

A review of allergy-related factors affecting food industry efficiency.

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Abstract

The umbrella term ‘food allergy’ covers both true immunoglobulin-E (IgE) mediated hypersensitivity as well as the more common food intolerance. The prevalence of IgE-mediated allergy to foods is estimated to be around 1% - 3% in adults and 5% - 8% in children, although there is considerable uncertainty surrounding this figure, and a much higher proportion describe themselves as intolerant or allergic to one or more foodstuffs, and take action to exclude such products from their diets.

Both IgE-mediated allergy and food intolerance have impacts on both the demand and supply side of the food industry. Consumers bear search costs to exclude certain products from their diets, and may face premium prices for such foods. According to the theory of the firm, corporate manufacturers have a duty to maximise profits to maximise return to shareholders. The food industry will therefore, in a perfectly competitive market, adapt to the existence of allergies in a way that ensures this. Factors driving a firm’s response include the risk of litigation and loss of consumer confidence (and hence sales) as a result of perceived risks from food products, or of fear of failure of industry to comply with any relevant regulations. Actions taken by producers are likely to include careful selection and quality control of raw ingredients, separation of production lines and changes to labelling and packaging all of which would be likely to increase costs.

In this paper, we examine in closer detail the impact of food allergies on food manufacturers. We present the results of an exploratory literature review and survey of a sample of manufacturers to describe the impact on the food industry.

Introduction

The prevalence of true immunoglobulin type-E mediated food allergy is around 1% - 3% of the population (1;2), equating to approximately 4.6 – 13.8m food allergic consumers across the EU25. However, awareness of food allergies is a growing consumer concern throughout the European Union, with a much higher proportion of the population describing themselves as food-intolerant or allergic to one or more foodstuffs, and thus take action to avoid such products (2). Severe IgE-mediated allergic reactions can be life threatening, and can be induced by extremely small traces of allergen present in food. Therefore food producers need to demonstrate and stay as responsive as possible both to consumers' needs and to their changing tastes.

The EuroPrevall project is a pan-European project with the ultimate aim of improving the quality of life of food-allergic people (3). The project covers a wide range of disciplines including epidemiology, aetiology and allergy management, as well as the socio-economic impact of food allergies.

A cost of illness study attempts to quantify the cost to society of a particular health burden. For food allergies, costs include those borne by food-allergic consumers and their families / carers in seeking allergen-free products and the health consequences of adverse reactions, health services in treating adverse reactions and diagnosing allergic conditions, regulators, and the food manufacturing industry itself (4). This paper focuses on the food industry, and presents the results of a literature review and proceedings of a workshop and discussion attended by a sample of manufacturers with the objective of describing the allergy related factors affecting food industry efficiency.

Theoretical framework

Economists distinguish two types of efficiency. Technical efficiency is concerned with maximising output (revenue) at minimum cost whilst allocative efficiency is concerned with distributing resources in such a way as to maximise social welfare. For the purpose of this review, we consider technical efficiency alone (allocative efficiency is considered

in the wider EuroPREVALL work). Therefore a factor affecting the efficiency of the food industry will be one that either raises or lowers cost without changing revenue, one that increases or decreases revenue without changing cost, or a combination of the two.

Classical microeconomic theory defines producers and consumers as agents attempting to maximise some variable: for producers, we assume they wish to maximise profit, and for consumers, we assume they wish to maximise their overall wellbeing, or utility. The producer has a profit function, which is simply revenue (R) less cost (C):

$$\Pi = R - C$$

We can define the technical efficiency of the firm as the ratio of output to input (R / C). So increases in revenue with no change in cost will increase efficiency, likewise increases in cost with no change in revenue will reduce efficiency.

Analogous to the firm's profit function, the utility function of the consumer is defined as the benefit gained from consuming allergen-free food (F) less the 'disutility' associated with expenditure on allergen-free food (price, P) and the effort required in searching for it (E):

$$U = F - (P + E)$$

If price goes down, utility increases. Likewise, if effort in seeking allergen-free food falls, utility also increases.

This is a very simplistic framework, for example, producers may be interested in more than pure profit, in which case a 'corporate utility function' could be defined, of which profit is but one part, along with some measure of social capital. Nevertheless, within this framework, it can be seen that consumers will seek to minimise their effort (E) in finding allergen-free foods to maximise their utility (U). Furthermore they may be willing to accept a higher price in return for a lower search cost. Consumers are often

time-poor and resistant to incurring high search costs associated with trying to find niche firms specialising in non-allergenic food and specialist retail outlets. It is not always possible to obtain all non-allergenic food-stuffs from large chains and supermarkets and consumers still have to supplement their buying in this way.

One effort-minimising solution may be for consumers to form lobby groups to push for labelling and the provision of allergen-free foods (this pressure may be exerted either directly on the producers or via government regulation). In order to maintain sales, firms will at the minimum have to incur costs (C) to comply with regulations, thus with no commensurate increase in revenue, their efficiency will decrease. Alternatively, firms may proactively incur voluntary costs as well to help consumers reduce their search costs (investing in labelling, development of new allergen-free product lines etc). This can result in increased sales for the proactive producer, and may itself be a profit maximising strategy. The resulting wider availability of previously regarded 'specialist' products will also reduce search costs for families on an average or low income and, (as is increasingly the case with, for example, organically produced food) will open up the products to mass markets, particularly if price falls with increased supply.

The cost and impact on profits of responding to these market incentives will vary by firm, sector and market. For an individual firm, the response will depend on its own market dominance and the price-elasticity of its own goods: if this is low, then a firm may be able to put up its price with a less-than-proportional fall in demand, thus it may be able to pass on such costs to consumers.

There could also be some country-by-country cost variation not only in the case of national markets prone to specific allergies (e.g. peach allergies in Spain, mustard allergy in France, peanut allergy in the UK), but multinationals from other countries selling in national markets. In some cases these costs might only be small relative to total sales, depending on the adaptations that have to be made. However, the cost of not adapting can be even larger, with firms that do not develop non-allergenic foodstuffs losing market share or in extreme cases even having their product withdrawn.

A macro estimate of the cost of allergies on industry is beyond the scope of this analysis but is a logical extension to this scoping exercise. This review is therefore confined to a qualitative description of allergy related factors to inform future quantitative work . In the remainder of this paper, we present the method for the literature review and survey, followed by the results and discussion.

Method

Literature review

A search of 10 social sciences databases and portals with the strategy ““food allergy” AND “industry”” located a total of 204 articles (Box). Elimination of duplicates and review by title and abstract yielded 9 working papers and peer-reviewed articles. This was supplemented by searches of the “Econpapers” database (<http://econpapers.repec.org>) with the terms “food safety cost”, yielding 36 hits. Duplicate elimination, title and abstract review narrowed this down to 4. This, plus reference list reviews and additional hand searching yielded a total of 13 peer reviewed articles and working papers.

Box: databases searched

- Academic Search Elite
- Biz/Ed
- Business Source Elite
- EconLit
- NBER Working Papers
- SOSIG Information Gateway
- UEA OPAC catalogue
- Web of Science / Web of Knowledge
- Zetoc
- IBSS

Workshop Discussion

Prior to the workshop, a questionnaire was circulated to members of an ‘allergy cluster group’ at the Institute for Food Research, Norwich, consisting of representatives from 11 major food manufacturers and organisations (Appendix). The intention of the survey was to enable participants to prepare for the workshop, and structure discussion at the event held in November 2005.

Results

There is very little literature concerning the allergy related factors affecting the food industry efficiency. However, there is a body of literature concerning the impact of regulation and food safety issues on the industry as a whole. General (non-allergy specific) food safety regulation does appear to adversely affect food manufacturer efficiency (5), and has an impact on long-run incentives to innovate and develop new products (6). Yet a survey of manufacturers in the 1990s found that two-thirds said it would be ‘difficult’ or ‘very difficult’ to identify where the costs of compliance with such regulations would affect their organisation, and three quarters reported that they would have problems quantifying compliance costs (7).

Prior to the mid 1980s, food allergy was considered a minor part of food safety: microbial control and hygiene were the major focus. The apparent increasing prevalence of atopic diseases and the development of genetically modified foods began to alter the situation (8). Food allergies are now seen as a public health problem (9): whilst the prevalence of true IgE mediated food allergy is approximately 1-2% of the population, up to 30% of the population are reported describing themselves as allergic or intolerant to one or more food proteins, and are therefore likely to take action to avoid such foods (10). Mortality data associated with food allergies are difficult to estimate as the majority of deaths resulting from an allergic response are coded as asthma: in the UK between 1990 and 2000 there was only 1 death with anaphylaxis listed as the primary cause, although the hospital admissions rate for food allergy is 2.9 per 100,000 patient years (13,300 admissions annually if extrapolated across EU25) (11).

Food retail, and catering industry in particular, is the major source of allergy-related morbidity and mortality, although the worst outcomes occur where patients do not have access to, or have forgotten to carry, adrenaline (epinephrine, 'epi pen') (12). Retail outlets generally have less controlled operating environments (for all types of food risk) and thus present specific problems: wholesalers cannot necessarily be confident that what starts off as allergen-free will remain that way during preparation and serving. This may give rise in the future to more pre-packaged food for food allergic consumers.

For food manufacturers, there are six areas where the handling and control of allergens have major cost impacts:

- Research & Development
- Farming and Suppliers
- Supply chain
- Manufacturing practices
- Catering practices
- Corporate issues

Research and Development

For existing allergens, a common approach is to simply design them out of the entire manufacturing process (8), but this may not always be feasible (and may be prohibitively expensive). However, regulations require novel ingredients to undergo rigorous toxicological analysis before being deemed acceptable for use in food manufacture. As with all such consumer protection regulations, there is a balance of risk between a small number of potentially fatal incidents and freedom of personal choice in consumption and costs on industry. These costs act as a barrier to entry and will mean that the decision to invest in the marginal product is not taken. Thus there is a trade-off between protecting consumers on one hand and encouraging innovation on the other.

Farming and Suppliers

Manufacturers are required to educate their suppliers in defining the factors required to ensure a product is free from a particular allergen. For example, it may not be possible to guarantee that potatoes grown in a field that had previously been used to grow peanuts will be 'nut free'. This educational dimension is compounded when international suppliers are added, with possible language barriers between manufacturer and farmer. Management of these risks, and the establishment of close working relationships with suppliers is thus a costly process. Common approaches to handling this include questionnaires on handling procedures and precautions taken, supplemented with occasional audits of supplier facilities, and discussion before changing formulations or recipes.

Supply chain

The supply chain is a key area where the handling of allergens, and specifically, the prevention of cross contamination, incurs costs on industry. For example, suppliers must conform to 'grain standards', which specify a maximum allowable cross-contamination. These regulations vary by food stuff: a consignment of wheat is allowed to contain up to a certain percentage barley or soya. This may not be acceptable to ensure a product is guaranteed allergen-free, and separate fleets may be required to minimise cross-contamination (transportation of soya milk will require a completely separate container to that used to transport cows' milk). This need for separation is costly, and may impact the structure of the supply chain industry, favouring smaller specialist logistics companies over larger ones.

Manufacturing practices

There are two key objectives in establishing good manufacturing practice in the handling of potentially allergenic product. These are firstly, the avoidance of accidental cross-contamination of products with allergens, and secondly, appropriate labelling of known allergenic ingredients (13).

The risk of cross-contamination during manufacture can be minimised by scheduling allergen-containing products to be manufactured at the end of the day, establishing (duplicate) allergen-free rooms or entire factories, the development of rigorous and approved cleaning policies, and testing for allergens where appropriate (8). Enacting policies requires well trained and informed staff, yet the food manufacturing industry is characterised by a large proportion of casual workers on the shop floor. Awareness of allergens and management policies are incorporated into standard induction procedures, therefore the incremental cost of specific allergy training may be minimal, but high staff turnover means this training cost could be substantial.

The cleaning process itself requires planning, and verification of the absence of allergens requires laboratory tests (during which time stock may be delayed in transit pending results). The cleaning process will vary depending on whether the product is water-soluble, or requires additional chemicals to remove. These must then be disposed of in a means that conforms to environmental regulations. For example, chocolate is not water soluble, thus removal of nutty chocolate from equipment requires detergents, which must themselves be removed (and disposed of appropriately) prior to reuse.

Labelling the presence of allergens in a product is seen within the context of the entire risk-management process. A common precautionary label, added to products produced in factories where allergens are present is of the 'may contain' variety. However, consumers are often frustrated by these, especially when they appear on products that have been consumed by food-allergic individuals in the past (14). Such labelling is often seen as an 'insurance policy' to protect the manufacturer rather than informing the consumer. However, an American study analysing the contents of a range of products labelled 'may contain nuts' found 13% - 22% of products did indeed contain peanut protein (14). This suggests that the warnings should be heeded, and demonstrates that it is extremely difficult for manufacturers to be absolutely certain that a product will not contain peanuts if peanuts are used in other products manufactured in the same factory.

The future of this labelling style is currently in doubt (indeed it is already illegal in some EU countries, for example Germany), but this is of concern to the industry who are increasingly required to meet a consumer expectation of 'pharmaceutical grade' manufacturing process for foods (e.g. the European Federation of Allergy and Airways Disease Patients' Association (EFA) argue that consumers have the right to know what ingredients go into the food they consume). This issue is complicated by the fact that allergic individuals vary widely in the quantities of a protein required to elicit a response, and thus there is no accepted international definition of a maximum threshold above which trace proteins must be declared. Over 120 proteins have been identified which stimulate an immune response in allergic individuals (15). It would clearly be impractical to require complete information about all of these on every product.

To address this, a pan-EU consultation ('InformAll') was established across the EU to develop strategies for the provision of reliable allergy information for allergic consumers, regulators and industry. This resulted in a shift in focus away from quality control per se and towards more informative labelling for consumers. For example, the inclusion of whey from a quality perspective should be labelled as whey and not milk, however a dairy products allergic consumer may not recognise this as a dairy product, whereas labelling the ingredient as sourced from milk is clearer to the consumer (16).

Catering practices

The catering and hospitality industry is where the majority of adverse reactions occur (12). Catering organisations and manufacturers face particular problems with ensuring labels remain with products, that they are written so as to be understandable to all who may read them, and that staff are trained to be aware of the allergen contents of food (8). Manufacturers often supply 'allergen packs' and government booklets with their products, giving information on the contents, but catering staff training is required to ensure these are acted upon. Caterers and the hospitality industry must also know how to cater for food allergic customers and prevent accidental contamination. A survey of businesses in the hospitality industry in an English market town uncovered a generally limited knowledge of allergies, and all surveyed agreed that more training should be

given to food preparers and servers. However, there was lack of clarity over where the responsibility for providing such training should lie (17).

Corporate issues

From a corporate perspective, the manufacturer must ensure that risks are minimised by following good manufacturing process (GMP), and ensuring adequate and accurate labelling. This will minimise the risk of legal liability, but does not eliminate it altogether. However, the loss of reputation associated with a customer's adverse reaction to an ingredient, or public relations and financial cost of a recall is considered worse than the direct consequences of being sued for causing injury to a consumer.

For large multinational firms, a response to varying international quality and labelling requirements is to adopt a uniform internal standard set at a higher level than any individual country standards. This ensures compliance with all country requirements whilst minimising development costs, and, depending on the cost of complying with higher standards, may be a cost-effective strategy. Furthermore, this may increase the reputation of the manufacturer, increasing brand loyalty, and hence demand for its goods.

A large proportion of manufacturers have established customer care telephone lines as a source of information for allergic customers (and other information about their products). These are a cost to the manufacturer, requiring appropriate training of staff, but they can also yield benefits. For example, they may be a useful means of identifying potential problems early, and are a way of gauging consumer response to labelling and manufacturing changes.

Discussion

The results identify a number of areas where there is the potential for food industry costs, and hence efficiency, to be affected by allergy related issues. These issues do not differ materially from other good manufacturing process (GMP) aspects such as microbial control and quality labelling. Where they do differ, however, is in their potential consequences. Therefore the marginal cost of dealing with allergies in some areas may

be relatively low (for example, an additional session on allergen policy as part of an established induction programme). In other areas it may be substantial. This is particularly the case with labelling and testing regulations. Larger manufacturers respond to allergen control by imposing their own internal quality control processes, which, if set at or above the highest national standard, will enable a common policy across a global enterprise, thus the manufacturer may be able to enjoy a degree of economy of scale (although the varying complexities of implementing such a scheme across different countries may negate this). These processes tend to cover the entire product life cycle from initial concept to consumption by a potentially allergic consumer. Setting and advertising high quality standards acts as a signal to consumers, increasing brand loyalty and potentially increasing demand for the company's products.

The appropriate labelling of allergen-containing product has a disproportionate impact on small- and medium-sized enterprises (firms with less than 500 employees, SMEs). This is because they do not benefit from economies of scale to the extent of larger firms, thus changes in labelling regulations, and verification of the accuracy of labels may have a larger impact on their profitability.

On the demand side, the increasing sophistication and prevalence of consumers describing themselves as allergic to food proteins creates new markets and opportunities which may favour smaller companies or start-ups specialising in catering for such groups. But it also creates the public pressure for more regulation, 'quasi-pharma' quality production processes and comprehensive labelling, although a survey of shopping habits of food allergic individuals and their partners / families found most consumers took 'calculated risks' when deciding whether or not to purchase a 'may contain nuts' product (18).

In the development of new products, novel food ingredients must be rigorously tested for potential allergenicity before approval for human consumption. This acts as a barrier to entry, and thus marginal products will not be developed: consumers miss out on a novel food, and producers lose the potential market. The barriers are particularly acute for

SMEs for whom higher start-up costs are a proportionately greater burden. Thus there is a trade off between protecting consumers on the one hand and encouraging innovation on the other.

We have presented in the results a description of the factors that industry must consider in the handling of allergens. The major areas are around avoidance of cross-contamination of product, and appropriate labelling where known allergens are included as ingredients. The factors outlined impose costs on industry, but there is currently no quantitative estimate of these. Neither is there evidence to suggest the wider macroeconomic impact of changes in food labelling or testing regulations, nor changes in public tastes. A number of approaches are possible, for example, a case study approach would elicit a numerical value for the handling of a particular allergen in a 'typical' firm, or document the cost of introducing a new food ingredient, but this approach only considers the supply side of the equation. A more useful and complete analysis would take into account consumer responses to perceived risks from allergen-containing foods, the impact on (for example) the health sector of changes in the prevalence of IgE food allergies, the subsequent industry response, and the effect of consequent changes in costs within the industry on macroeconomic variables within the rest of the economy.

Conclusion

In summary, allergy-related factors affect the food industry at many levels, from initial research and development to supply chain, manufacturing, and final consumption of product. The major cost factors relate to separation of allergens in the production line (to prevent accidental contamination), and appropriate labelling of product (to declare intentional allergens). A corporate response is to include allergen-management policies into the entire life-cycle of a product, involving minimisation or 'designing out' of allergenic ingredients at the research and development stage, ensuring good, communicative relationships with suppliers and good manufacturing processes to ensure product separation and cleaning to prevent accidental contamination, and strict labelling policies to alert consumers to allergenic ingredients.

Quantification of these elements is beyond the scope of this review, as is identification of cost-effective strategies for allergen management, but the cost impact will depend on the degree to which allergen-control strategies vary from existing quality control processes (such as separation of wet and dry processing, control of genetically modified foods etc). Regulation of the industry imposes costs on manufacturers (which may be passed onto consumers), and may dissuade development of novel foodstuffs. An area in need of more research is the analysis of the response of industry to alternative allergen-management approaches, and thus identification of cost-effective mechanisms to improve the quality of life of food-allergic people.

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Reference List

1. Osterballe M, Hansen TK, Mortz CG, Host A, Bindslev-Jensen C. The prevalence of food hypersensitivity in an unselected population of children and adults. *Pediatr Allergy Immunol* 2005;16(7):567-73.
2. Pereira B, Venter C, Grundy J, Clayton CB, Arshad SH, Dean T. Prevalence of sensitization to food allergens, reported adverse reaction to foods, food avoidance, and food hypersensitivity among teenagers. *J Allergy Clin Immunol* 2005;116(4):884-92.
3. EuroPREVALL website. 2005.
4. Miles S, Fordham R, Mills C, Valovirta E, Mugford M. A framework for measuring costs to society of IgE-mediated food allergy. *Allergy* 2005;60(8):996-1003.
5. Antle JM. No such thing as a free safe lunch: the cost of food safety regulation in the meat industry. *Amer. J. Agr. Econ* 2000;82:310-22.
6. Unnevehr, L. J. and Jensen, H. H. Industry Compliance Costs: What would they look like in a risk-based integrated food system? 2001.
7. Heasman M, Henson S. Costs of compliance with food regulation in the UK: the response of food and drink manufacturers. *British Food Journal* 1997;99(5):181-87.
8. Crevel R. Industrial dimensions of food allergy. *Biochem Soc Trans* 2002;30(Pt 6):941-4.
9. Crevel RW. Risk assessment for food allergy--the industry viewpoint. *Allergy* 2001;56 Suppl 67:94-7.
10. Robinson, F. Producing foods for consumers with food allergy. 2005.
11. Gupta R, Sheikh A, Strachan DP, Anderson HR. Burden of allergic disease in the UK: secondary analyses of national databases. *Clin Exp Allergy* 2004;34(4):520-6.
12. Wuthrich B. Lethal or life-threatening allergic reactions to food. *J Investig Allergol Clin Immunol* 2000;10(2):59-65.
13. Angus. Special Publication of the Royal Society of Chemistry 2002;285:136-42.
14. Hourihane JOB. The threshold concept in food safety and its applicability to food allergy. *Allergy* 2001;56(Suppl. 67):86-90.
15. Yeung JM, Applebaum RS, Hildwine R. Criteria to determine food allergen priority. *J Food Prot* 2000;63(7):982-6.
16. Mills EN, Valovirta E, Madsen C, Taylor SL, Vieths S, Anklam E et al. Information provision for allergic consumers--where are we going with food allergen labelling? *Allergy* 2004;59(12):1262-8.
17. Towers N, Pratten J. Managing special dietary needs for food allergies in the hospitality industry; a survey based on the Coeliac disorder. *International Journal of Hospitality Management* 2003;22(341-351).
18. Creative Research and COI Communications on behalf of the Food Standards Agency. Nut Allergy Labelling: Report of Research into the Consumer Response. 2005? London, Food Standards Agency Publications.

Appendix: Questionnaire to workshop participants



The Prevalence, Cost and Basis of Food Allergy Across Europe

The impact of food allergy on industry

Dear FHN Food Allergy Cluster Meeting Member

EUROPREVALL is a pan-European project to investigate the prevalence, cost and biological basis for food allergy. A component of the work is an investigation into the economic impact of allergies and intolerance and as a part of this we are conducting a review of allergy related factors affecting the efficiency of the food industry.

Therefore, we would very much like to know what impact the existence of allergies has on your enterprise (for example, separation of production lines, labelling issues, costs of compliance with regulations).

The purpose of this questionnaire is to scope the issues as well as quantify costs where possible, therefore the questions are intended to be as open as possible.

We would be most grateful if you could find the time to respond to these questions and return to the address / email at the end of the questionnaire by **Monday 7th November**. We can then extract key themes to structure a discussion at the meeting on 10th November.

Thank you for your assistance

Ed Wilson
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Name of business:

Address:

Tel:

Fax:

Email:

Approximate employees:

Nature of business (types of foods manufactured, number of manufacturing sites / production lines etc):

1. Does the existence of consumer food allergy and intolerance have any impact on your business?

If yes, please describe below (continue on separate sheet if necessary). If no, please go to question 2.

2. Do you expect consumer food allergy and intolerance to have an impact on your business in the future? If yes, please describe (please continue on separate sheet if necessary).

3. Please describe any changes made in your business to accommodate food allergies and intolerance over the last 5 years. If possible, please also provide an estimate of cost.

(For example, please state the cost of any necessary duplication of production lines, equipment, cleaning practices adopted, labelling, testing, product recalls, impact of regulations (food standards agency, EU, trade rules etc).

4. What (if any) laws and regulations relating to food allergies are you required to observe in your business?

5. What impact have these laws and regulations had? (e.g. changes to working practices, training, equipment etc). If possible, please also provide an estimate of the cost.

6. Would you or a colleague be happy for us to contact in the future for further information?

If so, please provide details below:

Details of person whom we may contact for further information:

Name:

Position:

Address:

Tel:

Fax:

Email:

Thank you for completing this questionnaire.

Please return by **MONDAY 7th NOVEMBER 2005** either by email to ed.wilson@uea.ac.uk

or

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