of seasonal availability (for example, winter coats or bathing suits) but, especially for fashion goods, of discounts in seasonal sales. In addition, the problem of extreme price movements is combined not only with seasonal unavailability, but by annual changes in the products because of the effect of fashion. New stocks of clothes that arrive in the outlets at the beginning of their season may have styles that are different from those that disappeared at the end of the previous season, so there is the question of whether the new styles are different in quality from the old styles. In addition, prices generally fall over the course of the season: prices at the end of a season are often discounted as outlets clear their stocks in readiness for the next season. For seasonal items, comparisons must be made between the new replacement products and the old products that disappeared at the end of the previous season, maybe six months earlier. Dealing with these issues can be challenging:

- *Discounted end-of-season prices.* In the case of a product showing temporary discounts or promotions, where it seems likely that the price will return to its normal level after a short period, then the discounted price should be included, and no special method is needed to handle it. If, however, the discounting is seasonal in nature and intended to help the outlet clear stocks of old styles, then the issue is more problematic because, unless specific procedures are applied to ensure a return to normal prices, the index will be subject to a systematic downward bias. The exclusion of such situations is an important consideration in defining the in-season period. Products that have flaws or are irregular should not be included.

Inflation habilleme

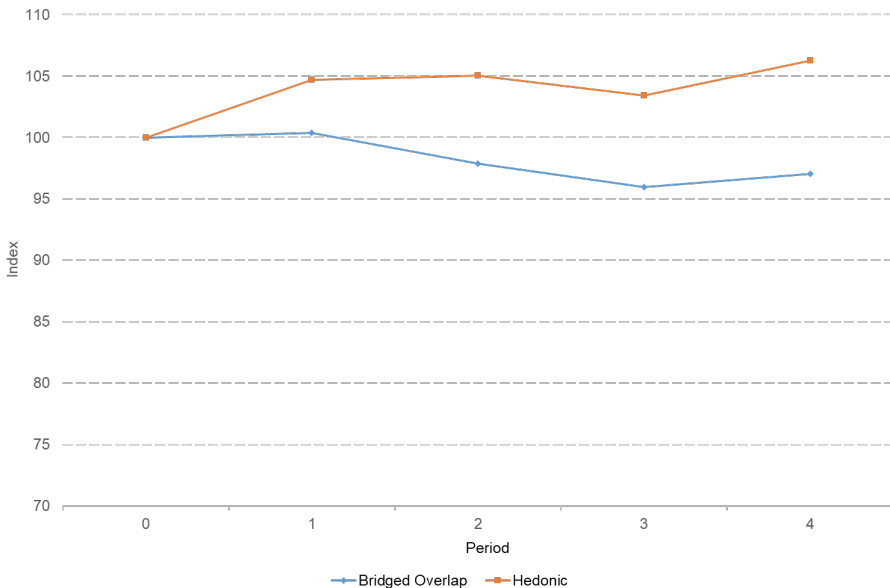


Section 4

Technologie : ordinateurs, smartphones, machines à laver...

Biais de la méthode par recouvrement - Ordinateurs

Figure 2: Impact of bridged overlap for laptops/desktops (CSO Ireland)



Attention à la méthode par recouvrement...

Another indicator for assessing the need for hedonic quality adjustment is to examine the turnover of models and the rate of technological change. The turnover rate can be measured, either directly from HICP data or from scanner data, by measuring the proportion of the sample being replaced each month or the amount of turnover in the market i.e. the proportion of models leaving plus the proportion of models entering the market. The rate of change in quality can be derived from scanner data attribute files. In this case the practical way forward is to track the proportional change in the value of numerically measurable variables, or to track the changes in the proportions containing desirable attributes.

12.9.5.4 Bridged overlap

Implicit methods of quality adjustment, particularly bridged overlap, are generally useful for electronic goods, as effective competition makes price differences informative of quality differences. However, care must be taken as discounts on out-of-date models can cause an imbalance between supply and demand and thus lead to price differences that sometimes do not reflect quality differences as such, with the result that the index can suffer from bias (see Section 12.9.5.2 and Chapter 6).

12.9.5.5 Evaluation of quality adjustment methods

Some methods of quality adjustment can tend to be less robust in the compilation of indices for electronic goods due to the high turnover of models and the magnitude of change in the technical features. But this depends on the state of the market — most particularly the pace of technological change — and this should be tested.

Méthode par recouvrement est moins appropriée en particulier pour les ordinateurs...

The problem is one of quality change, which was discussed at length in section 2.4. The various methods of handling quality changes were introduced there. The following methods can be appropriate to use for computers:

- the hedonic approach, since it is possible to determine and quantify the characteristics that influence the price;
- option prices, since in many cases separately priced options can be distinguished (such as additional memory or a DVD drive);
- the resampling method, as long as the sample is representative and large enough.

In view of the discounting practices for computers, in particular for PCs, the overlap method is less appropriate for these products.

Eurostat, comptes nationaux : partage volume/prix

2.4.4 A, B and C methods

The most appropriate method for quality change will depend to a large extent on the particular circumstances. A few general criteria can be specified however. An appropriate method for quality adjustments:

eurostat ■ Handbook on price and volume measures in national accounts _____ 24

A/B/C methods for general procedures

2

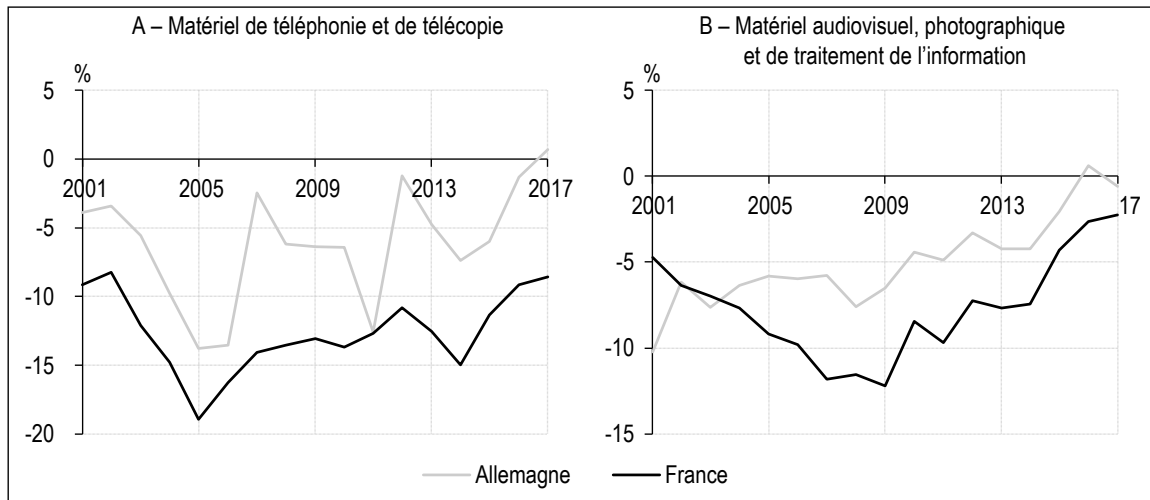
- makes explicit evaluations of the quality change rather than implicit ones;
- does so in a verifiable way;
- takes both user's preferences and producer's costs into account (normally by considering differences in market prices).

In general, the following methods can become A methods if applied under the right circumstances:

- the hedonic approach, if characteristics can be identified that influence the price and can be quantified;
- option prices, if separately priced options can be distinguished, and the price of a separately purchased option is not very different when it is included in the product;
- overlapping, if there is no large discounting of an old item when a new item is introduced;

- Selon Aeberhardt et al. (2020), sur les seuls biens de l'information et de la communication, l'écart entre les **IPCH français et allemand depuis 2000** est :
 - ▶ **6 points par an** pour le *matériel de téléphonie et de télécopie* (incluant les téléphones portables) ;
 - ▶ **près de 3 points par an** pour le *matériel audiovisuel, photographique et de traitement de l'information* (incluant les ordinateurs et tablettes).
- Dans cet article — comme dans d'autres portant sur les comparaisons de **PIB**, l'importance de cette différence est minimisée, car ce qui importe est l'effet sur le PIB : ces biens étant **importés**, l'effet sur les importations annule celui sur la consommation.
- **Mais pour la mesure du pouvoir d'achat**, cette différence est capitale : la consommation inclut évidemment les biens importés (voir aussi Aeberhardt et Bidault (2018); Abdirahman et al. (2022)).

Figure II – Évolutions en moyenne annuelle de l'indice des prix à la consommation harmonisé en France et en Allemagne (%)



Source et champ : Eurostat, IPCH base 2015 ; IPCH pour les postes 8.2 et 9.1 de la Coicop.

Recommandations internationales 2020 1/5

Le manuel du FMI 2020 (OIT, Banque Mondiale, OCDE et Eurostat) met aussi en garde contre les méthode de type overlap / recouvrement, notamment pour les téléphones portables...

CONSUMER PRICE INDEX MANUAL

replacements in one period with the price of the now missing varieties in a previous period. The widely used overlap method has a major advantage of not requiring an explicit quality adjustment. Explicit quality adjustments (described in paragraphs 6.119–6.187) are more resource-intensive than the implicit overlap method. Furthermore, it is recommended that the overlap method be automated with information from the price collector, reported to the head office, and used in a computational routine. The recommendation is that in accepting the use of the overlap method, the CPI compiler should ensure that relative prices at the time of the overlap reflect quality differences. For example, a much-improved new model of a smartphone may be launched at the same price as the old model, and the relative price would not reflect the differences in quality. If the relative price does not reflect quality differences and resources allow, an explicit quality-adjustment method should be used.

6.107 Relative prices may not always reflect quality differences. For example, a new replacement model or brand of an improved quality may be stocked and sold at the same price as the old model, and the outlet competes in the market in part by changing the quality of what is sold, as opposed to the price. In other cases, retailers may reflect unusual pricing policies aimed at minority segments of the market. For example, the ratio of prices in an overlap period of a generic and a branded pharmaceutical drug may reflect the needs of two different market segments, rather than quality. The overlap method can be used with a careful choice of the overlap period. If possible, the overlap period should be a period before the use of the replacement, since in such periods the pricing may reflect a strategy to drop the old model to make way for the new one.

6.108 The overlap method is based on the law of one price: when a price difference is observed, it must arise from a difference in quality or similar factors for which consumers are willing to pay a premium, such as the timing of the sale, location, convenience, or conditions. Economic theory would

Matching and the Overlap Method for Markets with Rapid Turnover of Models

6.186 The first approach to address markets with rapid turnover of models is simply a more extensive use of the overlap approach outlined previously for permanently missing prices. In this case, it is adopted for permanently missing varieties that occur frequently, as is usual for changes in models of **electronic goods** and **automobiles**. Matching prices of a few representative varieties becomes a less feasible approach in this context. A backward imputation is illustrated in Table 6.11 though, as outlined in the illustration for Table 6.5C, a forward imputation can be equally justified and both methods provide the same results when the imputations are based on the price changes of overlap-matched samples.

Table 6.11 Illustration of Rapid Model Turnover

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.
1	25	25	25	25	25	25	25	25	25	25	20		
1R											29.2	30	30
2	35	35	35	35	35	32							
2R						37	37	37	37	37	37	40	40
3	30	30	30	30	30	30	30	30	30	30	27		
3R											32.2	33	33
4	29	29	29	29	29	28							
4R						30	30	30	30	30	30	30	30
5	29	29	29	29	29	29	29	29	29	29	29	29	29

Values in bold are imputed.

6.193 The **overlap method** may be subject to bias if applied to where there is substantial churn in the product market and an active policy by the supplier of introducing upgraded replacement models. The nature and extent of the bias depends on the pricing strategy. Table 6.11 illustrates a policy of lower pricing at the end of the life cycle and a higher price at the start. Importantly, the example has no price change for other matched models, from which the imputation was drawn, and thus a biased imputation at this critical overlap period. **The bias is substantial and downward.** Alternative pricing strategies are given in Annex 6.3 along with their implication for bias from using the overlap matching. **It has been demonstrated in empirical studies that the method can introduce substantial bias under quite reasonable conditions.** The nature and extent of the bias depend on **business pricing strategies** that may change over time and are unpredictable, which is a concern for CPI compilation in this important product area. The **overlap method** is thus

not recommended for product markets with a high rate of model churn.

Recommandations internationales 2020

- Au niveau international, les méthodes explicites (ex : hédoniques) sont **clairement préférées** aux méthodes implicites. (ex : overlap/recouvrement)

CONSUMER PRICE INDEX MANUAL

- Quality change refers to changes in the price-determining characteristics when one variety replaces another. If these differences are judged to be comparable (that is, they are deemed to be similar), the price of the old and the new variety can be compared directly and any difference in price is reflected as price change. Should the differences be such that the old and the new variety are deemed to be noncomparable, a quality adjustment is needed. Quality adjustments ensure that the index reflects only pure price change and not changes because of differences in quality.
- **Explicit or direct quality adjustments are preferred.** They include quantity adjustment resulting from changes in size or quantity, changes in option costs, differences in production costs, and hedonics. Quantity adjustments are straightforward, and many countries apply this method for changes in size. The other explicit methods require data and experience making explicit quality adjustments.
- **Implicit or indirect quality adjustments are the second-best approach;** however, they could be preferred given a **lack of data and expertise required** for the explicit methods. Implicit methods include overlap pricing and imputation.
- The **rapid turnover in the models sold of select products** (for example, televisions, computers, telecommunications equipment, or appliances) **requires a different strategy.** Over time, these products usually have a rapid turnover in their quality characteristics. While the MMM, class mean imputations, and hedonic price indices may be used, the chapter notes that the MMM may lead to significant bias.

International Standards for Consumer Price Indices

The objectives of the international standards for CPI compilation are to provide guidelines on best practices that can be used by countries when developing or revising a CPI and to promote the quality and international comparability of national CPIs.

In many countries, CPIs were first compiled mainly to be able to adjust wages to compensate for the loss of purchasing power caused by inflation. Consequently, the responsibility for compiling CPIs was often entrusted to ministries, or departments, of labor. The International Conference of Labour Statisticians (ICLS), convened by the Governing Body of the ILO, therefore provided the natural forum in which to discuss CPI methodology and develop guidelines.

The first international standards for CPIs were promulgated in 1925 by the Second ICLS. The first set of standards referred to “cost of living” indices rather than CPIs. A distinction is now drawn between two different types of indices. A CPI can be defined simply as measuring the change in the cost of purchasing a given “basket” of consumption goods and services, whereas a cost of living index is defined as measuring the change in the cost of maintaining a given standard of living, or level of utility. For this reason, the Tenth ICLS in 1962 decided to adopt the more general term “consumer price index,” which should be understood to embrace both concepts. There need not be a conflict between the two. As explained in the Manual, the best practice methods are likely to be very similar, whichever approach is adopted.

The international standards for calculating CPIs have been revised four times, in 1947, 1962, 1987, and 2003 in the form of resolutions adopted by the ICLS. The 1987 standards on CPI were followed by a manual on methods (Turvey and others 1989), which provided guidance to countries on the practical application of the 1987 standards. The 1989 manual on methods was revised, expanded, and published in 2004.

The 51st Session of the United Nations Statistical Commission endorsed this Manual as an international statistical standard on March 4, 2020 and urged all countries to use this Manual in the compilation of their national CPIs.

Illustration : prix iPhones, date

Différence de prix = différence de qualité ou cycle de vie du produit ?

Évolution du prix des iPhone

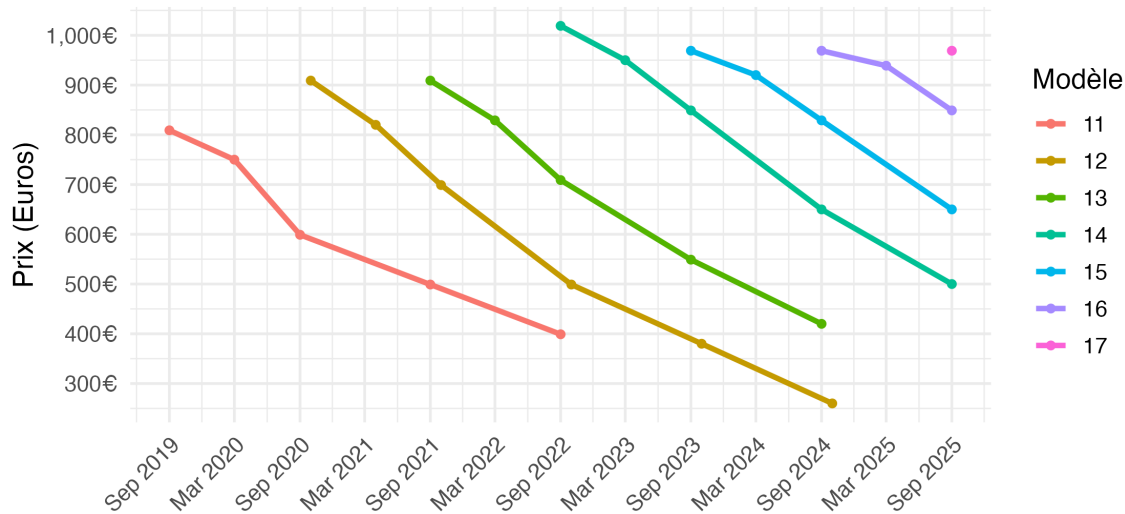
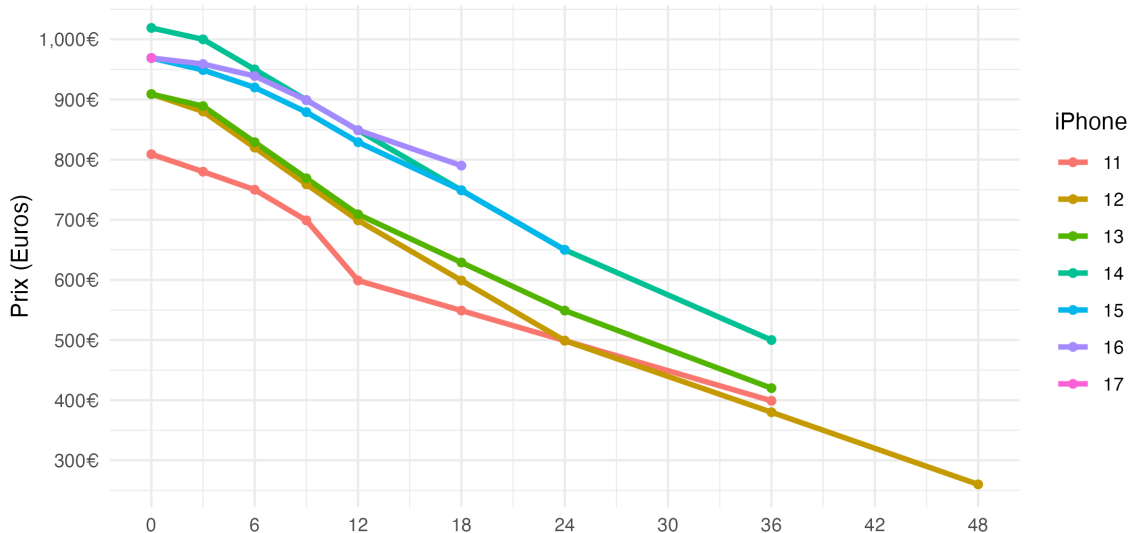


Illustration : iPhone, mois après lancement

Différence de prix = différence de qualité ou cycle de vie du produit ?

Décote des iPhone au cours du cycle de vie



Manuel méthodo 1998, France

Même l'Insee Méthodes de 1998 est critique de la méthode par recouvrement / du dissemblable corrigé, et recommande les méthodes explicites...

En vue d'améliorer la situation actuelle, la Commission de l'Union européenne a adopté, après accord des pays membres, un règlement relatif aux « **normes minimales pour les procédures d'ajustement de la qualité** » qui interdit d'estimer le changement de qualité comme étant égal à la totalité de la différence de prix entre les 2 articles (le nouveau et l'ancien) sauf si ce choix peut être dûment justifié¹¹⁷ ».

Même si elle apporte une amélioration, la technique du « **dissemblable corrigé** » n'est pas pleinement satisfaisante pour prendre en compte « **l'effet-qualité** » puisqu'elle ne compare pas directement le produit remplaçant et le produit remplacé. C'est pourquoi l'Insee, comme les autres instituts de statistique européens, s'est orienté vers d'autres méthodes de traitement de l'évolution de la qualité. **La meilleure manière semble être d'évaluer celle-ci de façon explicite.**

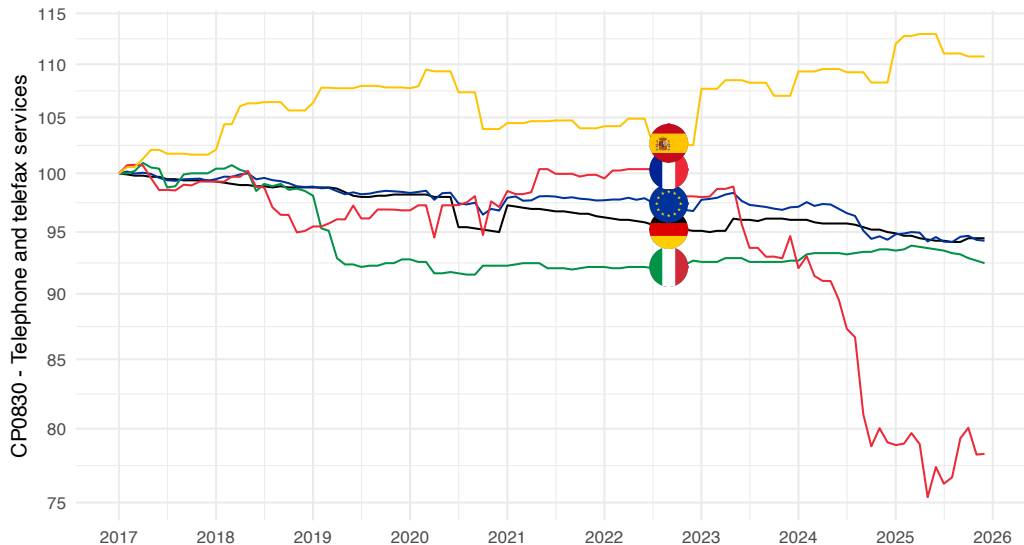
Question ancienne. Dernièrement en 2019 au Comité du Label...

- Le Comité du label note un certain nombre de projets en cours ou d'évolutions à venir, parmi lesquels :
 - l'intégration de Mayotte dans le calcul de l'IPC ;
 - la construction d'indices régionaux ;
 - l'intégration des *hard-discounters* dans le processus ;
 - la mise en place de pondérations adaptées et spécifiques à certains produits (comme l'éducation) ;
 - la mise en place de prix hédoniques pour certains produits, permettant des estimations à qualité constante ;
 - le développement du *webscraping*, avec une réflexion à mener sur les conditions d'utilisation des données recueillies, leur pondération et le suivi dans le temps des produits, ainsi que les problèmes juridiques sous-jacents (confidentialité mais utilisation à des fins publiques ou par les chercheurs).

De ce point de vue, d'une part l'information auprès des entités concernées, d'autre part, la participation à des travaux, notamment avec le SSPLab et les SSM, sont encouragées.

Services de télécommunication

Méthode des profils, prix le plus bas suivi en France :



Section 5

La santé

Spécificité française

- L'ajustement qualité pour les médicaments est particulièrement difficile en général.
- Ca l'est d'autant plus dans le contexte français, car l'Assurance Maladie encadre les prix, et le renouvellement du produit permet à l'industriel d'en profiter pour augmenter son prix. L'effet qualité contient donc un élément d'inflation masquée :

$$\Delta \text{Prix du médicament} = \text{effet qualité} + \text{effet 'inflation masquée'}.$$

- L'effet qualité estimé par la méthode implicite (overlap ou bridge overlap) est alors biaisé par construction.
- Ce problème est plus important en France, car l'IPC français inclut les dépenses de santé remboursées par la sécurité sociale, **en contradiction avec les recommandations internationales sur les indices de prix**, ce qui avait été discuté dans cet article :

« Inflation en France : IPC ou IPCH ? », F. Geerolf, 9 juillet 2024. [[html](#)] [[pdf](#)] [[handouts](#)] [[slides](#)] [[slides](#)] [[github](#)]

“Hausse de prix masquées” selon F. Lequiller

F. Lequiller = en 1997 chef adjoint au département des Prix à la consommation, des Ressources et des Conditions de vie de l'Insee, chargé de l'IPC.

L'hypothèse de hausses de prix masquées ne peut être écartée

On ne peut en effet écarter, pour certains marchés, l'hypothèse de hausses de prix masquées par le producteur à l'occasion de changements de produit et conduisant la méthode de chaînage à annuler abusivement une hausse de prix. Même dans un contexte relativement concurrentiel, un « marketing » bien fait d'un produit, même de grande consommation, permet probablement de vendre à un prix au-dessus de la différence de qualité intrinsèque. Il y a le cas aussi des prix contrôlés, pour lesquels il faut souvent justifier une hausse de prix par une modification de qualité. Il n'est pas impossible qu'alors des modifications de qualité soient surestimées, ce qui conduit la méthode de chaînage à sous-estimer la hausse des prix dans l'indice.

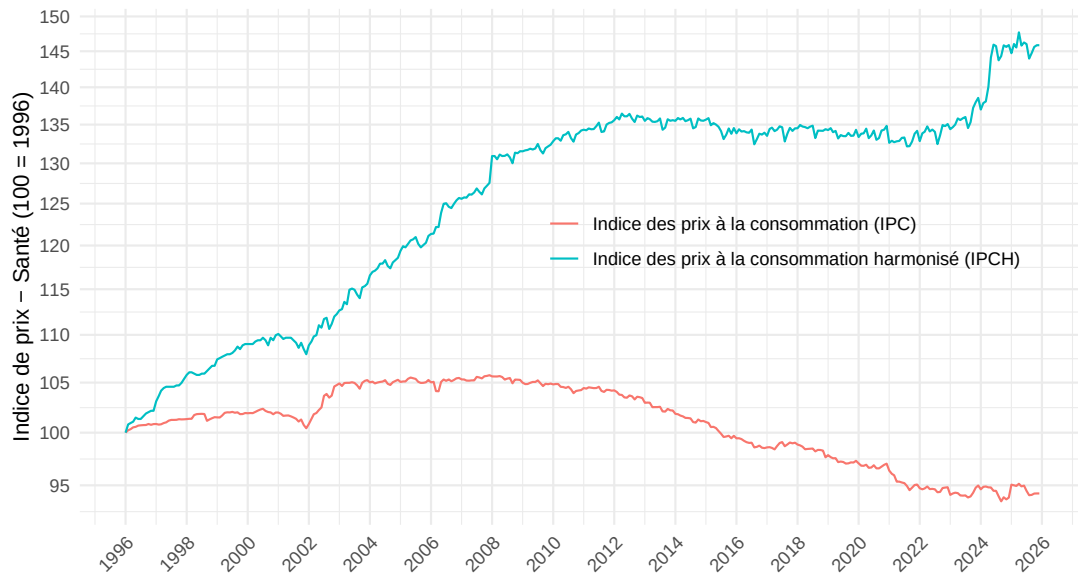
Le cas des médicaments remboursables en est peut-être un exemple car leurs prix sont encadrés (Jacobzone *et al.* 1997). L'hypothèse que des hausses de prix masquées interviennent à l'occasion de l'apparition de variantes de produits existants a été émise par plusieurs économistes. Le traitement de ces « nouveaux médicaments » dans l'indice relevant de la méthode de chaînage, celle-ci annulerait donc par construction ces hausses de prix masquées et sous-estimerait donc l'inflation dans ce secteur. Sans que ceci en puisse être considéré comme une preuve, car il y a de nombreuses autres raisons qui peuvent l'expliquer, on peut constater que l'indice de prix des médicaments croît relativement beaucoup moins vite que l'indice d'ensemble.

Des doutes dans le cas de l'habillement

Des doutes dans le même sens existent aussi

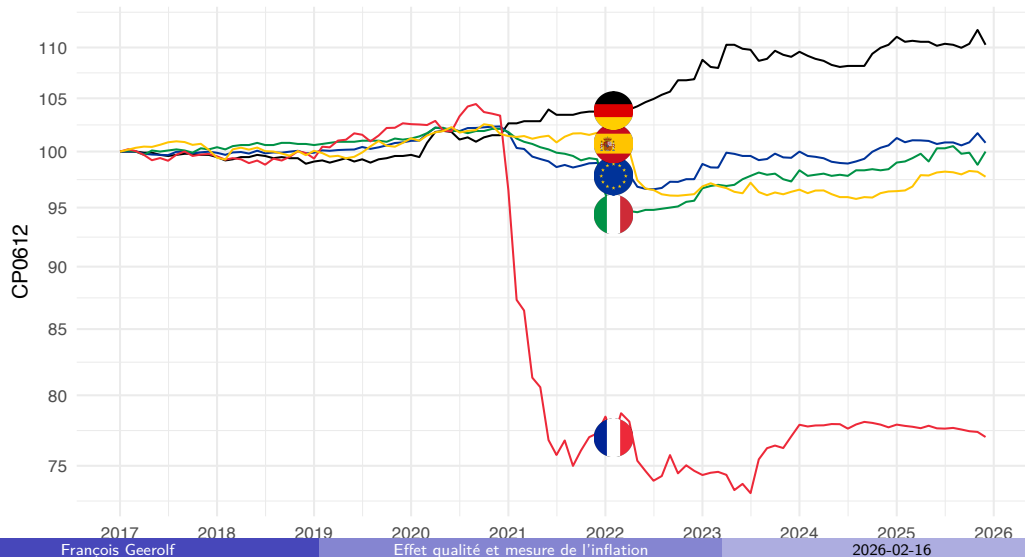
IPC vs IPCH

IPC : inclut les dépenses de santé remboursées



Masques pendant le Covid-19

Les masques chirurgicaux ont été ajoutés au panier quand ils étaient en pénurie, puis le prix a baissé très fortement... Effet sur la comparabilité de l'indice COICOP 0612, autres produits médicaux :



Section 6

Les loyers

- Mesure des loyers vient de l'enquête *Loyers et Charges*.
- Loyers non meublés. (la hausse des meublés est plus forte)
- Voir une publication précédente :

« Au sujet du Blog de l'Insee : “Mais si, l'Insee prend bien en compte le logement dans l'inflation!” », F. Geerolf, 22 février 2022. [[html](#)] [[pdf](#)] [[handouts](#)] [[slides](#)] [[slides](#)] [[github](#)]

- Effet qualité est mesuré via une méthode d'imputation, ce qui n'est pas conforme quand les loyers sont encadrés.

Biais méthodologique principal

- En droit français, les travaux d'amélioration constituent un **levier juridique** permettant un **repositionnement du loyer au marché lors d'une relocation**.
- La hausse effective dépasse souvent la valeur imputable aux travaux.
- Vrai si le locataire est présent dans les lieux, mais surtout au moment d'une relocation. La hausse observée est alors mixte :

$$\Delta \text{loyer} = \text{effet qualité} + \text{effet remise au marché.}$$

- La méthode utilisée fait comme s'il n'y avait que l'effet qualité, donc neutralise toute la hausse de loyer. Prendre comme référence les hausses de loyers sans travaux (avec ou sans relocation) amène à un **biais systématique**...
- C'est la justification statistique de la recommandation Eurostat : ne pas faire d'imputation / bridged overlap quand les loyers sont encadrés...

Bridged overlap pour les loyers déconseillé par Eurostat...

Recommandation sur les loyers : Juin 2015

b) Quality adjustment when tenant changes (dwelling fixed)

- 1) Price (rental) changes occurring at the same time tenancy changes should be reflected in the index. Where no quality change occurs direct comparison should be considered as an A-method. Bridged overlap is classified as a C-method.
- 2) Where repairs and maintenance are carried out on the occasion of tenant changes, direct comparison should be considered as an A-method, based on the same reasoning as used for a) 1).
- 3) Where modernisation is carried out, hedonic approach is considered as an A-method, and bridged overlap and supported judgmental quality adjustment as B-methods. See a) 2) for reasoning.

Contrôle des loyers : supported judgement approach

Bridged overlap can be used where actual rentals are not regulated and are set in accordance with current free market prices. It may also be more straightforward to apply in practice. However, bridged overlap may be inappropriate where rents are subject to some form of regulation (e.g. social rents, or where rent controls exist); so that they do not reflect what tenants would be willing to pay for the rental units in view of their characteristics. Namely, bridged overlap works on the condition that prices are freely negotiated so that they correspond to consumers' valuation of quality (see Chapter 6). The preferred solution when using bridged overlap should be the targeted mean imputation technique, where imputed price changes are based on price changes for similar rental units.

Table 12.4.4: Summary of quality adjustment methods

Conditions		Suitable quality adjustment method
If there is no quality change		Use direct comparison
	If a hedonic approach is feasible and practical	Use a hedonic approach
If quality changes occur	Otherwise: if rents are freely negotiated	Use bridged overlap or, if feasible, use a supported judgement approach
	Otherwise: if rents are regulated	Use a supported judgement approach

Contrôle des loyers : supported judgement approach

Table 12.4.42

Conditions and suitable quality adjustment methods for rental

Conditions		Suitable quality adjustment method
If there is no quality change		Use direct comparison
If quality changes occur	If a hedonic approach is feasible and practical	Use a hedonic approach
	Otherwise: if rentals are freely negotiated	Use bridged overlap or, if feasible, use a supported judgement approach
	Otherwise: if rentals are regulated	Use a supported judgement approach

1.4. The A/B/C classification

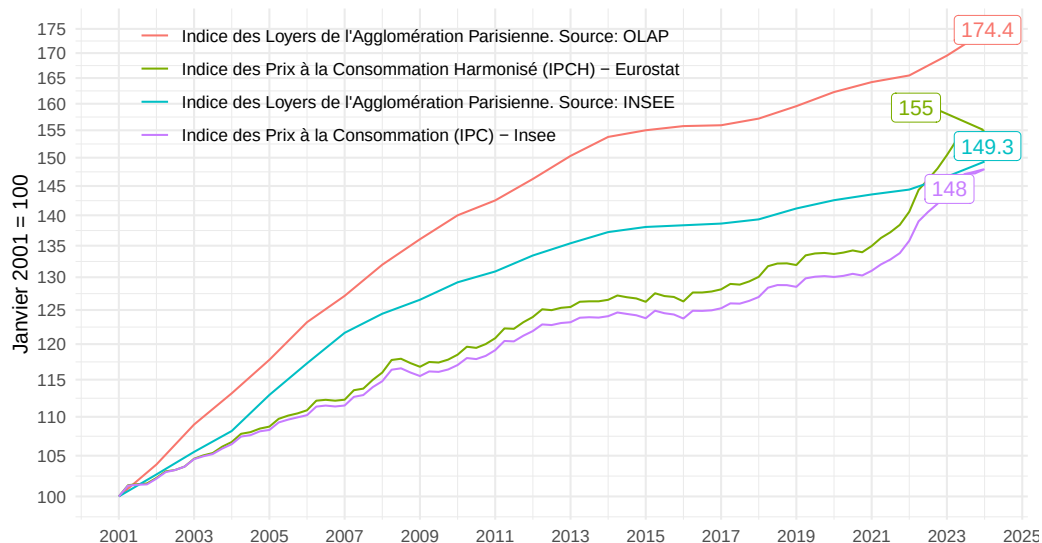
This handbook describes possible methods that can be used for the estimation of prices and volumes. Once described, they are classified according to their suitability. The Commission Decision divides methods into three groups, as follows:

- A methods: most appropriate methods;
- B methods: those methods which can be used in case an A method cannot be applied; and
- C methods: those methods which shall not be used.

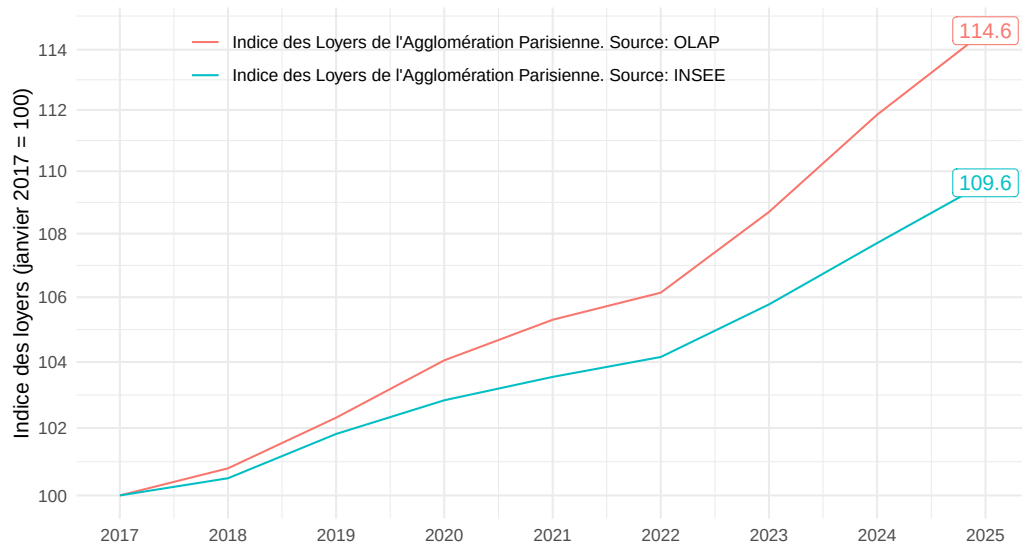
The same classification will be used throughout this handbook. A methods are the methods that approximate the ideal as closely as possible. B methods are acceptable alternatives: they are further away from the ideal but still provide an acceptable approximation. C methods are too far away from the ideal to be acceptable. They would generate too great a bias or would simply measure the wrong thing. In some cases, where it is not clear what the ideal would be, it may not be possible to define A methods.

Observatoire des loyers vs. ILH

+74,2 % (OLAP) vs +49,3 % (ILH) sur 23 ans en agglomération parisienne : un écart de 25 points qui pose une question centrale de mesure.



Observatoire des loyers vs. ILH : récemment



Au total

non conforme aux recommandations, ni au manuel méthodologique donc aux « bonnes pratiques » Eurostat...

Recommandations sur des sujets spécifiques

Les recommandations établissent de **bonnes pratiques** pour l'établissement des indices des prix à la consommation harmonisés.

Elles vont au-delà des exigences réglementaires et ne sont donc pas juridiquement contraignantes.

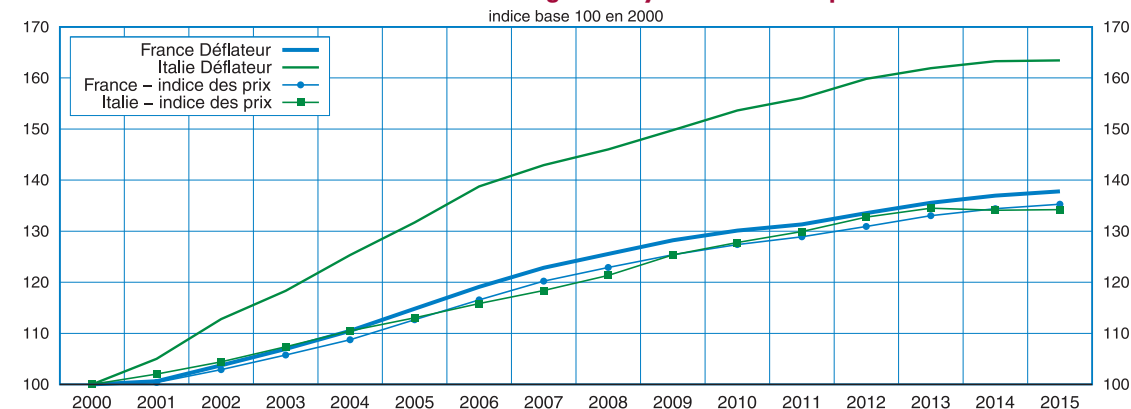
Elles occupent toutefois une place prépondérante dans la mesure où elles sont officiellement approuvées par les directeurs des statistiques macroéconomiques du système statistique européen (SSE).

Les documents suivants ne sont disponibles qu'en anglais.

- [Recommendation on the treatment of games of chance in the HICP \(December 2024\)](#)
- [Recommendations on the treatment of energy prices \(June 2024\)](#)
- [Recommendation on bridged overlap \(June 2021\)](#)
- [Recommendation on administered prices \(June 2018\)](#)
- [Recommendation on the treatment of cross-border internet purchases \(December 2016\)](#)
- [Recommendation on the treatment of rents \(June 2015\)](#)
- [Recommendation on the treatment of telecommunications \(June 2015\)](#)
- [Recommendation on the treatment of issues relating to health care reform \(December 2005\)](#)

Pour ce poste, l'ajustement de l'effet qualité apparaît donc plus favorable à l'évolution des volumes dans le cas français que dans le cas italien. Des différences de traitement similaires se retrouvent pour d'autres biens, comme les matériels d'outillage ou les appareils et accessoires culturels ou pour certains services. Notamment, pour les **loyers (réels ou imputés)**, la méthode employée apparaît également différente entre les deux pays. **Dans les comptes nationaux français, l'indice des prix à la consommation est retenu comme indicateur et le déflateur de la consommation n'en diffère quasiment pas.** En revanche dans les comptes nationaux italiens, **l'indice de prix utilisé est déterminé à partir de l'enquête « Budget de famille »** ; celui-ci croît nettement plus rapidement que l'indice des prix à la consommation (*graphique 8*), ce qui se traduit par une évolution des volumes moins dynamique que si l'indice des prix à la consommation avait été utilisé.

8 - Déflateur de la consommation des ménages en loyer et indice des prix à la consommation



Sources : Insee, Istat, comptes nationaux

Date of visit

- December 2013

CM report published

- July 2015

Date of follow-up information

- August 2017

1. Recommendations and the progress made by the NSI

- **Research should be carried out into the move to monthly collection of prices for rentals.**

This recommendation has not been followed up due to data unavailability. Nevertheless, Eurostat takes note of price regulations for rentals, which have been strengthened since the date of the compliance monitoring report. Eurostat acknowledges that in the new situation rental price changes are strictly restricted, but recommends that the situation remains closely monitored.

Effets qualité sur les loyers

Zéro (0) dans l'étude de 2004 ?...

Tableau 2 : impact annuel des ajustements pour effets qualités

code	Fonctions de consommation	Effet qualité	Evolution déc 2002/déc2003	Evolution simulée sans correction pour la qualité	taux de remplacement en différent	Nb de relevé mensuel	Poids
1	Produits alimentaires et boissons non alcoolisées	0,1%	2,4%	2,5%	0,6%	29 477	1 548
2	Boissons alcoolisées et tabac	0,3%	17,3%	17,6%	1,2%	4 248	376
3	Habillement et chaussures	1,7%	0,0%	1,7%	6,4%	20 183	499
4	Logement, eau, gaz, électricité et autres combustibles	0,0%	2,1%	2,1%	0,7%	2 931	1 333
5	Ameublement, équipement ménager et entretien courant de la maison	0,6%	1,2%	1,9%	3,9%	14 015	628
6	Santé	0,0%	0,5%	0,5%	1,2%	1 550	964
7	Transport	0,3%	1,9%	2,3%	0,7%	9 660	1 644
8	Communications	0,2%	0,4%	0,7%	11,2%	163	263
9	Loisirs et culture	0,5%	-0,6%	-0,1%	4,2%	12 287	861
10	Education	n.s	2,0%	n.s	0,7%	93	23
11	Hôtellerie, cafés, restauration	0,4%	2,8%	3,2%	1,1%	7 986	820
12	Autres biens et services	0,2%	2,2%	2,5%	2,1%	10 642	1 041
Total ENSEMBLE		0,31%	2,16%	2,47%	2,7%	113 235	10 000

Lecture :

Effet qualité : impact annuel des ajustements pour effets qualité

Evolution déc 2002/déc2003 : évolution de l'indice des prix à la consommation

Evolution simulée : évolution de l'indice des prix en l'absence d'ajustement de qualité

Taux de remplacement « en différent » : part mensuelle des produits remplacés « en différent » (donc avec ajustement de qualité) dans l'ensemble des produits suivis

Nb de relevés mensuels : nombre de relevés de prix pour les produits du secteur, hors sources administratives et produits frais

Poids : poids de la fonction de consommation dans l'indice des prix en 2003 (correspond au poids dans la consommation des ménages)

n.s : non significatif car le nombre de relevé concerné est trop faible

Section 7

Produits plus verts

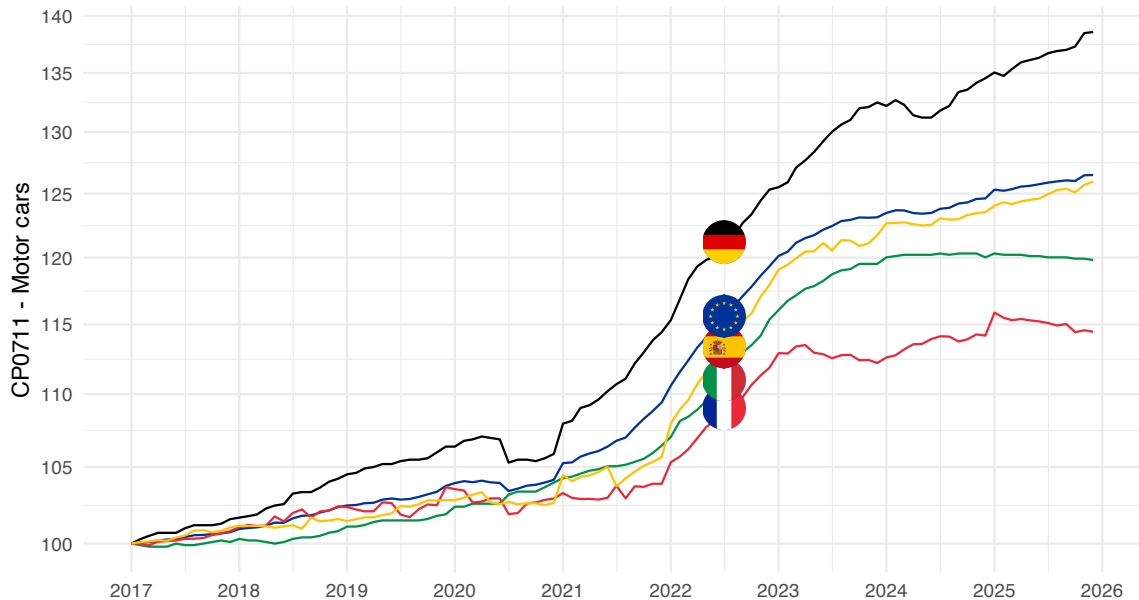
Bridged overlap ?

- Problème abordé dans le rapport thématique « Inflation » du rapport Pisani-Mahfouz, sorti en 2023.
- La méthode de recouvrement assimile des achats plus coûteux liés à la transition écologique (véhicules électriques, logements rénovés) à des produits de **meilleure qualité**, dont le prix baisse.
- Cette approche peut être trompeuse : ces dépenses sont souvent **contraintes réglementairement** et peuvent **réduire le pouvoir d'achat...**

Rapport Inflation (Dees et al. 2023)

Si l'évolution de la qualité environnementale des produits n'affecte pas au premier ordre le niveau des prix, elle peut être visible sur l'évolution des prix. Prenons l'exemple de la hausse prévisible de la part des véhicules électriques dans les ventes automobiles. Quand la voiture électrique intègre l'IPC, cela n'a pas d'effet sur l'IPC car elle est considérée comme un nouveau produit. Elle y entre avec un prix *a priori* élevé, sa technologie étant encore immature à ce stade, et son prix a tendance à baisser ensuite, au fur et à mesure des économies d'échelle et de l'amélioration des technologies de production. Ainsi, alors même que le prix moyen d'une voiture neuve augmente quand le parc bascule des véhicules thermiques aux électriques, la contribution des véhicules à l'indice des prix à la consommation serait plutôt baissière. Derrière ce paradoxe apparent se cache l'amélioration de la qualité environnementale des véhicules. En effet, un véhicule n'est pas simplement un moyen pour se déplacer, il a beaucoup d'autres caractéristiques, dont son impact sur le climat à travers les émissions de gaz à effet de serre tout au long de la vie du véhicule. Ce mécanisme n'est pas propre à la transition écologique, il est visible de la même façon avec tout autre produit dont le prix baisse tendanciellement (par exemple un ordinateur).

Voitures



La rénovation thermique des logements

- Idem pour l'indice du coût de la construction : performance énergétique n'est pas de l'inflation, mais de la qualité.
- Les **rénovations énergétiques** génèrent-elles **les économies suffisantes** pour compenser leur coût initial, comme le suppose cette méthode d'ajustement de l'inflation ?

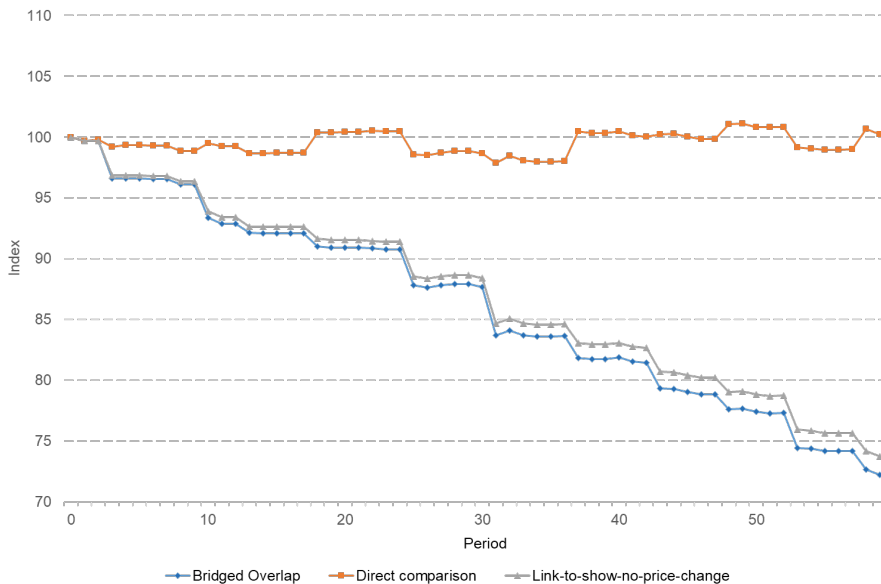
La construction des indices de production obéit à la même logique. Ainsi et à titre d'exemple, le calcul de **l'indice du coût de la construction** mobilise un modèle hédonique rassemblant un grand nombre de caractéristiques des logements, dont leur **performance énergétique**. **L'amélioration de la qualité des logements** n'est donc **pas visible dans les prix, mais dans les volumes**.

Section 8

Alimentation

Biais de la méthode par recouvrement - Bière

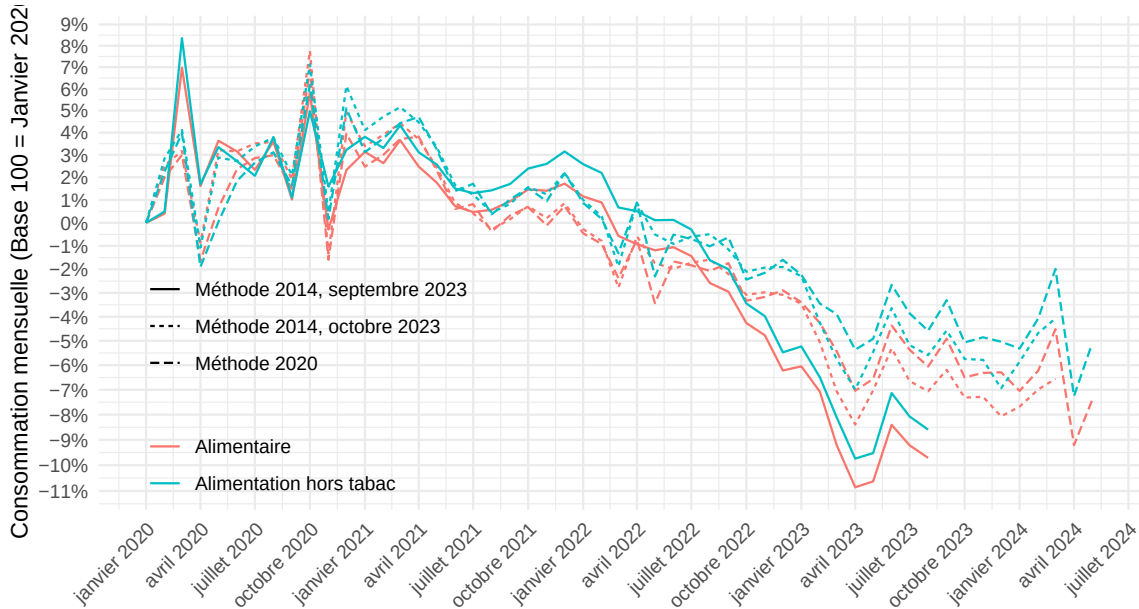
Figure 1: Impact of bridged overlap (ECB)



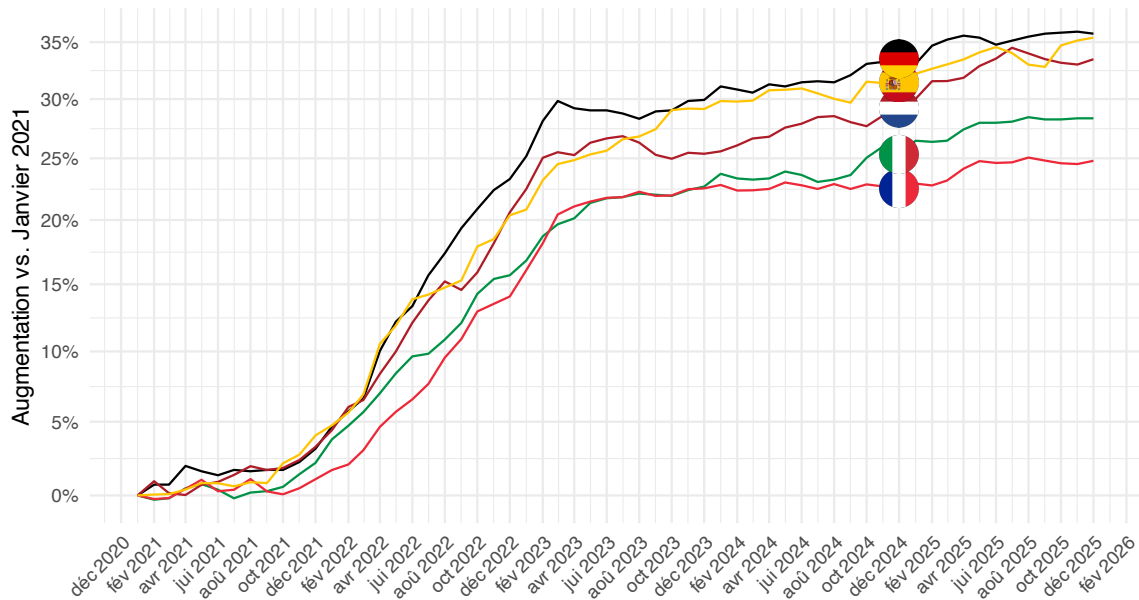
Données de caisses

- **Données de caisses** : introduites en France dès **2020** → inflation mesurée **plus faible**. Adoption **hétérogène** en zone euro - seuls l'Italie, la Belgique, les Pays-Bas et le Luxembourg.
- Dans la plupart des pays : données de caisses = Indice à Utilité Constante (IUC), au lieu de Laspeyrien. En France a priori l'indice reste Laspeyrien, mais logique de prix moyen pondéré par les quantités...
- **Effets minimes** lors de l'introduction des données de caisse (2019), la baisse de l'inflation était faible, mais l'inflation était proche de 0. **Pas d'évaluation** de leur impact pendant la période inflationniste. Les données sont disponibles ?
- **Écart illustré par les révisions successives ?** :
 - ▶ d'abord **sans données de caisse** (Base 2014, septembre 2023),
 - ▶ puis **avec données de caisse** pour estimer l'évolution en volume de la consommation alimentaire en période inflationniste. (Base 2014, octobre 2023 puis Base 2020)

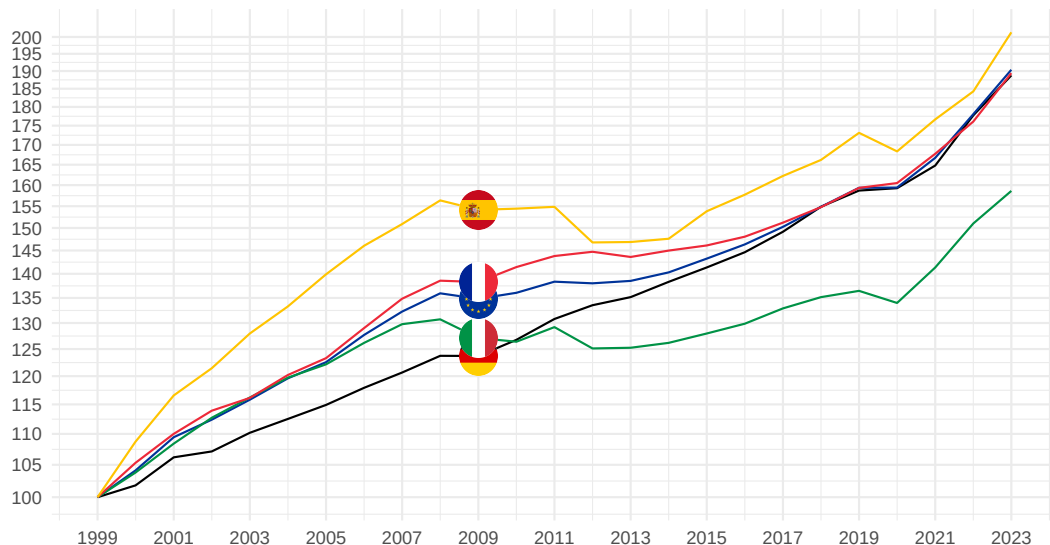
Très forte révision de la consommation alimentaire



Inflation alimentaire en Europe

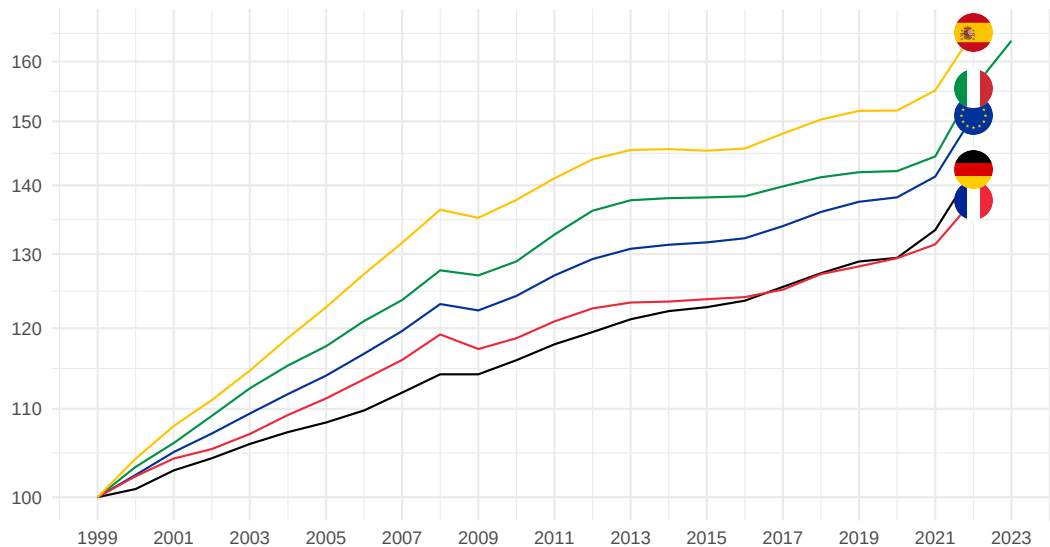


Même hausse du revenu nominal...



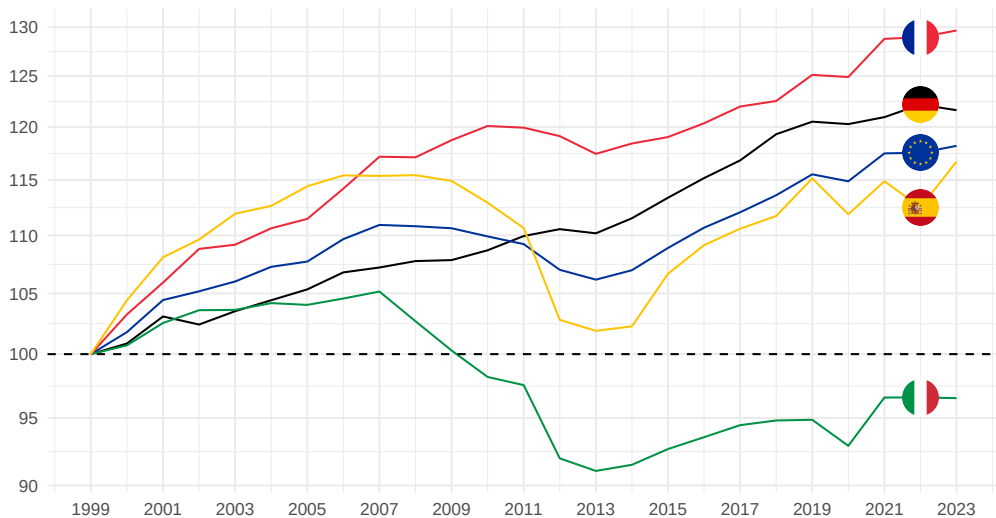
Source: Eurostat, calculs de l'auteur

... mais moindre inflation selon les chiffres officiels



Source: Eurostat, calculs de l'auteur

RDB par habitant déflaté par le « déflateur de la conso »



Source: Eurostat, calculs de l'auteur

Section 9

Comparabilité et transparence

Evaluation (très) imparfaite

- Davantage de transparence aiderait pour faire ce calcul.

18.5.4. Quality adjustments and replacements

Quality adjustments are carried out primarily in the framework of the replacement of products.

For field recordings, several methods are used according to the expertise of the collector, manager or sector expert:

- If the replacement product is considered to be a perfect substitute for the replaced product, then the replacement product will have the same base price as the old product. There is no 'quality effect' and the entire price difference is likened to a 'pure' price variation (direct price comparison method). In 2023, this method was applied to 46.7% of replaced products.
- If the replacement product is not considered to be a perfect substitute, then its base price is estimated according to the base price of the replaced product monitored in month $m-1$ and the change in prices between $m-1$ and m of products belonging to the same consumption segment as the replaced product for which observations are available (bridged overlap method).

Beaucoup moins en Allemagne

18.5.4.1. Quality adjustment - detailed information

For non-seasonal products, prices for missing products are estimated using the price development of the corresponding 10-digit COICOP product category for two months at maximum. If the last surveyed price of the missing individual product was a special offer price, this price is first raised to a theoretical price excluding special offers (i.e., 'normal price').

If the price of an individual product is missing after more than two consecutive months, it is considered as being permanently unavailable and, thus, replaced by a successor during the month under review. A replacement is proposed by the price collector and checked by the responsible regional statistical office. There are rare exceptions where the proposed replacement product is rejected, and then the replacement is postponed to the next month and the missing price is estimated.

In the German HICP, the following quality adjustment methods are used:

- **Direct price comparison:** only for replacements by a comparable product; used for clothing and footwear and dwellings.
- **Overlap:** used for flights, package holidays, telecom services.
- **Bridged overlap:** replacements within the same elementary aggregate, but different consumption segment; used for flights, package holidays, telecom services.
- Package size adjustment for food and 'other consumer goods'.
- **Option pricing:** 50% of the price change is considered as the monetary value of the quality change when not clear if consumer would have paid for the new option; used for new cars.
- **Supported judgmental quality adjustment:** rents, flights, package holidays, telecom services.
- **Hedonics:** desktop PCs, printers, hard drives, notebooks, used cars, value-adding investments for dwellings.

Quality-adjusted prices are flagged in the database. However, the quality adjustment method is not recorded. Therefore, Germany cannot provide any numbers on the (relative) usage of each method. Currently, there is also no assessment of the impact of

18.5.4.1. Quality adjustment - detailed information

For quality adjustment, **as it is required by EC Regulation No 1334/2007 (repealed and replaced by Regulation (EU) 2020/1148), a case-by-case approach is adopted** and therefore group of products by group of product.

In details, methods adopted to manage quality adjustment issues are:

Direct comparison:

- for clothing and footwear, when the product offers in two consecutive months are evaluated comparable on the basis of criteria defined by ISTAT. In the month when the replacement is done, the elementary price is flagged, the reason of the replacement is ticked and the direct comparison is carried out directly by automatic procedures;
- in some cases for processed or fresh food (for which prices are monthly collected) when, for a list of product defined by ISTAT, the change of the product offer is due exclusively to a change of brand, and therefore the product offers in two consecutive months are evaluated comparable. In the month when the replacement is done, the elementary price is flagged, the reason of the replacement is ticked and the data collector has to register the price of the product offer available in the previous month as the price of the previous month of the new product offer;
- for products for which **best seller approach is adopted such as electronic games, DVD movies, download movies**;
- for fresh food and fish, for which prices are collected twice a month, in the month when the replacement is done, the elementary price is flagged and the reason of the replacement is ticked (quantity collected or collection unit; brand and variety are not taken into account).
- for most of the products for which prices are centrally collected by ISTAT, it allows direct comparison inside each specific stratum.

A combination of bridged overlap and class mean imputation:

- in some cases for clothing and footwear, when the product offers in two consecutive months are evaluated not comparable on the basis of criteria defined by ISTAT. In the month when the replacement is done, the elementary price is flagged, the reason of the replacement is ticked and an automatic procedure estimates the price of the previous month of the new product offer in order to build the bridge between the two consecutive months. To calculate the price of the previous month, the rate of change m/m-1 of the geometric mean of the micro indices is used, within the same product of the basket in the same town, both of the product offers for which no replacements take place and for the product offers for which direct comparison was carried out. The information available within the same product, in the same town is used only if at least for the 50% of the sample for that specific product aggregate in that specific town, prices are collected for the same product offers of the previous month (indeed without replacements) or for product offers for which direct comparison was carried out. If the latter condition is not respected, the overlap approach is adopted.

Overlap:

- for the other products, for which prices are collected monthly at territorial level (except clothing and footwear, products for which prices are collected centrally, fresh and processed food for which direct comparison is carried out). In the month when the replacement is done, if the data collector has collected the price of the previous month of the replacing product offer (or the seller is able to provide this information) this information is used and the elementary price is flagged. If the data collector has not collected the price of the previous month of the replacing product offer (and the seller is not able to provide this information), an automatic procedure estimates the price of the previous month of the new product offer using the current price of the replacing product offer (link-to-show-no-price-change). However, in order to avoid (when it is possible) the link-to-show-no-price-change, the software for the data collection allows 'booking' a product offer when the sampled product offer is on the way to exit the market.

Explicit quality change:

- it is adopted only when the difference between a product offer in a month and a product offer in the following one, is due exclusively to packaging and the replacing product offer is actually new. In this case the data collector has to specify the reason of the replacement and to insert the information about the quantity of the new product offer; the elementary price registered is flagged. An automatic procedure calculates the price of the new product in the previous month taking into account the difference between the new and the old quantity collected. If the quantity increases or declines by 50% as compared to the previous month, the procedure estimates the price of the new product offer in the last month, calculating the cost of the new quantity on the base of the previous price. If the new one is different from the previous one of an amount that is more than 50%, the procedure calculates the price of the previous month of the new product offer as in the case of overlap when the link is built to show no price change). When the replacing product offer was already available in the previous month, the situation is ascribable to cases when it is adopted the overlap approach.

For the time being, no change has been implemented following the recommendations on bridged overlap. We plan to introduce the appropriate changes next year.

18.5.4.2. Replacements - detailed information

Concerning the sample of outlets (survey data), in the case of forced replacement (closure of the outlet), the selection of the new outlet is carried out according the following rules:

- the replacing outlet shall have the same characteristics of the replaced one in with regard to the outlet macro categories (Traditional distribution; Modern distribution, Hard discount and Other) and shall have to be located in the same zone of the municipal territory; so the replacement shall to be carried within the same outlet macro category and the same zone;
- the replacement can be proposed by the price collector but shall be decided by the person responsible for price collection inside MOS.

Regarding the sample of references (survey data), in case of temporary unavailability of the price, if the price of an item is missing for more than two consecutive months, in the third month the product offer is replaced (basing on the most-sold product offer criterion): so imputed prices are used only for the first and the second month while the price of the replacing item are taken into account starting from the third month. With regards to seasonal products, however, the price-loss can persist for a longer period, depending on the type of product, but never exceeds 11 months (22 collection times for products which prices are collected bi-monthly). In case of permanent price unavailability, the product replacement takes place in the subsequent month (after 2 collection times for products which prices are collected bi-monthly).

Harmonised Index of Consumer Prices (HICP)

METHODOLOGICAL MANUAL

November 2018

6.4.5 Metadata for users

It is important that index users are provided with metadata, i.e. information on applied quality adjustment methods. The choices and performance of methods and conventions in quality adjustment and replacements can crucially affect the comparability and interpretation of results. Simple descriptive statistical tables on the frequency of quality adjustment by product category and quality adjustment method can be helpful.

The methods used to adjust specific product groups should be fully described in the HICP inventories.

Beaucoup de méthodes explicites...

ELI	Entry Level Item (ELI) Title	Quality Adjustment Method	ELI	Entry Level Item (ELI) Title	Quality Adjustment Method	ELI	Entry Level Item (ELI) Title	Quality Adjustment Method
HA011	Rent of primary residence	Age bias, structural change, Facility adjustments for parking and A/C units, Analyst adjustments (For more information, see A review of recent improvements to the CPI's housing age-bias adjustment , Updating the Housing Age-Bias Regression Model in the CPI , Updating the rent sample for the CPI housing survey , and the factsheet)	AB011	Boys' outerwear	Hedonic adjustments	AA021	Men's underwear, hosiery, nightwear, and swimwear	Hedonic adjustments (QA model factsheet: Men's underwear)
			AB014	Boys' suits, sport coats, and pants	Hedonic adjustments	HK014	Microwave ovens	Hedonic adjustments (QA model factsheet: Microwaves)
			AC032	Women's skirts, pants, and shorts	Hedonic adjustments	HK013	Ranges and cooktops	Hedonic adjustments (QA model factsheet: Ranges and cooktops)
			AC033	Women's suits and suit coordinates	Hedonic adjustments	HK011	Refrigerators and freezers	Hedonic adjustments (QA model factsheet: Refrigerators)
HC011	Owners' equivalent rent of primary residence	Age bias, structural change, Removal of the cost of landlord-provided utilities (cost of utilities) for the calculation of pure rents, Facility adjustments for parking and A/C units, Analyst adjustments (For more information, see A review of recent improvements to the CPI's housing age-bias adjustment , Updating the Housing Age-Bias Regression Model in the CPI , Updating the rent sample for the CPI housing survey , and the factsheet)	AD011	Girls' outerwear	Hedonic adjustments	AG011	Watches	Hedonic adjustments (QA model factsheet: Watches)
			AD012	Girls' dresses	Hedonic adjustments	AC041	Women's undergarments, nightwear, shapewear, and swimwear	Hedonic adjustments (QA model factsheet: Women's bras)
			AD014	Girls' skirts, pants, and shorts	Hedonic adjustments	AC011	Women's outerwear	Hedonic adjustments (QA model factsheet: Women's Outerwear)
EE011	Personal computers and peripheral equipment	Cost based adjustments (Measuring Price Change in the CPI: Computers, peripherals, and smart home assistant devices)	AE021	Boys' footwear	Hedonic adjustments	HK012	Washers and dryers	Hedonic adjustments (QA model factsheet: Clothes washers) (QA model factsheet: Clothes dryers)
TA011	New car and truck purchase	Cost based adjustments (Quality Adjustment in the CPI: New, Used, and Leased Motor Vehicles)	AE022	Girls' footwear	Hedonic adjustments	AD013	Girls' tops	Hedonic adjustments (QA model factsheet: Girls' tops)
TA021	Used cars and trucks	Cost based adjustments (Quality Adjustment in the CPI: New, Used, and Leased Motor Vehicles)	ED041	Land-line telephone services	Hedonic adjustments	AE031	Women's footwear	Hedonic adjustments (QA model factsheet: Women's footwear and QA model factsheet: Athletic footwear)
TA031	Vehicle leasing	Cost based adjustments (Quality Adjustment in the CPI: New, Used, and Leased Motor Vehicles)	EE031	Internet access and other information services	Hedonic adjustments	AC031	Women's tops	Hedonic adjustments (QA model factsheet: Women's tops)
AA012	Men's sport coats and tailored jackets	Hedonic adjustments	EE041	Phones, accessories, and smartwatches	Hedonic adjustments	AC021	Women's dresses	Hedonic adjustments (QA model factsheet: Women's Dresses)
AA013	Men's outerwear	Hedonic adjustments	RA011	Televisions	Hedonic adjustments	ED031	Wireless phone service	Hedonic imputation (Measuring Price Change in the CPI: Wireless telephone service)
AA033	Men's shirts, sweaters, and vests	Hedonic adjustments	RA021	Cable and satellite television service	Hedonic adjustments			
AA041	Men's pants and shorts	Hedonic adjustments	RA031	Other video equipment	Hedonic adjustments			
			RD012	Photographic equipment	Hedonic adjustments			
			AB012	Boys' shirts and sweaters	Hedonic adjustments (QA model factsheet: Boys' shirts and sweaters)			
			AE011	Men's footwear	Hedonic adjustments (QA model factsheet: Men's footwear and QA model factsheet: Athletic footwear)			
			AA011	Men's suits	Hedonic adjustments (QA model factsheet: Men's suits)			

Consumer Price Index

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Measuring Price Change in the CPI: Computers, peripherals, and smart home assistant devices

The **computers, peripherals, and smart home assistant devices** index is a subcomponent of the **information technology, hardware, and services** category of the Consumer Price Index. The CPI tracks changes in prices for items sold to household consumers for personal use. The **computers, peripherals, and smart home assistant devices** index is published monthly at the U.S. level.

Item definition

The **computers, peripherals, and smart home assistant devices** index includes all types of personal computers such as tablets, desktop computers, notebook computers, computer hardware, and peripheral equipment sold for noncommercial applications. Peripheral equipment includes, but is not limited to, hard drives, mice, monitors, and printers. Smart home assistants that are speaker or screen based, and any accompanying accessories, are also included in this index.

Relative importance

The relative importance of an item category is its percent of the CPI weight as of December of the most recent year.

Table A. Relative importance, December 2024

Item	Relative importance
Information technology, hardware, and services	1.644
Computers, peripherals, and smart home assistant devices	0.262
Computer software and accessories	0.027
Internet services and electronic information providers	0.926
Telephone hardware, calculators, and consumer information items	0.421
Unsampled information and information processing	0.009

Related Articles



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Transparence du BLS : montres

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Quality Adjustment in the CPI: Watches

Item Definition

The Entry Level Item (ELI) **watches** is part of the index for **jewelry and watches**. Here, we examine the hedonic regression model used in the quality adjustment of price data for watches.

Sample

The sample used for this hedonic model included 675 observations from an extract of CPI data from November and December 2022. The CPI data was collected using a larger than usual amount of web-based information due to restrictions on data collection during the COVID-19 pandemic. There were more than 153 unique brands in the sample, with none amounting to more than 10 percent of the total sample. There were also 93 different outlets, the top two of which account for about a third of the sample.

Current Model

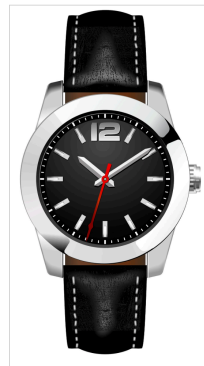


Table 1. Parameter estimates for the hedonic regression for watches

Variable Name	DF	Parameter Estimate	Standard Error	T Statistic	Pr > t	Tolerance Statistic
Intercept	1	4.60555	0.08881	51.86	< .0001	
Attachment Type: Bracelet	1	0.27624	0.05329	5.18	< .0001	0.73432
Attachment Type: Band		Base				
Case Material: Premium	1	0.66719	0.16803	3.97	< .0001	0.90382
Case Material: Non-premium	1	-0.2455	0.06931	-3.54	0.0004	0.60435
Case Material: Stainless steel		Base				

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Quality Adjustment in the CPI: Boys' Shirts and Sweaters

Item definition

The Entry Level Item (ELI) category of **boys' shirts and sweaters** is part of the index for **boys' apparel** and includes all types and styles of cardigans, sweaters, and tops in preschool and boys' sizes. In this factsheet, we examine the regression model used in the quality adjustment of price data for boys' shirts and sweaters.

CPI sample

The sample used for the new hedonic model included approximately 700 observations. This model was constructed using a mix of store and website collected data. Roughly 65 percent of data came from websites. Previous models had a lower percentage of web collected information, with around 70 to 80 percent of data being collected in stores. The lower rate of in-store collection in the current sample is largely due to lingering effects of the COVID-19 data collection restrictions. Around 61 percent of prices were from February or March of 2023. There were over 240 different outlets in the sample and about 140 unique clothing brands. Private brands made up over half of the sample, accounting for over 53 percent of all observations. National brands made up approximately 45 percent of sample, with luxury and miscellaneous brands making up the remaining 2 percent.



Current Model

Table 1 presents the details of the estimation of the current model used to quality adjust boys' shirts and sweaters.

Table 1. Parameter estimates for the hedonic regression for boys' shirts and sweaters

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t	Tolerance Statistic
Intercept	1	3.13024	0.05050	61.98	<.0001	
Fiber (continuous): Cotton	1	0.00093	0.00041	2.29	0.0226	0.63255
Fiber (continuous): Spandex	1	0.01624	0.00592	2.74	0.0062	0.84594

Transparence du BLS : réfrigérateurs

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Quality Adjustment in the CPI: Refrigerators

Item definition

The Entry Level Item (ELI) category of **Refrigerators and Freezers** is part of the index for **Major Appliances**, and includes all refrigerators, freezers, and combination refrigerators-freezers for use in the home. In this factsheet, we examine the regression model used in the quality adjustment of price data for refrigerators. All refrigerators used to create the quality-adjustment model include a built-in freezer.

CPI sample

The sample used for the new hedonic model included approximately 90 observations. About 65 percent of observations were sourced from the web, while the remaining 35 percent were quotes from traditional collection. All prices were from June or July of 2021. There were 8 brands in the sample and nearly 70 distinct refrigerator models. The top 3 brands accounted for 60 percent of observations. There were 10 distinct outlets in the sample, and the top 3 outlets accounted for 81 percent of observations.



Current Model

Table 1 presents the details of the current model used to quality adjust refrigerators.

Table 1. Parameter estimates for the hedonic regression for refrigerators.

Variable name	DF	Parameter estimate	Standard error	t Value	Pr > t	Tolerance
Intercept	1	6.168	0.105	58.91	<.0001	
Size: Total capacity	1	0.031	0.005	6.04	<.0001	0.297
Style: 2-Door, bottom freezer	1	0.552	0.064	8.60	<.0001	0.786

- 7.14** The CPI relies on the [hedonic quality adjustment](#) technique for certain [elementary aggregates](#), notably in the case of [high-technology goods or services](#). Currently, the CPI uses hedonic quality adjustment for [computer equipment](#), [software](#) and [supplies](#), [Internet access services](#), [rent](#), [used cars](#) and [cellular services](#) from telecommunication service retailers that provide Statistics Canada with their administrative data. The [hedonic method of quality adjustment](#) is most appropriate for products whose markets are [competitive and experience rapid turnover](#), and where the characteristics of these products [change quickly](#) but are readily and consistently observable.
- 7.15** The hedonic method is applied in the case of forced replacements. This approach assumes that a relationship exists between the price of a PO and its characteristics. Under the hedonic imputation variant, hedonic specifications have to be defined using standard regression techniques and a previous period price is imputed for the replacement product. In period t (when a previously observed PO is no longer available) a regression is used to estimate the unobserved price for the entering PO in period $t-1$. The estimation of the $t-1$ price is based on quality differences between the entering and exiting POs, as well as the $t-1$ price of the exiting PO.

76. ILO *et al.* (2004), paragraph 7.70.

77. The characteristics approach was introduced by Lancaster (1966). Consistent with a characteristics approach, ILO *et al.* (2004) defines a product, for measurement purposes, as equating to a complete description of its price-determining characteristics. For a CPI program, the demand side of the equation is relevant (consumers' valuation of these characteristics), rather than the supply side (producers' costs or inventory).

Hedonic regression

Hedonic regression is a technique that uses a set of ordinary least squares regressions to relate the price of an item to its measurable characteristics. Currently (for 2013) It is used for quality adjustment of personal computers (PCs), laptop computers, digital cameras, pre-pay mobile phone handsets, pre-pay smartphone handsets and tablet PCs. For computers, the measurable characteristics may include the speed of the processor, the size of the hard disk drive and the amount of memory. For digital cameras, the characteristics may include the resolution. The results of the regressions are used to value changes in quality when a product that is part of the sample is no longer available and is replaced by another product. An example of how this is done for PCs is given below. A similar approach is used for the other items.

For PCs, hedonic regressions are calculated on the basis of a single month's data, using unweighted regressions based on price data collected from retailers' web sites. The log of price is chosen as the dependent variable in the regression for two reasons. Firstly, a log-linear model produces a multiplicative relationship between price of a PC and its attributes, which is a better reflection of pricing in the retail market. This is because the cost of adding a new feature tends to be related to the underlying quality and price of a machine. For example, the addition of a DVDRW drive to an expensive PC typically costs more than for a cheaper PC, because a higher quality drive will be included in the more expensive PC. Secondly, multiplicative relationships are more robust to general changes in price,

Augmenter la transparence ?

Table 4. Product Replacements, by Item Category and Replacement Method, 1983, 1984, and 1995

Percentage of all quotes in item category

Item category ^a	Year	Total	Comparable items	Replacement method			Direct quality adjustment
				Overlap method	Link method	Class-mean imputation	
All items studied	1983	3.85	1.56	0.23	1.74	...	0.32
	1984	3.95	1.70	0.23	1.71	...	0.30
	1995	3.90	2.54	0.05	0.57	0.32	0.41
Food and beverages	1983	1.81	0.52	0.04	1.25	...	0.00
	1984	1.93	0.52	0.08	1.33	...	0.00
	1995	1.63	0.84	0.02	0.73	0.00	0.03
Housing	1983	4.25	2.21	0.22	1.67	...	0.15
	1984	4.83	2.67	0.21	1.72	...	0.22
	1995	4.83	3.56	0.05	0.44	0.64	0.14
Apparel and upkeep	1983	17.34	7.15	2.69	7.46	...	0.03
	1984	17.59	7.80	2.43	7.27	...	0.09
	1995	11.10	8.50	0.20	0.24	1.10	1.06
Transportation	1983	6.72	3.13	0.06	1.35	...	2.18
	1984	5.80	3.02	0.07	0.96	...	1.74
	1995	6.69	3.60	0.00	0.27	0.76	2.05
Medical care	1983	2.22	0.65	0.03	0.91	...	0.64
	1984	2.19	0.80	0.03	0.99	...	0.38
	1995	3.91	2.33	0.08	0.80	0.00	0.69
Entertainment	1983	4.61	1.92	0.23	2.28	...	0.18
	1984	6.08	2.85	0.26	2.70	...	0.27
	1995	3.47	2.05	0.03	0.45	0.61	0.33
Other goods	1983	3.30	1.44	0.06	1.64		0.17

Insuffisante transparence sur les effets qualité

Rapport Lenoir-Prot 1979, L'information économique et sociale, p. 149 : « La possession d'informations étant synonyme de pouvoir, l'accès à certaines informations a jusqu'ici été freiné par des pratiques de rétention de la part de ceux qui savaient. Ce sera de moins en moins vrai à l'avenir en raison de la législation très libérale dont la France vient de se doter. »

- Reco **Eurostat** : publier **métadonnées** et **fréquences** d'ajustements par méthode.
- Littérature : écarts **importants** documentés (Banque de Suède (Tysklind 2020)) ; Estimation ancienne, suite à la polémique avec Leclerc : ajustements qualité **-0,3 pt/an** sur l'inflation (Guédès, 2004) - **sous estimée** et **pas actualisée** depuis ; mise à jour annoncée en **2020**, à ce jour non parue.
- Rendre les méthodes d'ajustement qualité plus transparentes, comme le préconise d'ailleurs le manuel méthodologique d'Eurostat - sur le modèle du Bureau of Labor Statistics (BLS) américain ?

Section 10

Conclusion

Quid de Boskin et al. ?

- Boskin : l'inflation serait **sur-estimée**.
- Une visée **principalement politique**, selon Greg Mankiw lui-même. Seuls les facteurs de surestimation ont été cherchés.
- Mais surtout : les biais identifiés vrais partout dans le monde, ou seulement aux US. (mise à jour du panier bien moins fréquente qu'en France)

154 • DISCUSSION

Several participants pursued the question, raised by both discussants, of what the CPI is for. Mankiw elaborated on the idea, discussed by Griliches, of indexing social security benefits to the median wage. He argued that, from the perspective of social risk sharing, it is highly unlikely that the CPI is the optimal index for retirement benefits. Indexes like the median wage, or nominal income per person, would lead to greater intergenerational risk sharing, while avoiding measurement is-

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New Ways of Handling Quality Change in the US Consumer Price Index

[Marshall B. Reinsdorf](#), [Paul Liegey](#), and [Kenneth J. Stewart](#)

ABSTRACT

Economists widely regard new products as a net source of upward bias in the US Consumer Price Index (CPI) relative to a true cost of living index. This view is based upon the logic that new products must gain acceptance in the marketplace by offering better values to consumers than the products they displace. In the CPI, however, the problem of evolving sets of items available for purchase is particularly pronounced in the areas of apparel and automotive vehicles. In these important cases failing to account for price changes when new products replace old ones leads to a downward bias. Real price rises, rather than price declines, often accompany turnover in populations of clothing items and automobiles because manufacturers tend to time price increases to coincide with the introduction of updated styles or models. The recent debate on the accuracy of the CPI has focused attention on the upward bias from failing to credit consumers' gains from better or cheaper new products. This is undeniably an important problem, but downward biases from overlooking price increases accompanying new or changing product lines also merit attention. Equally noteworthy are BLS's procedural

More Information

Published Year: 1996
Survey/Program(s): Office of Prices and Living Conditions
Catalog: Economic Working Paper
WP Number: WP-276
Publication Status / Disposition: Available from the Office of Prices and Living Conditions (April 1996).

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Conclusions

- Ajustements qualité via des méthodes implicites type bridge overlap reposent sur des hypothèses **très fortes, trop fortes**.
- Les autres pays n'utilisent pas autant de méthodes implicites.
- Les méthodes hédoniques ne sont certes pas idéales, mais aucune méthode ne l'est ?
- A minima, appliquer les recommandations européennes ?
- Ne pas écarter les méthodes explicites / hédoniques, même lorsqu'elles donnent des résultats très différents des méthodes implicites ?

Principe : comparabilité des IPCH

« Toute différence entre les Etats membres à **tous les niveaux de détail** reflète uniquement les différences dans les variations de prix ou dans les modèles de dépenses. » ⇒ Ce n'est pas le cas aujourd'hui, et le fait que la France ne respecte pas les « bonnes pratiques » n'aide pas.

24.5.2016

FR

Journal officiel de l'Union européenne

L 135/11

RÈGLEMENT (UE) 2016/792 DU PARLEMENT EUROPÉEN ET DU CONSEIL

du 11 mai 2016

relatif aux **indices des prix à la consommation harmonisés** et à **l'indice des prix des logements**, et
abrogeant le règlement (CE) n° 2494/95 du Conseil

(Texte présentant de l'intérêt pour l'EEE)

LE PARLEMENT EUROPÉEN ET LE CONSEIL DE L'UNION EUROPÉENNE,

Article 4

Comparabilité des indices harmonisés

1. Afin que les indices harmonisés soient jugés comparables, **toute différence entre les États membres à tous les niveaux de détail reflète uniquement les différences dans les variations de prix ou dans les modèles de dépenses.**

Ne pas répliquer les coûts fixes ? Lequiller (1997)

36. La taille de l'équipe de statisticiens de l'IPC français est plus faible que celle de son homologue américain. Il est à noter qu'à la suite du débat autour de la commission Boskin, le BLS a obtenu une sensible rallonge budgétaire qui a permis à son directeur de s'engager récemment sur un programme ambitieux d'amélioration (Abraham, 1997).

37. La société AC Nielsen France a bien voulu mettre ainsi gratuitement à la disposition de l'Insee des données extrêmement détaillées sur certains marchés dans le cadre d'un programme de recherche conjoint qui commence en 1997. Cette même société avait fourni les données qui avaient permis l'étude sur les tablettes de chocolat.

On a admis dans cet article que l'estimation de cette faible surestimation (0,1-0,25 %) était incertaine. Il ne peut donc être question pour l'Insee d'utiliser ce chiffre tel quel. Il faut au contraire améliorer les méthodes opérationnelles elles-mêmes avec de l'information reposant sur de véritables données. En effet, l'IPC est un outil essentiel pour tous les agents économiques, les simples citoyens comme les décideurs. Les méthodes qui prévalent pour sa construction doivent être transparentes, pertinentes et fiables. Ceci prendra donc du temps et de l'argent (36). L'expérience de l'Insee dans le traitement de l'effet-qualité des micro-ordinateurs a montré que le coût d'une estimation fiable de l'effet-qualité pour ce seul secteur était élevé. Cette voie continue d'être explorée et une méthode économétrique d'estimation des effets-qualité sera bientôt opérationnelle pour certains autres biens durables (lave-vaisselle notamment). Mais, il est hors de notre portée de pouvoir procéder seuls à la généralisation de ces études.

Deux voies d'avenir existent néanmoins. D'abord la mise en commun des moyens de recherche sur les effets-qualité des instituts de statistique européens, telle qu'elle commence à se dessiner, permet d'espérer des économies

plusieurs groupes de travail multilatéraux impulsés par Eurostat ont commencé à fonctionner cette année (notamment sur l'habillement, les micro-ordinateurs, les biens durables et l'automobile). L'Insee compte beaucoup sur l'approfondissement d'un tel programme international de recherche qui devrait s'étendre notamment aux pays d'Amérique du Nord. Les marchés de l'automobile et des biens durables sont maintenant internationaux et il n'est plus de mise de gaspiller des ressources à tenter de faire les mêmes estimations dans tous les pays. Un partage du travail au sein du réseau international des instituts de statistiques est dans l'intérêt de tous les utilisateurs.

Ensuite, en accord d'ailleurs avec les recommandations de la commission Boskin et en parallèle avec les actions menées dans de nombreux autres pays, l'Insee envisage l'utilisation plus massive des données détaillées en provenance de sociétés privées d'études de marché qui, par leur richesse d'information et leur rapidité d'obtention, figureront probablement parmi les solutions d'avenir pour la correction des biais de substitution de niveau détaillé et de nouveaux circuits de distribution (37). Des études détaillées sur « l'effet circuit d'achat » à partir de telles données ont d'ailleurs déjà été

Harmonisation et transparence

- Lequiller (1997) recommandait il y a plus de 25 ans la « mise en commun des moyens de recherche sur les effets-qualité des instituts de statistique européens ».
- Davantage de données pourraient être publiées : les méthodes d'ajustement qualité, quand elles sont modifiées, la part des remplacements “en différent”...
- Les mettre à la disposition des chercheurs extérieurs à l'Institut statistique, conformément au rapport Lenoir-Prot 1979 ? L'information économique et sociale, p. 142 : *Des institut indépendants de l'administration doivent avoir accès comme elle aux statistiques de l'Insee. On ne peut libérer les prix et retenir l'information.*

Comments and Discussion

Robert J. Gordon: In some past eras, there was a military atmosphere to debates between the Bureau of Labor Statistics and those academics who were doing research on price measurement. The BLS was harrassed and besieged, as if in a medieval fortress, throwing hot oil from the parapets at the academics who were attacking with bows and arrows, battering rams, and other tools of their trade.

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