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Tastes, Geography and Culture

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Abstract

Does geography shape tastes? This paper investigates the geography of tastes using French household surveys from 1974 and 2005. We propose a two-step method: first, we estimate regional tastes using a structural demand system; then, we compute bilateral taste differences and link them to geographic distance. The 1974 results provide evidence of 'gravity in taste'—that is, geographically closer regions have more similar food tastes. By 2005, this geographic pattern has largely disappeared. However, tastes are not homogenized. Regional diversity persists, with differences in taste determined by sociocultural similarity rather than geographic distance.

Keywords: Consumer Behavior, Tastes, Geography, Cultural Change

JEL Classification: D12, R10, Z10

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1 Introduction

Since Montesquieu (1748), scholars have argued that geography shapes differences in culture.[1] This idea is vividly presented in *Guns, Germs, and Steel* (Diamond, 1997) and has inspired a rich empirical literature (Alesina and Giuliano, 2015). However, advances in transport and communication technologies have been argued to diminish geography's influence on culture, leading to cultural homogenization (Inglehart, 1997; Ritzer, 2010). Yet recent empirical studies find little evidence of such homogenization (Desmet and Wacziarg, 2021; Bertrand and Kamenica, 2023); on the contrary, cultural polarization appears to be on the rise (De Vries et al., 2013; Gidron et al., 2020).

This paper explores the 'gravity in tastes', that is, the influence of geography on culture by comparing the spatial distribution of food tastes in France in 1974 and 2005. We find that gravity in tastes has diminished over this period, a change we attribute to declining trade costs. Under high trade costs, regional variations in agro-climatic conditions confer comparative advantages that generate spatial price differentials. Such differentials favor local consumption through early-life habit formation, reinforcing enduring regional tastes. However, as trade costs fall, regional prices converge, exposing consumers to a broader array of food options and gradually transforming tastes. Despite price convergence, the results provide no evidence of taste homogenization. Instead, a taste "patchwork" emerges: an uneven distribution of tastes across the territory, now more closely linked to sociocultural similarity than geography. These findings lead us to speculate that as geographic barriers recede, individuals may increasingly anchor their consumption choices in sociocultural identities.

We contribute to the literature on taste formation (Bowles, 1998; Bisin and Verdier, 2001; Fehr and Hoff, 2011) by developing a two-step method to study regional taste differences. First, we adapt Atkin (2013)'s structural-demand approach to estimate geographically localized tastes—-addressing the key identification challenge of disentangling changes in preferences from changes in the economic environment (Stigler and Becker, 1977). Second, we compute bilateral taste differences between regions and analyze their evolution over time.

Our empirical analysis focuses on food items as they are both relatively stable over time and closely tied to cultural identity (Barthes, 1961; Mintz and Du Bois, 2002; Atkin, 2016; Atkin

[1] We define differences in culture as systematic variation in tastes and beliefs across time, space, or social groups (Fernández, 2011).

et al., 2021). We draw on the 1974 and 2005 French expenditure surveys for four reasons. First, they provide geolocalized and detailed data on consumption expenditure and household characteristics. Second, taste and cultural changes evolve slowly, necessitating data that span several decades. Third, these decades coincide with significant market integration in France, driven by the expansion of highway and railway networks. Fourth, unlike other survey rounds, the 1974 and 2005 surveys record both expenditures and quantities, allowing us to construct unit values as proxies for prices.[2]

The first step estimates demand separately for each survey year (1974 and 2005) and for two levels of food aggregation: broad categories (e.g., fats) and goods (e.g., butter or olive oil within fats) using the Almost Ideal Demand System (AIDS). Our specifications incorporate household characteristics, instrument for total expenditure and prices, and include regional-specific shifters based on the historical French *département* (hereafter, "department") division. These department-specific shifters capture variation in food budget shares that is unexplained by prices, expenditure, and household characteristics, and they constitute our structural taste parameters.

The second step examines the gravity in tastes by constructing bilateral taste differences between departments for 1974 and 2005. Conditioning on department-by-year fixed effects, we regress the taste differences on geographic distance at the broad category and good level. The 1974 results show evidence of gravity in tastes, with geographically closer departments exhibiting more similar consumption patterns. A 10% increase in distance is associated with a 2.1% increase in taste differences. By 2005, this elasticity falls to 0.8%, a significant weakening of the geographic pattern. To illustrate, Paris is roughly 450 km from Lyon and 800 km from Marseille. The additional distance implies a taste gap for Paris-Marseille that is 16% larger than for Paris-Lyon in 1974; by 2005, the gap shrinks to 6%.

The decline in gravity in tastes holds across specifications. Robustness checks include alternative instruments or additional restrictions in the first step, and different bilateral taste measures, non-linear distance effects, or dyadic fixed effects in the second step. The decline is also robust to controlling for bilateral patterns in market integration that could affect consumption differences, such as exposure to same varieties or same supermarket chains, migration flows,

[2]French barcode data provide more detailed product expenditure and quantity; however, their recent availability limits their use for analyzing long-term taste changes. Moreover, like expenditure surveys, barcode data require the aggregation of food items for demand estimation due to dimensionality challenges. Reassuringly, our 2005 survey data and barcode data yield similar aggregate statistics.

or regional newspaper readership.

Although the results could suggest taste homogenization, the evidence does not support such a trend. Instead, by 2005, tastes form a "patchwork" more closely aligned with the socio-cultural composition of departments. Variations in education level, national origin, and first names become increasingly important in explaining taste patterns. In 1974, similarity in education and first names was uncorrelated with taste similarity, and similarity in nationalities only weakly so. By 2005, however, departments that are geographically distant but more similar in these three sociocultural dimensions exhibit more similar tastes.

The paper contributes to a growing literature on cultural diversity and market integration. Trade models offer conflicting predictions: integration may polarize partners by strengthening cultural divides (Olivier et al., 2008; Belloc and Bowles, 2013), or promote cultural homogenization (Bisin and Verdier, 2014; Maystre et al., 2014). Several empirical studies document convergence and divergence in cultural traits using nonfood consumption. For instance, Ferreira and Waldfogel (2013) show a growing bias toward domestic music in the 2000s, despite advances in communication and access to foreign music. Alesina et al. (2017) find that economic convergence in Europe was accompanied by cultural divergence among its citizens. Using specific food products, a few studies find evidence of homogenization, although without explicitly accounting for changes in the economic environment (Gracia and Albisu, 2001; Kónya and Ohashi, 2007; Aizenman and Brooks, 2008). Other papers highlight the persistence of food preferences, with migrants carrying distinct tastes across borders (Bronnenberg et al., 2012; Atkin, 2016). In our setting, market integration weakens the gravity in tastes, but cultural diversity persists.

Our paper aligns with a broad literature on cultural change and persistence (Luttmer and Singhal 2011; Alesina and Giuliano 2015; Giavazzi et al. 2019; Giuliano and Nunn 2021). In the U.S., recent work shows that cultural distances have evolved along multiple dimensions, with no uniform trend. Bertrand and Kamenica (2023) document rising divergence in social attitudes by political ideology and, to a lesser extent, income and race, while Desmet and Wacziarg (2021) find increasing divides along religion and politics, with non-monotonic patterns by income and race. Neither study considers geography. Our findings reveal that tastes shift from a geographic pattern to a patchwork aligned with sociocultural similarity. Recent evidence from voting behavior highlights the growing salience of sociocultural identities (Bonomi et al., 2021;

Danieli et al., 2022), and our results suggest that taste patterns have evolved in a comparable manner.

This article is organized as follows. Section 2 provides an overview of the data. Section 3 presents a simple conceptual framework and stylized facts on consumption, prices and geography. Section 4 estimates a structural demand system to measure department-specific taste parameters. Section 5 investigates the decline in gravity in tastes. Section 6 shows that tastes have evolved into a patchwork related to sociocultural similarity rather than geography. Section 7 concludes.

2 Data Overview

2.1 Household Data

Our data come from the Family Budget Survey, or *Budget des Familles* (BDF), which is the standard consumer expenditure survey in France.[3] Each survey provides household expenditures for more than 200 food and nonfood items as well as economic and demographic characteristics. The main estimations use the survey rounds of 1974 and 2005, covering 14,082 households for 1974 and 10,240 households for 2005. They are the only rounds that record quantities, allowing us to compute unit values as price proxies. The stylized facts on consumption patterns and geography exploit two additional intermediate rounds, 1984 and 1995. We use household survey weights throughout to make our results nationally representative.

2.2 Departments

Our geographic unit of analysis is the department. Departments are an administrative division of metropolitan France into 96 geographic units, which are smaller and more uniform in size than US states or Canadian provinces.[4] Our main analysis uses 89 departments, as seven are not consistently surveyed between 1974 and 2005.[5]

Departments represent a meaningful historical and cultural division. They have a long

[3]The cross-sectional surveys are conducted by the *Institut National de la Statistique et des Etudes Economiques* (INSEE) every five years. The expenditures of each household are recorded over the course of 15 days. The survey is conducted in eight waves of six weeks each, over an entire year.

[4]The mean area is 5,879 square kilometers, and the median area is 5,973 square kilometers.

[5]These seven departments include Alpes-de-Haute-Provence, Ariège, Corse-du-Sud, Haute-Corse, Gers, Lozère and Belfort.

history that could foster the emergence of distinct tastes. Their creation dates back to the first French constitution in 1790, although some of these departments even predate the French Revolution (Dumont, 2014). The size of each department was decided such that it would be possible from any point inside the department to reach its centrally located capital city by horse within 24 hours. Even at present, departments remain meaningful lines of demarcation: on average, trade between cities within a department is 2 to 3 times higher than trade between cities in contiguous departments (Combes et al., 2005). Departments are also responsible for a wide range of social and welfare allowances, as well as education, transport infrastructure, and cultural heritage management.

2.3 Food Expenditures

2.3.1 Food Products and Culture

Tracking food expenditure over time offers important advantages for studying the evolution of tastes. The main challenge in following consumption trends is product entry and exit. A first advantage of food is that products such as fruits or vegetables are likely to evolve more slowly than durable goods such as home appliances or cars. This stability allows us to track changes in consumer behavior across time and place.

A second advantage is that food is deeply embedded in culture, as documented in anthropology and sociology (Barthes, 1961; Mintz and Du Bois, 2002), as well as in economics (Atkin, 2016; Atkin et al., 2021). Collado et al. (2012) provide evidence that food is one of the few consumption categories with significant intergenerational transmission of tastes. Section 3.2 shows that food consumption in France has historically varied markedly across departments.

2.3.2 Categorization

We harmonize the survey categorizations at two levels to ensure accurate comparison across survey waves. The first level consists of nine *broad categories*, indexed by b (a mnemonic for "broad"): alcohol, dairy products, drinks, fats, fruits, grains, meats, prepared products, and vegetables. The second level divides these categories into a total of 47 *goods*, indexed by g (a mnemonic for "good"; Appendix Table A1 provides the comprehensive list of goods by category).

2.3.3 Prices

Broad Category-level Prices The price of a broad category is the Stone price index over good-level prices.[6] Given that our estimation of tastes is based on the AIDS model (see Section 4), we follow the literature in using Stone price indices as linear approximations of the exact AIDS price indices (Deaton and Muellbauer, 1980; Nevo, 2011).

Good-level Prices The price of a good is computed using a sub-level categorization, which we refer to as *variety*. For example, the varieties within the good "beef" include fresh beef, fresh ground beef, and frozen beef.[7] The price of a good is the Stone price index over unit values of varieties consumed by the household.[8] Following Atkin (2013) and Atkin et al. (2021), we replace the household-level good price index with the median city price index.[9] City-level prices are robust to outliers and are not contaminated by the quality choice of the household, such as those resulting from the choice of very high or very low quality products. Additionally, city-level prices serve as reservation prices when households do not report consumption.

2.3.4 Comparison with Barcode Data

Official national consumer surveys are cross-sections of households recording expenditure. An alternative data source for studying consumption choices is the Universal Product Code (UPC) or barcode data. While barcode data provide detailed product information, their recent availability prevents tracking long-term changes in culture or tastes. Furthermore, demand estimations based on barcode data also aggregate food items into categories to manage high dimensionality in product space (Nevo, 2011). Finally, compared to mandatory national surveys such as the French consumer survey, barcode data may suffer from selection bias.

Reassuringly, we find notable similarity between the 2005 French consumer survey and its 2005 barcode counterpart. We compare moments of the distributions of expenditure and price to their equivalent calculated by Dubois et al. (2014) for the 2005 barcode data. As shown in Ap-

[6]The Stone price index is defined as $P_b = \sum_{g \in b} w_g \ln(p_g)$, where w_g is the budget share of good g for broad category b and p_g is its price.

[7]Establishing a unified definition of varieties proves challenging (see Broda and Weinstein, 2006). Our definition is constrained by data availability to the finest categorization possible, in line with standard practice in the literature. The French consumer survey's product categorization was revised between 1974 and 2005, increasing the average number of varieties per good from 6.9 to 11.7.

[8]The Stone price index of good g is $p_g = \sum_{v \in g} s_v \ln(\pi_v)$, where s_v is the budget share of variety v for good g and π_v is its unit value.

[9]The cities are similar to civil townships and incorporated municipalities in the US. Note that city identifiers cannot be tracked across our two surveys.

pendix Table A2, quarterly expenditures from the two sources are relatively similar (columns 1 and 2), while expenditure shares are remarkably close (columns 3 and 4). Additionally, Appendix Table A3 shows that the average prices between the two data sources are highly comparable, with an almost entirely preserved price hierarchy.

3 Geography, Market Integration and Consumption

We first outline a simple conceptual framework (3.1), then present evidence of historical local food cultures (3.2) and market integration (3.3) in France. Finally, we document three geographic facts on prices and consumption (3.4).

3.1 Conceptual Framework

France has distinct regional food cultures that have evolved over centuries from a complex mix of factors (Braudel et al., 1961).[10] A key factor is the regional variation in agro-climatic conditions that favors the cultivation of specific, locally adapted crops (e.g., southwestern Bordeaux vineyards for grape production and northern Normandy apple orchards for cider production, see Appendix Figure B3 and Section 3.2). In a context of high trade costs, transporting goods is so expensive that arbitrage opportunities are precluded. As a result, regional differences in crop suitability lead to spatial price differentials, where prices vary with distance from production centers. Regions with favorable conditions for growing certain crops experience lower prices for foods produced from those crops, encouraging their consumption early in life. Past prices, therefore, play a critical role in shaping current tastes through habit formation, which in turn establishes enduring regional taste preferences.[11]

But what happens when trade costs decrease? Market integration can lead to price convergence across regions (Donaldson, 2018). Since the 1970s, France has experienced significant market integration (Combes and Lafourcade, 2005), driven by a denser highway network and the rapid expansion of high-speed rail, leading to price convergence (see Section 3.3). Although historically lower prices have entrenched early life consumption and taste formation, the gradual equalization of prices across regions exposes consumers to a broader array of food options.

[10] For historical examples, see food culture maps such as Tourcaty (1809) and Bourguignon (1932) digitalized by the Cornell University Library (https://digital.library.cornell.edu/catalog).

[11] Atkin (2013) demonstrates how sustained consumption patterns favor locally abundant crops over generations using an overlapping-generations general equilibrium model with habit formation.

As lower prices increase access to these previously less consumed alternatives, demand for them may grow over time, gradually changing tastes.

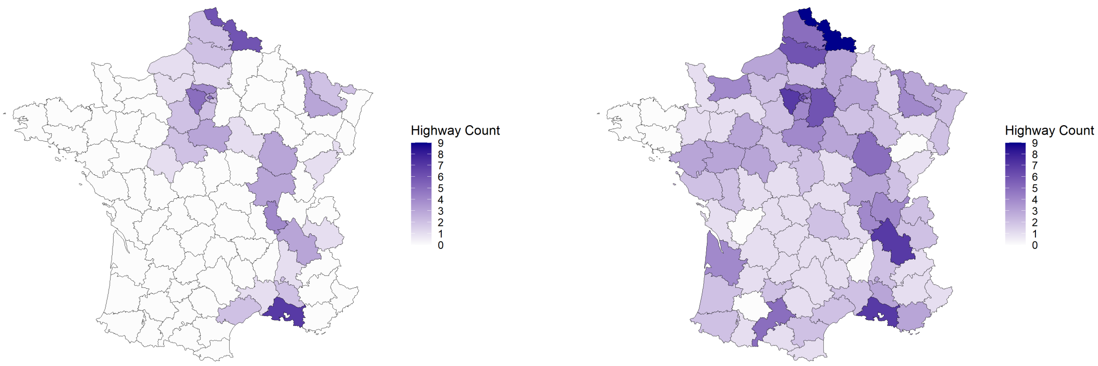
Would the homogenization of prices eventually lead to homogenization of tastes? The habit formation literature asserts that as consumers are exposed to increasingly similar prices and products, their consumption patterns should converge. In contrast, the social identity literature contends that even under similar market conditions, consumption choices can remain distinct, or diverge further, as individuals express evolving group identities, for example shifting from regional to broader sociocultural affiliations (Atkin et al., 2021; Nardotto and Sequeira, Forthcoming). These frameworks offer contrasting predictions: one anticipates convergence in tastes, the other expects persistent or reconfigured divergence that mirrors social divisions.

3.2 Historical Local Food Cultures in France

Although historical consumption records remain scarce, comparing our survey data with two documented cases demonstrates the persistence of geographically defined food cultures in France. The spatial distribution of consumption in both the historical cases and the 1974 survey shows remarkable continuity, whereas this pattern is much less pronounced in 2005. The first example is a well-known northwest/southeast divide in cooking fats: the "France of butter" versus the "France of oil". This geographic pattern, portrayed in a 1952 map of butter consumption (see Appendix Figure B1), persists in our 1974 consumer survey data, with an attenuation in 2005 (see Appendix Figure B2).

The second example is the geographic divide in alcohol consumption. A 1850 map underscores significant disparities in the quantity and type of alcohol consumed across regions (see Appendix Figure B3). We construct a related map showing the share of wine in alcohol consumption using our data in 1974 and 2005 (see Appendix Figure B4). The 1974 map closely mirrors the 1850 geographic pattern with wine constituting over 50% of alcohol consumption throughout France, apart from the north and northwest. By 2005, however, wine consumption across France is less concentrated in specific regions.

Figure 1: Number of Highways per Department in France in 1974 and 2005



1974 2005

Notes: Number of highways per department in service in 1974 and 2005 based on the list of highways in France.

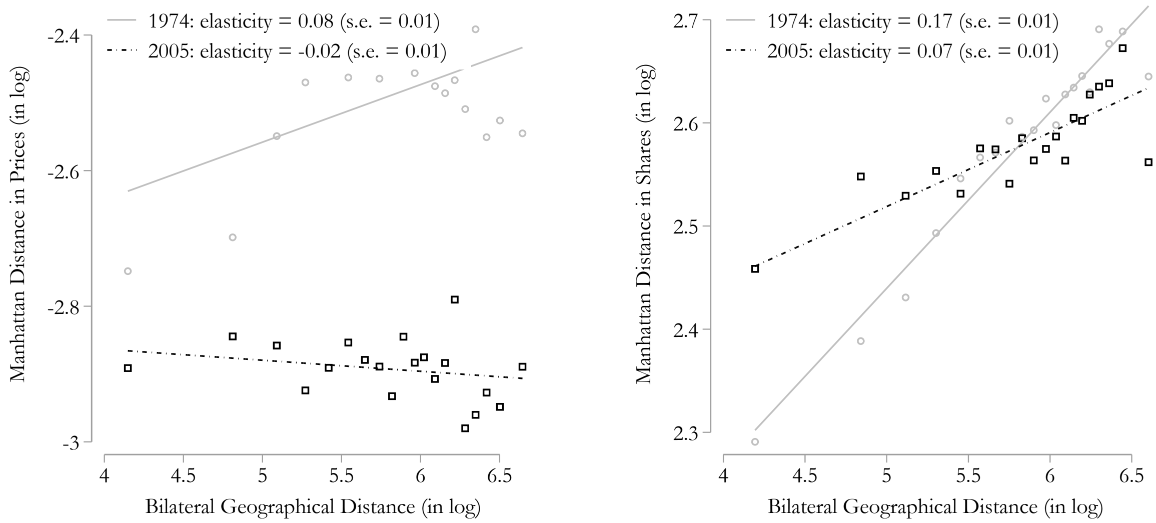
3.3 Market Integration in France

Between 1974 and 2005, France underwent significant market integration (Combes and Lafourcade, 2005), driven by a denser highway network and the rapid expansion of high-speed rail.

France's first highway, connecting Paris and Normandy, was inaugurated in 1946. By 1960, only 170 km of highways had been built nationwide (see Appendix Figure B5). The French highway network grew substantially from the 1970s to the 2000s, increasing from 1,125 km to over 10,000 km (Fayard et al., 2005). Figure 1 illustrates the shift: in 1974, the network follows a North-South axis; in 2005, it covers most of the country. This expansion halved average road travel time. For example, the travel time from Paris to Marseille decreased from 13.5 to 7.5 hours. Getting connected to the highway also became much easier: using INSEE transportation data, we find that the average driving time to the nearest highway junction fell from 59 minutes (s.d.=38) in 1969 to 26 minutes (s.d.=32) in 2008.

France's first high-speed rail line opened in 1981, carrying 1.26 million passengers that year between Paris and Lyon.[12] Since then, the network, centered around Paris, has expanded to connect main cities across France, including Bordeaux (Southwest), Lille (North), Marseille (South), Rennes (Northwest), and Strasbourg (East). High-speed trains are considerably faster (in terms of door-to-door travel time) than regular trains or cars. Operating at speeds up to 320 kilometers per hour, they significantly reduce rail travel times (Charnoz et al., 2018). For example, the Paris-Marseille journey dropped from 6 hours 34 minutes in 1974 to 3 hours in

[12]The Paris-Lyon high-speed line was authorized in 1971.



(a) Prices

(b) Consumption Shares

Figure 2: Geographic Distance, Prices and Consumption

Notes: Binned scatterplots showing log Manhattan distance in prices (left) and consumption shares (right) against log bilateral geographic distance between department pairs, separately by survey round (1974 and 2005). Linear regression lines are shown by round.

2005, mirroring the fall in road travel time.[13]

3.4 Three Geographic Facts on Prices and Consumption

We present three stylized facts about prices, consumption, and geography. Although these facts do not provide direct evidence on tastes, as consumption changes conflate taste changes with the influence of the economic environment, they offer a transparent foundation for our structural estimation. The facts illustrate how the geographic influence on prices and consumption has weakened over time. An additional advantage is that we can incorporate the intermediate survey rounds 1984 and 1995, as price data–unavailable for these years–are not required for comparison of consumption patterns across geography.

Fact 1: Prices follow a geographic distribution in 1974, but not in 2005.

Figure 4a presents a binned scatterplot of log Manhattan distance in prices across the nine broad categories between two departments on their log bilateral geographic distance.[14] In

[13]Detailed information on past travel times is available on the SNCF website (data.sncf.com).

[14]The Manhattan distance provides a bilateral aggregate measure of dissimilarity in prices between two departments across the nine broad categories. Formally, $\textit{Manhattan Distance in Prices}_{ijt} = \sum_b |p_{it,b} - p_{jt,b}|$, where p denote prices for departments i and j in year $t = \{1974, 2005\}$ in broad category b. As a metric, the Manhattan distance satisfies two desirable conditions for distance measures: it equals zero when two departments exhibit identical prices, and increases linearly with absolute deviations, avoiding the disproportionate impact of large differences that arises with squared deviations (e.g., Euclidean distance).

1974, the solid line indicates a positive correlation: a 10% increase in distance is associated with a 0.8% difference in prices.[15] Geographically distant departments exhibit greater price disparities in 1974. By 2005, however, the dashed line shows a near-flat slope, with an elasticity statistically indistinguishable from zero, indicating no systematic relationship between distance and price differences. As documented in the trade and economic geography literature, price convergence may stem from market integration, driven by reductions in transport costs and improvements in infrastructure (Anderson and van Wincoop, 2004; Donaldson, 2018).

Fact 2: Consumption patterns follow a geographic distribution in 1974, declining in 2005.

Figure 4b shows the binned scatterplot of the log Manhattan distance in consumption shares across the nine broad categories between two departments on their log bilateral geographic distance.[16] The solid line shows a positive correlation in 1974: a 10% increase in bilateral distance is associated with a 1.7% difference in bilateral consumption. In 1974, two departments farther apart are more different in their consumption than two departments nearby. The impact of distance on consumption is roughly 2.5 times lower three decades later. The dashed line in Figure 4b shows a flattened slope in 2005: a 10% increase in bilateral distance is associated with a 0.7% difference in bilateral consumption. Incorporating consumption shares from the 1984 and 1995 intermediate rounds reveals a gradual decline in the distance elasticity (see Appendix Figure B6).

Fact 3: No evidence of homogenization of consumption patterns.

Does the declining impact of geography on prices and consumption suggest homogenization? To address this question, we compute the mean and standard deviation of bilateral consumption differences for each broad category and year. Under a scenario of homogenization in consumption, we would expect both the mean and variance of consumption differences to decline across all–or most–food categories, indicating more similar consumption patterns by 2005. However, summary statistics in Appendix Table B1 reveal no such trend. Fats are the only category that shows a marked decline in both the mean and standard deviation of consumption differences. By contrast, alcohol and prepared food display increases in both measures, suggesting divergent consumption patterns. For the remaining categories, mean

[15] For comparison, Donaldson (2018) finds that in colonial India, a 10% increase in the distance to source (measured along the lowest-cost route) is associated with a 0.9% increase in the log salt price at the destination. This distance elasticity is remarkably close to our 1974 estimate under relatively high trade costs.

[16] Formally, $\textit{Manhattan Distance in Consumption Shares}_{ijt} = \sum_b |s_{it,b} - s_{jt,b}|$, where b denotes consumption shares for departments i and j in year $t = \{1974, 2005\}$.

and standard deviation remain relatively stable over time.

The results suggest that while consumption patterns have shifted across generations, there is no strong evidence of homogenization in consumption: France remains diverse, albeit with a declining geographic correlation. To disentangle changes in tastes from other confounding factors–such as evolving economic conditions across departments–we employ a structural demand system in the next section.

4 Estimating Tastes

4.1 Multi-Level Demand System

We identify tastes as department-level demand shifters, accounting for income, prices and household characteristics. We use the AIDS to measure tastes. Our motivation for this approach is threefold: First, AIDS demand functions are first-order approximations to any set of demand functions derived from utility-maximizing behavior. Moreover, the AIDS allows for both flexibility in cross-price elasticities between products and a convenient specification for nonhomothetic behavior. Finally, the AIDS expenditure function generates a demand system in which tastes are additively separable from price and income effects.[17]

While AIDS demand estimation offers functional form flexibility, it poses the challenge of high product dimensionality. In response to the dimensionality issue, the literature suggests a multi-stage budgeting approach, which involves constructing a multi-level demand system with separate groups (see Nevo, 2011). This approach assumes weak separability, that is, each good belongs to only one separable segment (one category), and its demand can be written as a function of the total expenditure spent in that specific segment and prices of other products within the segment. Following this approach, we derive a multi-level demand estimation with a higher level, the broad categories g, and a lower level, the goods g.

Following Atkin (2013), our variation of the AIDS expenditure function allows the first-order price terms to vary across locations, here the departments, indexed by d. The resulting function defines the minimum expenditure $\ln e(u, \mathbf{p}_{h,k}; \Theta_{d,k})$ for household h to attain a specific utility level u at a given vector of prices $\mathbf{p}_{h,k}$ for food item $k = \{b, g\}$. $\Theta_{d,k}$ is a vector of tastes

[17] The flexibility of the AIDS demand system makes it increasingly used beyond the industrial organization literature, for instance in the trade and development literature (Feenstra, 2010; Atkin, 2013; Fajgelbaum and Khandelwal, 2016; Liu and Meissner, 2019; Hummels and Lee, 2018; Atkin et al., 2020).

$\theta_{d,k}$, which are identical across households within a department d:

$$\ln e(u, \mathbf{p}_{h,k}; \Theta_{d,k}) = \alpha_0 + \sum_k \theta_{d,k} \ln p_{h,k} + \frac{1}{2} \sum_k \sum_{k'} \gamma_{kk'} \ln p_{h,k} \ln p_{h,k'} + u\beta_0 \prod_k p_{h,k}^{\beta_k}, \tag{1}$$

where $p_{h,k}$ is the price of item $k = \{b, g\}$ and $\theta_{d,k}$, β_k, and $\gamma_{kk'}$ are parameters.[18]

Applying Shephard's lemma and appropriate substitutions to Equation (1) yields the demand functions in budget shares at the broad category level, $k = b$:

$$s_{h,b} = \theta_{d,b} + \sum_{b'} \gamma_{bb'} \ln P_{h,b'} + \beta_b \ln\left(\frac{X_h}{P_h}\right), \tag{2}$$

where $s_{h,b}$ is the budget share of broad category b in the total food budget; $\theta_{d,b}$ is the taste parameter of broad category b in department d, which acts as a pure budget share shifter; $\ln P_{h,b'}$ is the household AIDS price index of broad category b' constructed from good-level demand (see Equation 3 below) under the multi-stage budgeting approach reviewed in Nevo, 2011; and $\frac{X_h}{P_h}$ is the real household total food expenditure with X_h being the total household food expenditure on all 9 broad categories and P_h being the corresponding AIDS price index.

We then derive the demand functions at the good level, $k = g$:

$$s_{h,g} = \theta_{d,g} + \sum_{g'} \gamma_{gg'} \ln p_{h,g'} + \beta_g \ln\left(\frac{X_{h,b}}{P_{h,b}}\right), \tag{3}$$

where $s_{h,g}$ is the budget share of good g (e.g., butter) spent by household h within broad category b (e.g., fats); $\theta_{d,g}$ is the taste parameter of good g in department d; $\ln p_{h,g'}$ is the household price of good g'; and $\frac{X_{h,b}}{P_{h,b}}$ is the real household expenditure in broad category b with $X_{h,b}$ being the broad category expenditure and $P_{h,b}$ being the broad category AIDS price index. Following the weak separability assumption of multi-stage budgeting, real expenditure is expressed at the category (not household) level for good-level demand.[19]

[18] These parameters are theoretically required to satisfy the following restrictions: adding up ($\sum_k \theta_{d,k} = 1$), homogeneity ($\sum_k \gamma_{kk'} = \sum_k \beta_k = 0$), and symmetry ($\gamma_{kk'} = \gamma_{k'k}$ for all k, k'). In practice, empirical applications often relax these constraints to allow for greater flexibility in fitting the data. Our results on gravity in tastes are robust to whether or not these restrictions are imposed in the demand estimation.

[19] In particular, the additivity restriction of the AIDS demand system requires the denominator of the expenditure shares on the left-hand side to equal the total expenditure on the right-hand side, here $X_{h,b}$, ensuring that the shares sum to 1 (Deaton and Muellbauer, 1980).

4.2 Identification Strategy

While Equations (2) and (3) provide useful guides for the empirical analysis, we modify the estimated demand equations to match our data structure, include additional determinants of demand, and address the endogeneity of prices and expenditure.

Starting from Equation (2), we estimate the demand for category b of household h living in city c in department d by survey year:

$$s_{h,b} = \theta_{d,b} + \sum_{b'} \gamma_{bb'} \ln P^{\star}_{c,b'} + \beta_b \ln \left(\frac{X_h}{P^{\star}_c} \right) + \mathbf{\Pi} \mathbf{Z}_h + \epsilon_{dh,b}, \tag{4}$$

where $\theta_{d,b}$ is the taste parameter of broad category b in department d; $P^{\star}_{c,b'}$ is the price of broad category b in city c (in department d) as described in Section 2.3.3; X_h is the total household expenditure on all 9 broad categories; $P^{\star}_c$ is the Stone price index of total food expenditure for city c; $\mathbf{Z}_h$ is a vector of household characteristics (demographics and fraction of purchase in different types of store) that may influence both demand and our taste estimates;[20] and $\epsilon_{dh,b}$ is the error term.

Turning to the good level, we estimate the demand of household h for good g living in city c in department d by survey year:

$$s_{h,g} = \theta_{d,g} + \sum_{g'} \gamma_{gg'} \ln p_{c,g'} + \beta_g \ln \left(\frac{X_{h,b}}{P^{\star}_{c,b}} \right) + \pi \mathbf{Z}_h + \epsilon_{dh,g}, \tag{5}$$

where $\theta_{d,g}$ is the taste parameter of good g in department d; $p_{c,g'}$ is the median price of good g' in city c (in department d) as described in Section 2.3.3; $X_{h,b}$ is the expenditure of household h in broad category b; $P^{\star}_{c,b}$ is the price index of broad category b;[21] $\mathbf{Z}_h$ is the same vector of household characteristics as in Equation (4); and $\epsilon_{dh,g}$ is the error term.

The estimation of Equations (4) and (5) faces two main identification threats. The first is related to the endogeneity of total food expenditure: first, the budget spent on each food product and the total food expenditure are simultaneously decided; second, any measurement

[20]This vector includes demographic variables such as the occupation of the head of the household, the number of household members, gender composition, and the fraction of household members by age group (1 year, 2-13 years, 14-19 years, 20-54 years, and 55+ years). These variables help to account for differences in consumption and taste, such as eating out or consuming global food products (e.g., burgers, sushi, kebabs), practices more common for certain types of households. The vector also includes the type of store where households purchase products (supermarkets, grocery stores, or small shops), which varies significantly over time and place. For example, the share of purchases in supermarket chains went from 26% in 1974 to 80% in 2005 (see Appendix Table B2).

[21]The broad category price is a Stone price index over good prices, as described in Section 2.3.3.

error in food expenditure would also affect the left-hand side. We address both issues by instrumenting total food expenditure $\left(\frac{X_h}{P_c^\star}\right)$ or total category expenditure $\left(\frac{X_{h,b}}{P_{c,b}^\star}\right)$ by household income, a typical instrument in the literature (see, e.g., Deaton and Paxson, 1998; Lecocq and Robin, 2015).

The second threat relates to price endogeneity. The empirical estimation uses median city prices, which are robust to outliers and quality concerns compared to household-level measures (see Section 2.3.3). These city-level measures could nevertheless be affected by local shocks correlated with taste. If households have a strong taste for local products, firms may strategically impose higher local prices on them, which may bias downward the estimation of tastes for favored products.[22]

Arguably, higher market power amplifies strategic behavior. Given the rise in retail concentration and chain store expansion over time (Allain et al., 2017), price endogeneity may have been more acute in 2005 than in 1974. However, the literature shows no evidence of increased market power in the food retail sector. A general finding across food chains in France is that profit margins relative to sales tend to be relatively low at various stages in the chain. In the period 2010-2016, pretax profits were approximately 3-4% of sales for the French food processing industry, approximately 2% of revenues for wholesalers, and approximately 1% for supermarkets (Deconinck, 2021).[23]

Nevertheless, we address price endogeneity concerns by using an instrument that is correlated with underlying costs (e.g., production, distribution) but uncorrelated with idiosyncratic city taste. Following Atkin (2013) in using a Hausman (1996)-inspired approach, we leverage cross-sectional spatial differences in costs. We instrument local prices in what we call "instrumented cities" with prices of the same good in other cities, called "instrument cities." The set of instrument cities should be close enough to the instrumented cities to capture similar underlying costs, but sufficiently distant to avoid a correlation with local taste. Accordingly, the set is restricted to instrument cities located *outside* the department but in *contiguous* departments.

The identification of department tastes requires within-department price variation. We ex-

[22]Taste for local products may also be interpreted as a preference for quality, especially when local goods are perceived to have superior characteristics. As long as quality translates into higher prices, our identification strategy accounts for this relationship. If not, taste and quality can be considered synonymous in this context, as both terms may reflect similar underlying preferences or values.

[23]Using UK consumer data, Thomassen et al. (2017) show that the mark-ups of price over marginal cost in large retail chains are low.

ploit the spatial variation in prices between cities of the same size stratum.[24] We instrument each city price with the average price of all instrument cities in the same size stratum in contiguous departments.

The identifying assumption is that specific demand shocks are independent across departments. In our context, this is a reasonable assumption considering that most promotions in the food retail sector are communicated through leaflets, which are largely specific to each local store (or catchment area).[25] There is compelling evidence that food prices vary between French cities due to differences in local competitive environments–even among stores operating under the same banner (Turolla, 2016). We nevertheless construct a robustness instrument using cities located in *contiguous* regions (instead of contiguous departments).[26] On the one hand, cities in contiguous regions are further away from the instrumented city, which supports the assumption of independent demand shocks; on the other hand, this distance may result in less correlated underlying costs.

4.3 Estimation Results

Demand equations for broad categories (4) and goods (5) are estimated using Ordinary Least Squares (OLS) and Two-stage Least Squares (2SLS) instrumenting for price and total expenditure. The OLS results for each survey round (1974 or 2005) for broad categories are presented in Appendix Tables C1 and C2, and the 2SLS results appear in Appendix Tables C3 and C4.

The results are consistent with the literature. The signs of income and price AIDS coefficients inform us about the underlying elasticities (Deaton and Muellbauer, 1980). First, a negative coefficient on log income implies a necessity (income elasticity below 1), while a positive coefficient implies a luxury. Reassuringly, categories typically considered necessities—such as dairy products, fats and grains—have negative income coefficients, whereas alcohol, meats and prepared food have positive ones.

Second, a positive coefficient on log own price indicates inelastic demand. Consequently, when log price increases, budget share rises—i.e., quantity demanded falls less than propor-

[24] The INSEE classifies cities into four sizes strata: (1) village, which is thinly or very thinly populated; (2) city with fewer than 20,000 inhabitants; (3) city with 20,000 to 100,000 inhabitants; and (4) city with more than 100,000 inhabitants.

[25] The business literature documents that at present "the retail industry is still flooded with leaflets," especially with regard to food products (*Libre Service Actualités* website, 17 April 2019).

[26] French regions are higher-level administrative units, each encompassing several departments. There were 22 regions during our study period.

tionally to the price increase. OLS estimates confirm inelastic demand for most broad categories (all own-price coefficients are positive in 2005; two-thirds are positive in 1974, see Appendix Tables C1 and C2). In AIDS estimations, positive own-price coefficients typically reflect downward-sloping demand with elasticities strictly between 0 and –1 (Blanciforti and Green, 1983; Blundell et al., 1993; Lecocq and Robin, 2015).[27] Inelastic food demand at both micro (household surveys) and macro (country aggregates) levels is well documented.[28]

The 2SLS own-price coefficients are also positive and slightly larger than the OLS estimates, and, as expected with an instrumental variable approach, display higher standard errors (see Appendix Tables C3 and C4). Notably, the first-stage F statistics for total expenditure and price instruments in 2005, our critical survey round in terms of price endogeneity, are reasonably strong: above 10 except for fats, and higher than in 1974.

5 Tastes and Geography

From our baseline estimations (AIDS 2SLS), we recover the department fixed effects $\widehat{\theta}$ that represent our taste parameters. Appendix Figures D1 to D9 map the distribution of these parameters for each food category in 1974 and 2005.[29] Using the taste parameters, we construct a bilateral taste difference between each pair of departments i and j in year $t = \{1974, 2005\}$ for each broad category b, $|\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|$. Then, we aggregate taste differences across all categories using the Manhattan distance:

$$\text{Taste Difference}_{ijt} = \sum_b |\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|.$$

[27]Calculating elasticities from AIDS coefficients is not straightforward and requires certain assumptions (see, for instance, Green and Alston, 1990; Hahn, 1994). As a comparison, Lecocq and Robin (2015) estimate an AIDS model on U.S. food data (1987–1988) and compute price elasticities across four categories: meats, fruits and vegetables, grains, and other. Their estimated log own-price coefficient for meat is 0.12, while ours range from 0.02 to 0.10 in 1974 and 2005 (Appendix Tables C1, C2, C3, and C4). For grains, their coefficient is 0.04 (ours: –0.01 to 0.01); for fruits and vegetables, theirs is 0.07 (ours: 0.02–0.06 for fruits and –0.01 to 0.03 for vegetables). In all cases, the implied elasticities are strictly inelastic (elasticities between 0 and -1; see Appendix Figure C1). Reassuringly, our coefficients are of similar or lower magnitude, consistent with downward-sloping demand.

[28]Several meta-analyses confirm the inelastic nature of food demand. Fally and Sayre (2018), focusing on commodities such as coffee, rice, sugar, and tomatoes, report most price elasticities between –0.1 and –0.5, a range also supported by Roberts and Schlenker (2013). Andreyeva et al. (2010) review 160 studies and find price elasticities for foods and nonalcoholic beverages between –0.27 and –0.81. Allais et al. (2010) reports similar results using French household data. Femenia (2019) compiles 3,334 own-price elasticities from 93 studies (1973–2014) and shows that elasticities are slightly higher in absolute value with micro data (–0.7) than macro (–0.47), and with disaggregated data (–0.68) than aggregated (–0.49). AIDS models tend to yield more elastic responses (–0.84) than constant elasticity models (–0.31). Our results, based on household survey data, disaggregated goods, and the AIDS framework, fall squarely within this empirical consensus.

[29]Note that for each year and food category, we always specify the same department as the base level. Taste parameters are therefore interpreted as differences from this base level.

Table 1: Tastes and Geography – Broad Categories

	Dependent Variable: Ln Taste Difference$_{ijt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ln Distance$_{ij}$	0.142^a	0.207^a	0.298^a	0.193^a	0.203^a	0.235^a	0.209^a
	(0.008)	(0.013)	(0.021)	(0.010)	(0.013)	(0.015)	(0.015)
Ln Distance$_{ij}$ x 2005		-0.130^a	-0.208^a	-0.107^a	-0.124^a	-0.165^a	-0.146^a
		(0.016)	(0.023)	(0.013)	(0.016)	(0.017)	(0.017)
Observations	7,832	7,832	7,832	7,832	7,832	7,832	7,832
Adjusted R^2	0.588	0.594	0.822	0.608	0.606	0.600	0.587
Fixed Effects	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt
Estimation of Tastes ($\widehat{\theta}$)	Baseline		Price IV Regional	OLS	Excluding Farmers	Hom.+Sym.	Hom.+Sym. + Quadratic

Notes: OLS estimates. Ln Taste Difference$_{ijt}$ is the log of the Manhattan distance of taste differences $\sum_b |\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|$ for broad category b, departments i and j, and survey year $t = \{1974, 2005\}$. Tastes $\widehat{\theta}$ are from AIDS 2SLS instrumenting for total expenditure and prices (col. 1-3 and 5), AIDS OLS (col. 4); AIDS ILLS instrumenting for total expenditure and prices (col. 6-7). In column 3, we instrument for prices using cities in contiguous regions (instead of departments). In column 5, we exclude farmers. In columns 6 and 7, we impose homogeneity and symmetry. In column 7, we add a quadratic total expenditure term. Distance$_{ij}$ is the geographic distance between departments i and j. All columns include monadic department-by-year fixed effects. 3,916 observations per year = (89 departments $i \times$ 88 departments j)/2. Standard errors clustered by department pairs are reported in parentheses with ^{c} p < 0.10, ^{b} p < 0.05 and ^{a} p < 0.01.

To explore the gravity in tastes, we draw on the gravity trade literature. In Equation (6), we regress the log of the bilateral taste difference on the log of the bilateral geographic distance, which serves as an exogenous proxy for trade and social frictions. In doing so, we assess the influence of geography in a market integration environment with lower trade costs, improved transportation infrastructure, and price convergence.

$$\text{Ln Taste Difference}_{ijt} = \beta \ln \text{Distance}_{ij} + \delta \ln \text{Distance}_{ij} \times 2005 + \chi_{it} + \chi_{jt} + \varepsilon_{ijt}, \quad (6)$$

where Distance$_{ij}$ is the geographic distance between the capitals of departments i and j, computed using the great circle formula. The first coefficient of interest, β, captures the elasticity of taste difference with respect to distance. A positive β provides evidence of gravity in tastes in 1974. The second key coefficient, δ, measures the change in distance elasticity in 2005; a negative δ indicates a decline of the distance elasticity. χ_{it} and χ_{jt} are monadic department-by-year fixed effects that account for any systematic differences across periods and departments (not already captured by our demand estimation); for example, improvements in supply infrastructure and equipment, changes in transport accessibility, openness to trade, health or advertising campaigns, access to global food products, frequency of eating out, or the presence of a foreign border. We cluster standard errors at the department-pair ij level.

Table 1 reports the estimation of Equation (6). Columns 1 and 2 use tastes estimated from the baseline AIDS 2SLS. Column 1, omitting the interaction term ($\ln \text{Distance}_{ij} \times 2005$), confirms the presence of gravity in tastes: A 10% increase in geographic distance is associated with a 1.4% increase in taste difference across both survey years.[30] Column 2 adds the interaction term, revealing a 1974 distance elasticity of 2.1% in 1974, which falls to 0.8% in 2005 (= 2.1 - 1.3, with p<0.01, see Appendix Table E1 for the corresponding 2005 elasticities of each specification).

We employ alternative first-step taste estimations in five robustness specifications of Equation (6). First, column 3 uses taste estimates from AIDS 2SLS with price instruments based on cities in contiguous regions (instead of contiguous departments), as described in Section 4.2. The estimation confirms that the distance elasticity is significantly lower in 2005 than in 1974, despite slightly higher estimates.

Second, if market power in the food retail sector is limited, as argued in Section 4.2, the OLS estimates adequately control for prices without inducing a downward bias in taste. Column 4 presents taste estimates from AIDS OLS. Comparing column 4 to columns 2 and 3 shows no evidence of downward bias. Overall, the distance elasticities and the interactions are statistically significant and remarkably similar across regressions.

Third, France experienced a significant decline in the proportion of farmers—from 9.6% in 1974 in our data to 2.4% in 2005. If consumer surveys underreport own consumption and farmers develop a strong taste for their own products, the estimated 1974 distance effect may be downward biased. Specifically, if farmers producing a local product—such as olive oil—consume additional, unreported quantities, the estimated taste for that product is biased downward. Column 5 presents the taste estimates using the baseline AIDS 2SLS, excluding farmer households from the estimation. The estimates are similar to column 2, suggesting that either own consumption is well recorded, or that it does not affect bilateral taste differences in our specification.

The fourth and fifth robustness specifications rely on taste estimates from AIDS demand systems that impose homogeneity and symmetry restrictions (column 6) and add total expenditure flexibility through a quadratic term (column 7). While these restrictions ensure internal consistency with the underlying consumer theory and reduce the dimensionality of the param-

[30] For comparison, differences in geography also have a significant effect on differences in trust, which is another aspect of a society's culture. A 10% increase in geographic distance between two countries is associated with a 1% increase in their trust difference (Guiso et al., 2009).

Table 2: Tastes, Distance and Bilateral Integration Factors

	Dependent Variable: Ln Taste Difference$_{ijt}$				
	(1)	(2)	(3)	(4)	(5)
Ln Distance$_{ij}$				0.198^a	0.168^a
				(0.015)	(0.018)
Ln Distance$_{ij}$ x 2005				-0.132^a	-0.158^a
				(0.019)	(0.020)
Reference: $<$ 244 km					
244 to 380 km	0.095^a	0.151^a	0.039^a		
	(0.012)	(0.018)	(0.013)		
380 to 525 km	0.141^a	0.205^a	0.077^a		
	(0.012)	(0.018)	(0.013)		
above 525 km	0.220^a	0.349^a	0.092^a		
	(0.014)	(0.021)	(0.015)		
Observations	7,832	3,916	3,916	7,832	7,832
Adjusted R^2	0.582	0.440	0.609	0.594	0.604
Fixed Effects	it, jt	i, j	i, j	it, jt	it, jt
Specifications:	All	1974 Only	2005 Only	Controls Contiguity	Controls Integration

Notes: OLS estimates. Ln Taste Difference$_{ijt}$ is the log of the Manhattan distance of taste differences $\sum_b |\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|$ for broad category b, departments i and j, and survey year $t = \{1974, 2005\}$. In all columns, tastes $\widehat{\theta}$ are from AIDS 2SLS estimations instrumenting for total expenditure and prices. Distance$_{ij}$ is the geographic distance between departments i and j. Columns 1–3 use step distance indicators based on quartiles of geographic distance. Column 4 includes a dummy for contiguous departments and its interaction with 2005. Column 5 includes four bilateral integration factors detailed in Appendix F: similarity in variety availability, similarity in supermarket chain distribution, domestic migration and exposure to common regional newspapers. Columns 1 and 4–5 include monadic department-by-year fixed effects. Columns 2–3 include monadic department fixed effects. 3,916 observations per year = (89 departments $i \times$ 88 departments j)/2. Standard errors clustered by department pairs are reported in parentheses with ^{c} p < 0.10, ^{b} p < 0.05 and ^{a} p < 0.01.

eter space, they also limit flexibility (Nevo, 2011). For instance, the symmetry condition–which requires that the cross-price elasticity of one good with respect to another equals the reverse–may overlook heterogeneity in consumer responses and potentially affect the identification of tastes. In our case, both sets of robustness estimates closely align with the baseline results in column 2.

Additionally, we test the robustness of our results using alternative measures of taste differences and regression specifications. First, we estimate Equation (6) with the absolute difference at the broad category-level $|\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|$ as the dependent variable instead of the Manhattan distance, thereby testing whether equal weighting across categories affects our findings. This disaggregated specification includes department-by-year-by-broad-category fixed effects (see Appendix Table E2, columns 1–2). Second, we introduce department-pair (ij) fixed effects, absorbing the baseline distance effect and estimating only its interaction with 2005 (see Appendix Table E2, column 3). Third, we replicate the baseline estimates of Table 1, columns

1–2, by bootstrapping standard errors clustered at the department-pair level (see Appendix Table E2, columns 4–5). Fourth, we recompute taste differences using Euclidean instead of Manhattan distance (see Appendix Table E3). Results across all specifications remain in line with Table 1.

Is the geographic effect nonlinear? We check this hypothesis by measuring distance using a step function rather than logs. We divide the distance into quartile groups (from below 244 kilometers to above 525 kilometers) and construct three dummies, while the reference category is the first distance quartile (below 244 kilometers). In Table 2, column 1 shows the pooled results for both years, and columns 2 and 3 report the estimates for each year separately. We find that gravity in tastes is nonlinear, with stronger effects at greater geographic distances between departments. Distance estimates are two to four times smaller in 2005 than in 1974, with a faster decline for remote departments than for nearby departments over the period. In column 4, we add a dummy for two departments being contiguous, and an interaction with 2005. Contiguity barely affects the distance effect and its decrease.[31]

Our two-step approach ensures that many confounding factors are controlled for in the first step (Equations 4 and 5) or absorbed by the fixed effects in the second step (Equation 6). Nonetheless, we acknowledge that residual bilateral geographic integration patterns may influence consumption differences. In particular, a change in the supply-side environment could reshape bilateral consumption patterns. For example, if a department in Provence (southern France) increases olive oil shipments to a department in Brittany (northwestern France), a region traditionally devoted to butter, the extra availability of olive oil could change Brittany tastes and narrow the taste gap between these departments. Similarly, migration flows between two departments could affect bilateral taste differences, either through social interactions or a composition effect.[32] Finally, regional media exposure and the spread of information across contiguous departments could also influence consumption. We construct four proxies to capture such bilateral integration effects: bilateral availability of varieties, similarity in supermarket chain distribution, domestic migration between department pairs, and bilateral exposure to regional newspapers. Appendix Section F describes the construction of each bilateral integration factor with summary statistics for both years in Appendix Table F1.

[31] Both contiguity coefficients are not statistically significant (see Appendix Table E4, column 1).

[32] For example, if people from one region migrate to another, the receiving region's consumption patterns may shift mechanically to mirror the preferences of the incoming population, independent of any social or cultural exchange between locals and migrants.

Table 3: Summarized Statistics of Bilateral Taste Differences

	Broad Category Taste Difference $\lvert\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}\rvert$					
	Means			Standard Deviations		
	1974 (1)	2005 (2)	*Difference* (3) = (2) - (1)	1974 (4)	2005 (5)	*Ratio* (6) = (5)/(4)
Alcohol	0.027	0.047	0.020^a	0.021	0.045	2.143^a
Dairy	0.021	0.019	-0.002^a	0.016	0.017	1.063^b
Drinks	0.014	0.014	0.000^b	0.011	0.010	0.909^b
Fats	0.166	0.061	-0.105^a	0.124	0.046	0.371^a
Fruits	0.030	0.031	0.001^b	0.022	0.024	1.091^a
Grains	0.028	0.015	-0.013^a	0.022	0.013	0.591^a
Meats	0.047	0.033	-0.014^a	0.034	0.029	0.853^a
Prepared	0.019	0.025	0.006^a	0.014	0.022	1.571^a
Vegetables	0.031	0.025	-0.006^a	0.024	0.019	0.792^a

Notes: Broad Category Taste Difference $\lvert\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}\rvert$ is the bilateral taste difference for departments i and j, broad category b and survey year $t = 1974, 2005$. Tastes $\widehat{\theta}$ are from AIDS 2SLS estimations instrumenting for total expenditure and prices. *Difference* is the difference between the 2005 and 1974 means using a two-sample t test. *Ratio* is the ratio of the 2005 standard deviation to the 1974 standard deviation using a two-sample variance-comparison F test. ^{c} $p < 0.10$, ^{b} $p < 0.05$, ^{a} $p < 0.01$.

Column 5 of Table 2 controls for all four bilateral integration factors, without affecting our main results. We still estimate a stronger distance elasticity in 1974 than in 2005. In fact, once bilateral integration factors are included, distance has almost no effect on taste differences in 2005. In Appendix Table E4, columns 2-6 display the estimates when the integration factors are introduced both jointly and separately. Several results are worth highlighting. First, the effect of bilateral differences in varieties on taste differences is weaker in 2005 than in 1974. Second, bilateral supermarket chain difference have no significant impact in 1974 but a positive impact in 2005. This result suggests that supermarket chains, as the main location for grocery shopping in 2005, could sort products in stores according to local preferences, a phenomenon documented in the US by Handbury (2021). Finally, domestic migration and media exposure are not significantly related to taste differences.

The gravity in tastes also weakens at the more disaggregated *good* level. We estimate a similar equation to Equation (6) for each of the nine broad categories. The dependent variable Taste Difference$_{ijt,b}$ is constructed as a Manhattan distance at the broad category b level using good-specific taste parameters $\widehat{\theta}_{dt,g}$. Appendix Table E6 reports the 1974 elasticity of distance and its interaction with 2005 for each broad category.[33] First, we observe that distance positively affects taste differences across departments for all categories. Second, the distance elas-

[33] Appendix Table E7 reproduces the good-level results with bootstrap standard errors. Appendix Table E8 shows similar results with the good-level taste estimates from the AIDS OLS regressions.

ticity is significantly lower in 2005 than in 1974 for each category except grains and prepared food. Some of these categories contain goods more susceptible to change over time than others. For instance, prepared food underwent a dramatic change between 1974 and 2005, while fresh fruits and vegetables are arguably more stable. Even in these more stable categories, the decline in gravity remains pronounced.

Although tastes are less geographically dispersed in 2005 than in 1974, this result alone does not imply taste homogenization. Table 3 shows that overall taste diversity in France is not lower in 2005 than in 1974: there is no systematic decrease in the means and standard deviations of taste differences across categories. The means and standard deviations of bilateral taste differences decreased between 1974 and 2005 only for five out of nine categories, and substantially so only for fats.[34] The visual comparison of the 1974 and 2005 taste estimates, $\widehat{\theta}$, depicted in Appendix Figures D1 to D9 confirms that taste variance has not diminished. Tastes appear less geographically distributed in 2005 and form a patchwork. The scale variation between the two years indicates that taste variance is not smaller in 2005 than in 1974. The good-level taste differences likewise show no consistent evidence of homogenization (Appendix Table E9).

6 Tastes and the Sociocultural Divide

Although gravity in tastes weakened significantly between 1974 and 2005, regional taste diversity persists. Such persistence in a market-integrated context echoes economic studies that document enduring or even widening cultural differences in recent decades (Alesina et al., 2017; Bertrand and Kamenica, 2023; Desmet and Wacziarg, 2021). A growing divide in tastes and lifestyles is also noted in sociology and political science.[35] The divide is linked to sociocultural characteristics such as education, occupation, and national origin (see, for example, De Vries et al., 2013; Norris and Inglehart, 2019; Gidron et al., 2020).

Building on this literature, we introduce three bilateral measures to capture sociocultural similarity between departments: differences in education, nationality composition, and first-

[34] The lack of a systematic decline in bilateral taste differences was already apparent in the raw consumption patterns (Appendix Table B1), and remains true using taste estimates from AIDS OLS (Appendix Table E5).

[35] DellaPosta et al. (2015) document "clustering across seemingly eclectic lifestyle dimensions, ranging from hot-beverage choices to musical tastes." Fischer and Mattson (2009) report that lifestyles in the US have diversified during the same period as our study: "the number of new, discrete, and separated social worlds increased between 1970 and 2005."

name choices (see Appendix G for a description of the underlying data and construction of the variables). Educational differences may shape taste variation through influence on social status and lifestyle. Education also serves as a proxy for permanent income (Bertrand and Kamenica, 2023), which helps explain systematic differences in food choices.[36] Likewise, as citizens of the same country tend to share a common culture (Fernández, 2011), departments with similar nationality compositions may also exhibit more similar food tastes. Finally, first-name choices reflect cultural identity and may reinforce the observed patterns in taste variation. Compared to other cultural behaviors—such as food consumption, religious practice, clothing, or values—first names are widely available, standardized, and less prone to sample selection or measurement error. In France, all births are registered by the civil registry with a legally approved name, ensuring accuracy and consistency across socioeconomic groups. Importantly, first names are equally accessible to all parents, regardless of income or education. These features make first names a compelling measure of cultural variation (Fryer and Levitt, 2004; Head and Mayer, 2008; Bertrand and Kamenica, 2023).

We examine the relationship between taste difference and the three sociocultural factors by incorporating them into Equation (6). All specifications confirm the declining influence of geographic distance on tastes. In addition, Table 4 shows that the correlation between each sociocultural difference and taste difference increases significantly between 1974 and 2005 (columns 1–3). This result holds when all three variables are included jointly (column 4) and when department-pair fixed effects are added (column 5). Notably, in 1974, differences in education and first names show little or no association with taste difference. In 2005, their influence becomes significant across most specifications (except for first names in column 4). These results suggest a shift in the underlying structure of taste differences: while geography mattered more in the past, sociocultural similarity has become more important in recent decades. Sociocultural factors have emerged as a distinct and increasingly salient dimension of taste variation.

As a robustness check, we examine the relationship between tastes and sociocultural similarity without controlling for geographic distance—despite their likely correlation. Appendix Table G4 replicates Table 4 excluding distance. The associations for education and nationality differences remain robust, whereas first-name differences follow a pattern akin to geographic distance: strongly positive and significant in 1974, but weaker in 2005.

[36]For instance, Roos et al. (1996) find that people with higher education levels tend to prefer what they call "modern healthy foods," such as fruits, vegetables, and berries, and consume less of "traditional foods" like potatoes and bread.

Table 4: Tastes and Sociocultural Divide

	Dependent Variable: Ln Taste Difference$_{ijt}$				
	(1)	(2)	(3)	(4)	(5)
Ln Distance$_{ij}$	0.205[a]	0.183[a]	0.187[a]	0.181[a]	0.000
	(0.013)	(0.013)	(0.015)	(0.015)	(.)
Ln Distance$_{ij}$ x 2005	-0.154[a]	-0.152[a]	-0.156[a]	-0.158[a]	-0.172[a]
	(0.015)	(0.015)	(0.017)	(0.016)	(0.017)
Ln Education Difference$_{ijt}$	0.101			-0.148	-0.022
	(0.104)			(0.118)	(0.177)
Ln Education Difference$_{ijt}$ $\times$ 2005	1.115[a]			0.895[a]	0.851[a]
	(0.130)			(0.149)	(0.166)
Ln Nationality Difference$_{ijt}$		0.718[a]		0.744[a]	0.489[b]
		(0.106)		(0.118)	(0.235)
Ln Nationality Difference$_{ijt}$ $\times$ 2005		0.980[a]		0.397[b]	0.363[b]
		(0.140)		(0.157)	(0.175)
Ln First Names Difference$_{ijt}$			0.293[b]	0.065	0.026
			(0.135)	(0.153)	(0.237)
Ln First Names Difference$_{ijt}$ $\times$ 2005			0.621[a]	0.082	0.331[c]
			(0.144)	(0.176)	(0.191)
Observations	7,832	7,832	7,832	7,832	7,832
Adjusted R^2	0.607	0.611	0.604	0.616	0.626
Fixed Effects	it, jt	it, jt	it, jt	it, jt	it, jt, ij

Notes: OLS estimates. Ln Taste Difference$_{ijt}$ is the log of the Manhattan distance of taste differences $\sum_b |\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|$ for broad category b, departments i and j, and survey year $t = \{1974, 2005\}$. In all columns, tastes $\widehat{\theta}$ are from AIDS 2SLS estimations instrumenting for total expenditure and prices. Column 1 includes Ln Education Difference$_{ijt}$, log of the Manhattan distance in education composition. Column 2 includes Ln Nationality Difference$_{ijt}$, log of the Manhattan distance in nationality composition. Column 3 includes Ln First Names Difference$_{ijt}$, log of the Manhattan distance in name types. Column 4 includes the three sociocultural factors, detailed in Appendix Section G. Column 5 includes dyadic department-by-department fixed effects. All columns include monadic department-by-year fixed effects. Distance$_{ij}$ is the geographic distance between departments i and j. 3,916 observations per year = (89 departments i $\times$ 88 departments j)/2. Standard errors clustered by department pairs are reported in parentheses with [c] $p < 0.10$, [b] $p < 0.05$ and [a] $p < 0.01$.

Is the growing correlation between sociocultural similarity and tastes driven by greater differences in sociocultural traits across departments, or do these traits play a more salient role in shaping taste? Danieli et al. (2022) find that the increasing salience of cultural factors is more relevant to explain far-right voting in Europe than a greater difference in these factors. We find similar evidence in our setting. Appendix Table G1 shows that the mean difference in education and nationality between pairs of departments has changed little over the thirty-year period, with only a modest increase in their standard deviations. Average differences in first names have grown more substantially. The correlations among sociocultural similarity variables are always positive, but higher in 2005 than in 1974 (see Appendix Tables G2 and G3). Together, these patterns suggest a rising salience of sociocultural traits in explaining taste differences, rather than a simple increase in the magnitude of sociocultural differences.

7 Conclusion

This paper studies how tastes relate to geography over time in a context of market integration. We propose a two-step method. First, we estimate location-specific tastes using a flexible demand system that accounts for price and income effects. Second, we use the taste estimates to construct bilateral taste differences between locations and explore the gravity in tastes between 1974 and 2005.

We document, first, that there is evidence of gravity in tastes in 1974–that is, geographically closer regions exhibit more similar tastes. Second, this geographic pattern weakens substantially by 2005, and the decline is robust across alternative specifications. Third, despite this decline, we find no evidence of taste homogenization. Rather, tastes remain diverse but have become distributed in a patchwork.

We further explore whether this patchwork aligns with sociocultural similarities across regions. We find that differences in education, national origin and first names are more strongly correlated with taste difference in 2005 than in 1974. Overall, our findings suggest that fears of cultural homogenization due to market integration may be overstated–at least in the domain of food consumption. However, the findings suggest that taste variation is increasingly structured by sociocultural similarity rather than geography, echoing recent debates on a growing cultural divide.

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Appendices

A Additional Descriptive Statistics

Table A1: Broad Categories of Food and Goods in BDF Surveys

Broad Categories	Goods
Alcohol	Aperitif, beer, champagne, cider, wine.
Dairy	Cheese, cream, milk, and yogurt.
Drinks	Coffee, hot beverages (chocolate, tea), water, cold beverages (sodas, juices).
Fats	Butter, animal fat (lard), vegetable fat (margarine), vegetable oil, and olive oil.
Fruits[1]	Citrus, dry fruit, exotic fruit, other fruit, seasonal fruit.
Grains	Breads, pasta, rice, other cereals (flour, couscous).
Meats[1]	Beef, delicatessen (bacon, ham, sausages), eggs, fish, mutton, pork, poultry, seafood, and other meat (lamb, veal, poultry).
Prepared[2]	Biscuit, condiment, baby food, pastry, prepared meat, prepared vegetable, sweeteners (sugar, syrup, honey, and artificial sweeteners).
Vegetables[1]	Tuber, vegetable fruit, vegetable leaf, vegetable root, and other vegetable.

Notes: BDF stands for *Budget des Familles*, the French consumer survey. [1] Include fresh, canned or frozen food. [2] Prepared foods include all commercially prepared food items, whether sweet, savory, frozen, canned or deli.

Table A2: Expenditure by Broad Category in 2005

Consumer Survey (BDF) vs. Barcode Data

	Expenditure ($ per quarter)		Expenditure shares (%)	
	(1)	(2)	(3)	(4)
Category	BDF	Barcode	BDF	Barcode
Dairy	82.75	74.90	14.4	16.7
Drinks	33.91	26.81	5.9	5.9
Fats	12.40	15.14	2.2	3.3
Fruits	40.65	29.65	7.1	6.6
Grains	44.90	25.33	7.8	6.0
Meats	180.22	147.53	31.5	31.0
Prepared	122.50	96.35	21.4	21.2
Sweeteners	1.51	5.85	0.3	1.4
Vegetables	54.17	44.22	9.5	9.7

Notes: The table compares moments of the 2005 French consumer survey with French barcode data used by Dubois et al. (2014). Columns (1) and (3) report statistics from the *Budget des Familles* (BDF). Columns (2) and (4) report statistics from barcode data (Table 3 of Dubois et al., 2014). The mean is computed across households and quarters and is per person per quarter using an adult equivalent caloric needs scale, conditional on strictly positive expenditure in that category in that quarter. Expenditure is in US$ using the same exchange rate of €1 = $1.25. The nine food categories in our analysis depart slightly from Dubois et al. (2014) to better fit our data structure and classification: Alcohol forms a separate category, and sweeteners, which represent a small share of household expenditures, are merged with the Prepared category.

Table A3: Mean and Median Prices by Broad Category in 2005

Consumer Survey (BDF) vs. Barcode Data

	BDF		Barcode
Category	(1) Median	(2) Mean	(3) Mean
Dairy	4.65	6.12	3.26
Drinks	1.12	4.87	0.89
Fats	5.40	5.49	5.19
Fruits	2.23	2.83	2.09
Grains	3.50	3.63	3.89
Meats	11.10	12.21	10.33
Prepared	6.36	7.94	6.04
Sweeteners	2.43	2.73	2.79
Vegetables	2.95	4.57	2.53

Notes: The table compares moments of the 2005 French consumer survey with French barcode data used by Dubois et al. (2014). Columns (1) and (2) report statistics from the *Budget des Familles* (BDF). Columns (3) reports statistics from barcode data (Table 5 of Dubois et al., 2014). Units are US$ per 1 kilogram using the same exchange rate of €1 = $1.25. The nine food categories in our analysis depart slightly from Dubois et al. (2014) to better fit our data structure and classification: Alcohol forms a separate category, and sweeteners, which represent a small share of household expenditures, are merged with the Prepared category.

B Stylized Facts on Consumption and Prices, 1974-2005

Table B1: Summarized Statistics of Bilateral Consumption Differences

	Consumption Difference$_{ijt,b}$					
	Means			Standard Deviations		
	1974	2005	*Difference*	1974	2005	*Ratio*
	(1)	(2)	(3) = (2) - (1)	(4)	(5)	(6) = (5)/(4)
Alcohol	0.142	0.165	0.023[a]	0.110	0.129	1.173[a]
Dairy	0.192	0.171	-0.021[a]	0.154	0.151	0.981
Drinks	0.100	0.095	-0.005[a]	0.078	0.068	0.872[a]
Fats	0.138	0.069	-0.069[a]	0.120	0.069	0.575[a]
Fruits	0.136	0.137	0.001	0.105	0.109	1.038[a]
Grains	0.126	0.133	0.007[a]	0.096	0.111	1.156[a]
Meats	0.250	0.246	-0.004	0.186	0.223	1.199[a]
Prepared	0.144	0.233	0.088[a]	0.108	0.201	1.861[a]
Vegetables	0.183	0.155	-0.027[a]	0.139	0.115	0.827[a]

Notes: Consumption Difference$_{ijt,b} = |s_{it,b} - s_{jt,b}|$ is the bilateral consumption difference in shares for departments i and j, broad categories b and survey year $t = 1974, 2005$. *Difference* is the difference between the 2005 and 1974 means using a two-sample t test. *Ratio* is the ratio of the 2005 standard deviation to the 1974 standard deviation using a two-sample variance-comparison F test. ^{c} p < 0.10, ^{b} p < 0.05, ^{a} p < 0.01.

Table B2: Shares of Consumption across Types of Stores

	Supermarkets	Grocery Stores	Small Shops
1974	0.26	0.33	0.41
2005	0.80	0.04	0.16

Notes: The three different types of stores follow the national INSEE classification and definitions. Supermarket: establishment for self-service retail sales with more than two thirds of its turnover in foodstuffs, and a sales area of between 400 and 2,500 m^2 (4,300 and 27,000 square feet). Grocery (store): self-service retail establishment deriving more than one-third of its sales from food and having a sales floor area of less than 400 m^2. Small shops: small retail food establishment, such as a bakery, butcher shop or fishery.

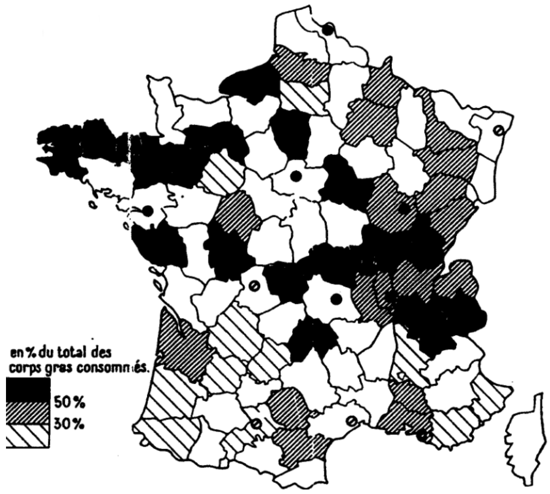
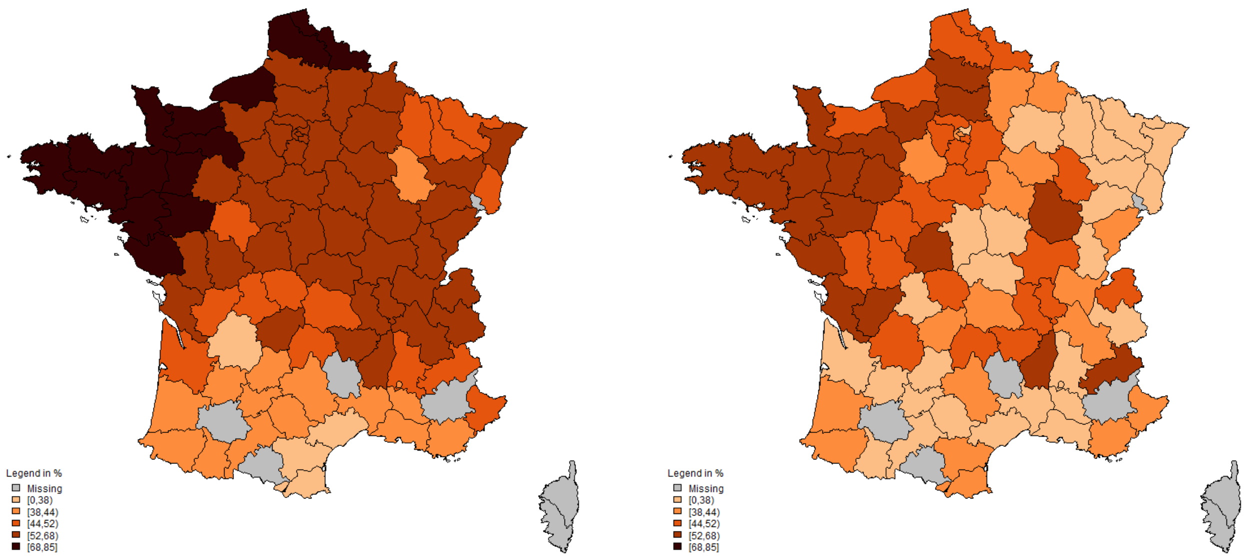


Figure B1: Butter Share of Total Fat Consumed, 1952 (Source: Braudel et al., 1961)

Notes: The legend highlights department differences in share spent on butter over total fat consumption. Dashed departments spend on average between 0 and 30% on butter, shaded departments between 30 and 50%, and departments in black above 50%. Departments in white have no data recorded.



(a) 1974

(b) 2005

Figure B2: Butter Share of Total Fat Consumed, BDF Consumer Surveys 1974 and 2005

Notes: The maps show the percentage of butter in total fat consumption for each department in the BDF consumer surveys 1974 and 2005. Both maps use a common legend, with the maximum being 85.0% in 1974 and 67.9% in 2005. Missing departments are shaded in gray: Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère.

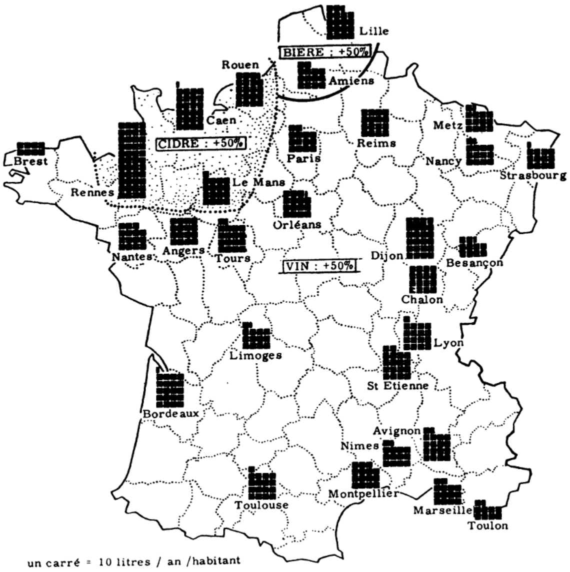
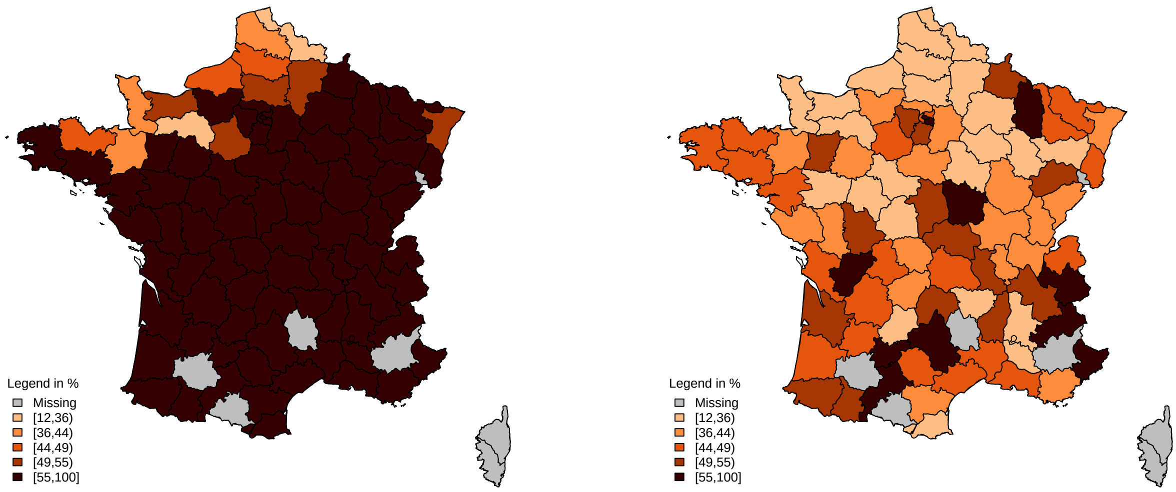


Figure B3: Alcohol Consumption for Selected French Cities in 1850 (Source: Braudel et al., 1961)

Notes: The legend highlights regional differences in alcohol consumption by type: the northwest predominantly consumes *cider* (+50%), the north *beer* (+50%), and the rest of France *wine* (+50%). Each square represents 10 liters of yearly per-person alcohol consumption in a specific city. For instance, Toulon, in the southeast, reported a consumption of 100 liters per person in 1850, represented by 10 squares.



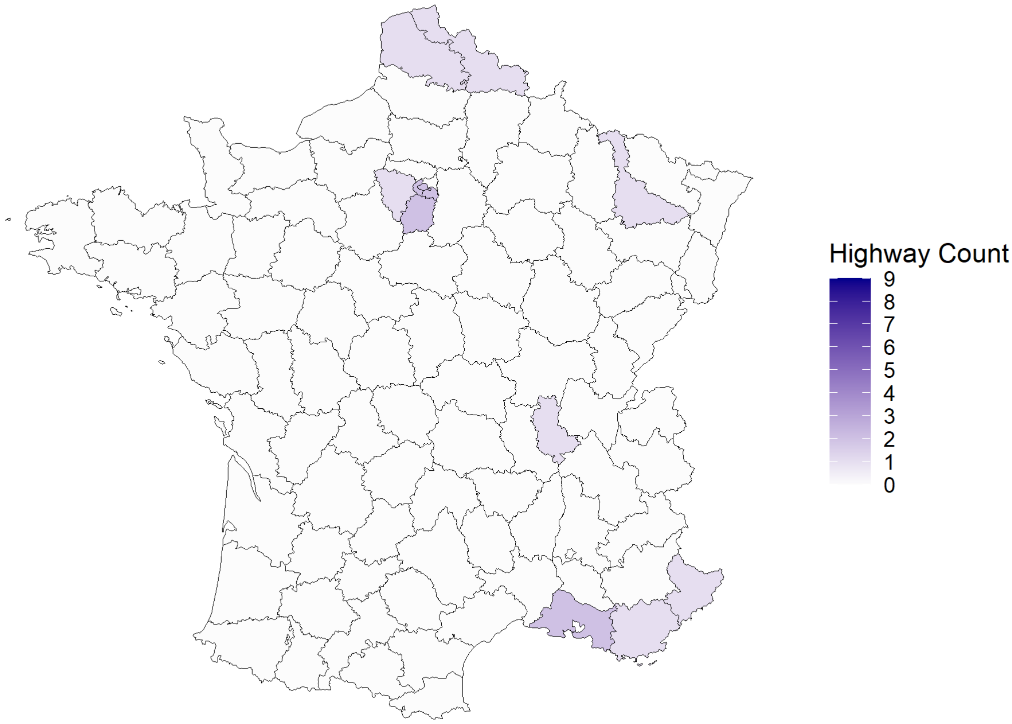
(a) 1974

(b) 2005

Figure B4: Wine Share of Total Alcohol Consumed, BDF Consumer Surveys 1974 and 2005

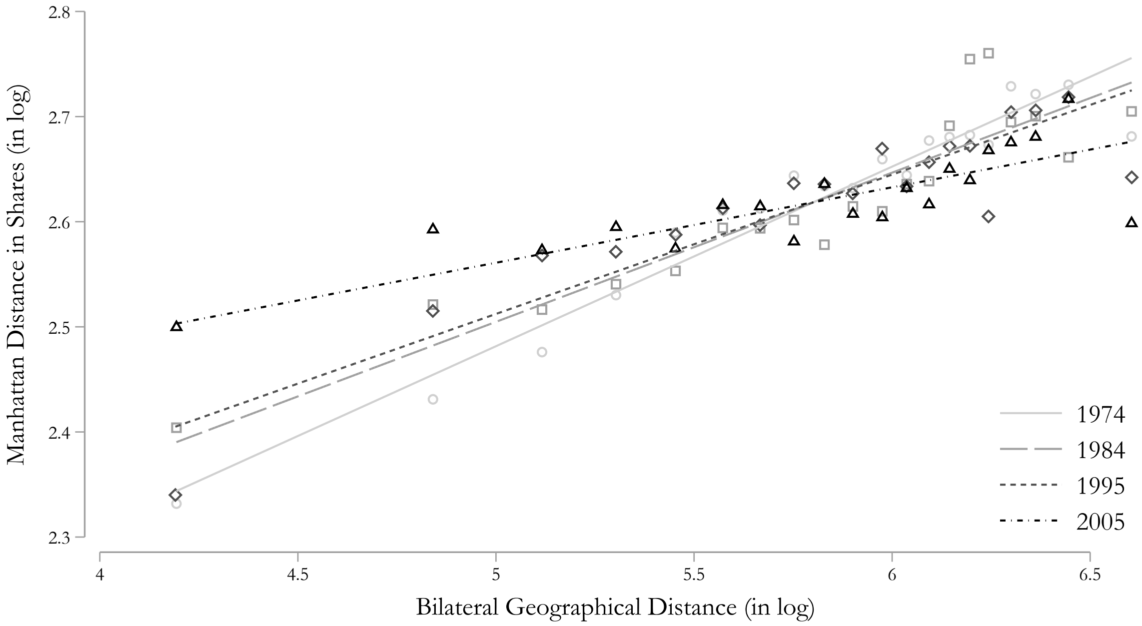
Notes: The maps show the percentage of wine in total alcohol consumption for each department in the BDF consumer surveys 1974 and 2005. Both maps use a common legend, with the maximum being 100% in 1974 and 2005. Missing departments are shaded in gray: Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère.

Figure B5: Number of Highways per Department in France in 1960



Notes: Number of highways per department in service in 1960 based on the list of highways in France.

Figure B6: Consumption Shares and Geographic Distance by Decade



Notes: Binned scatterplot of log bilateral Manhattan distance in consumption shares on log bilateral geographic distance between each department pair by survey round. The linear regression line is shown by survey round.

C AIDS Estimation Results

Table C1: OLS AIDS Estimation for Broad Categories, 1974

	Dependent Variable: Budget Share								
	(1) Alcohol	(2) Dairy	(3) Drinks	(4) Fats	(5) Fruits	(6) Grains	(7) Meats	(8) Prepared	(9) Vegetables
Ln Total Food Expenditure	0.0197^a	-0.0253^a	0.0028^c	-0.0022	-0.0035^c	-0.0319^a	0.0315^a	0.0038^c	0.0052^a
	(0.0019)	(0.0014)	(0.0014)	(0.0014)	(0.0018)	(0.0017)	(0.0031)	(0.0020)	(0.0019)
Ln Price Alcohol	**0.0215**^{c}	-0.0039	-0.0064	-0.0179^b	0.0120	-0.0030	0.0138	0.0028	-0.0189^b
	(0.0117)	(0.0088)	(0.0059)	(0.0075)	(0.0087)	(0.0050)	(0.0172)	(0.0098)	(0.0082)
Ln Price Dairy	0.0004	**-0.0002**	-0.0076	-0.0053	0.0003	-0.0090^b	0.0138	0.0083	-0.0008
	(0.0065)	**(0.0061)**	(0.0052)	(0.0044)	(0.0053)	(0.0045)	(0.0112)	(0.0065)	(0.0067)
Ln Price Drinks	-0.0162^b	0.0059	**0.0211**^{a}	0.0057	0.0035	0.0001	-0.0145	-0.0031	-0.0026
	(0.0076)	(0.0073)	**(0.0045)**	(0.0074)	(0.0067)	(0.0042)	(0.0151)	(0.0081)	(0.0079)
Ln Price Fats	-0.0047	0.0140	-0.0079	**0.0421**^{a}	-0.0201^b	0.0184^b	-0.0173	-0.0031	-0.0213^c
	(0.0124)	(0.0116)	(0.0074)	**(0.0084)**	(0.0092)	(0.0080)	(0.0192)	(0.0117)	(0.0115)
Ln Price Fruits	-0.0008	-0.0013	0.0043	-0.0024	**0.0287**^{a}	-0.0062^b	-0.0489^a	-0.0023	0.0288^a
	(0.0050)	(0.0051)	(0.0040)	(0.0053)	**(0.0045)**	(0.0029)	(0.0094)	(0.0052)	(0.0062)
Ln Price Grains	-0.0152^c	-0.0045	0.0082	-0.0101	0.0289^a	**-0.0131**^{b}	0.0195	0.0126	-0.0262^a
	(0.0088)	(0.0087)	(0.0080)	(0.0085)	(0.0073)	**(0.0063)**	(0.0168)	(0.0108)	(0.0096)
Ln Price Meats	-0.0164	-0.0098	-0.0048	-0.0365^a	0.0259^a	-0.0477^a	**0.0740**^{a}	0.0206	-0.0051
	(0.0150)	(0.0118)	(0.0132)	(0.0115)	(0.0078)	(0.0072)	**(0.0220)**	(0.0127)	(0.0110)
Ln Price Prepared	0.0029	-0.0026	-0.0005	-0.0027	0.0002	-0.0059^a	0.0004	**0.0065**^{c}	0.0018
	(0.0028)	(0.0028)	(0.0020)	(0.0034)	(0.0035)	(0.0021)	(0.0047)	**(0.0034)**	(0.0027)
Ln Price Vegetables	0.0053^a	-0.0022	0.0002	0.0001	-0.0059^a	-0.0043^a	0.0078^a	0.0017	**-0.0026**
	(0.0017)	(0.0013)	(0.0007)	(0.0014)	(0.0012)	(0.0009)	(0.0027)	(0.0016)	**(0.0016)**
Observations	13,623	13,623	13,623	13,623	13623	13,623	13,623	13,623	13,623
Adjusted R^2	0.093	0.129	0.083	0.103	0.092	0.246	0.087	0.063	0.069
Household Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE Departement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Each column is an AIDS OLS estimation of the demand for one broad category in the 1974 household survey (Equation 4). The dependent variable is the budget share $s_{ht,b}$ that household h spends on broad category b in survey year $t = 1974$. Ln Total Food Expenditure is the log of total food expenditure divided by a city-level Stone price index. Ln Price by broad category is the city-level median price index computed using the goods g within broad category b. All regressions include a vector of household characteristics (fraction of people by age and gender, occupation, log of number of people, fraction of purchase in different types of store), as well as a department-specific fixed effect which provides our measure of taste. Standard errors clustered by city are in parentheses with ^{c} $p < 0.10$, ^{b} $p < 0.05$, ^{a} $p < 0.01$.

Table C2: OLS AIDS Estimation for Broad Categories, 2005

	Dependent Variable: Budget Share								
	(1) Alcohol	(2) Dairy	(3) Drinks	(4) Fats	(5) Fruits	(6) Grains	(7) Meats	(8) Prepared	(9) Vegetables
Ln Total Food Expenditure	0.0135^{a}	-0.0103^{a}	-0.0049^{a}	-0.0025^{a}	-0.0024	-0.0403^{a}	0.0428^{a}	0.0021	0.0018
	(0.0019)	(0.0014)	(0.0015)	(0.0008)	(0.0016)	(0.0020)	(0.0031)	(0.0026)	(0.0017)
Ln Price Alcohol	**0.0226**^{a}	0.0008	0.0063	-0.0020	-0.0049	-0.0072	-0.0236^{b}	0.0041	0.0039
	(0.0068)	(0.0055)	(0.0041)	(0.0017)	(0.0042)	(0.0047)	(0.0103)	(0.0090)	(0.0051)
Ln Price Dairy	0.0006	**0.0026**	-0.0053^{b}	-0.0020	-0.0088^{a}	-0.0059^{c}	0.0133^{b}	0.0184^{a}	-0.0129^{a}
	(0.0042)	**(0.0033)**	(0.0026)	(0.0014)	(0.0029)	(0.0030)	(0.0054)	(0.0058)	(0.0029)
Ln Price Drinks	-0.0085	0.0014	**0.0155**^{a}	0.0026^{b}	0.0059^{c}	-0.0044	-0.0077	-0.0089	0.0041
	(0.0056)	(0.0041)	**(0.0033)**	(0.0013)	(0.0033)	(0.0027)	(0.0060)	(0.0056)	(0.0032)
Ln Price Fats	-0.0112	0.0114^{c}	0.0138^{a}	**0.0116**^{a}	-0.0109^{c}	0.0061	-0.0220^{b}	0.0085	-0.0073
	(0.0110)	(0.0058)	(0.0050)	**(0.0024)**	(0.0062)	(0.0047)	(0.0104)	(0.0103)	(0.0067)
Ln Price Fruits	0.0043	-0.0054	-0.0044	0.0013	**0.0223**^{a}	-0.0062^{c}	-0.0044	-0.0137^{c}	0.0061^{c}
	(0.0064)	(0.0042)	(0.0038)	(0.0015)	**(0.0037)**	(0.0037)	(0.0088)	(0.0072)	(0.0035)
Ln Price Grains	0.0181	-0.0089	-0.0012	-0.0044^{b}	-0.0036	**0.0129**^{a}	-0.0090	0.0047	-0.0085
	(0.0171)	(0.0069)	(0.0041)	(0.0018)	(0.0061)	**(0.0047)**	(0.0082)	(0.0120)	(0.0056)
Ln Price Meats	-0.0004	0.0062	-0.0040	-0.0035^{c}	-0.0031	-0.0181^{a}	**0.0242**^{b}	0.0100	-0.0113^{b}
	(0.0058)	(0.0058)	(0.0048)	(0.0019)	(0.0052)	(0.0043)	**(0.0101)**	(0.0089)	(0.0043)
Ln Price Prepared	-0.0142^{a}	-0.0035	-0.0090^{a}	-0.0022	0.0064^{c}	-0.0202^{a}	0.0110	**0.0283**^{a}	0.0033
	(0.0053)	(0.0048)	(0.0033)	(0.0014)	(0.0033)	(0.0039)	(0.0078)	**(0.0064)**	(0.0038)
Ln Price Vegetables	0.0073	-0.0055	-0.0002	-0.0015	0.0042	-0.0073^{b}	0.0072	-0.0143^{b}	**0.0099**^{a}
	(0.0046)	(0.0042)	(0.0023)	(0.0017)	(0.0027)	(0.0035)	(0.0071)	(0.0060)	**(0.0034)**
Observations	9,693	9,693	9,693	9,693	9,693	9,693	9,693	9,693	9,693
Adjusted R^2	0.074	0.070	0.044	0.068	0.116	0.220	0.104	0.152	0.085
Household Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE Departement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Each column is an AIDS OLS estimation of the demand for one broad category in the 2005 household survey (Equation 4). The dependent variable is the budget share $s_{ht,b}$ that household h spends on broad category b in survey year $t = 2005$. Ln Total Food Expenditure is the log of total food expenditure divided by a city-level Stone price index. Ln Price by broad category is the city-level median price index computed using the goods g within broad category b. All regressions include a vector of household characteristics (fraction of people by age and gender, occupation, log of number of people, fraction of purchase in different types of store), as well as a department-specific fixed effect which provides our measure of taste. Standard errors clustered by city are in parentheses with ^{c} $p < 0.10$, ^{b} $p < 0.05$, ^{a} $p < 0.01$.

Table C3: 2SLS AIDS Estimation for Broad Categories, 1974

	Dependent Variable: Budget Share								
	(1) Alcohol	(2) Dairy	(3) Drinks	(4) Fats	(5) Fruits	(6) Grains	(7) Meats	(8) Prepared	(9) Vegetables
Ln Total Food Expenditure	0.0683	-0.0096	0.0267	-0.0017	0.0066	-0.0620^a	-0.0202	0.0717^c	-0.0596
	(0.0500)	(0.0328)	(0.0297)	(0.0450)	(0.0364)	(0.0236)	(0.0830)	(0.0430)	(0.0367)
Ln Price Alcohol	**0.0286**	-0.0053	-0.0078	-0.0123	0.0098	0.0058	0.0150	-0.0075	-0.0128
	(0.0324)	(0.0088)	(0.0065)	(0.0167)	(0.0083)	(0.0080)	(0.0206)	(0.0116)	(0.0090)
Ln Price Dairy	0.0076	**0.0022**	-0.0036	-0.0178	0.0029	-0.0026	0.0026	0.0173^c	-0.0115
	(0.0107)	**(0.0100)**	(0.0073)	(0.0227)	(0.0073)	(0.0080)	(0.0171)	(0.0099)	(0.0094)
Ln Price Drinks	-0.0136	0.0069	**0.0147**	-0.0265	0.0045	-0.0041	-0.0203	0.0012	-0.0068
	(0.0088)	(0.0071)	**(0.0101)**	(0.0720)	(0.0077)	(0.0058)	(0.0171)	(0.0110)	(0.0080)
Ln Price Fats	-0.0107	0.0119	-0.0089	**0.3793**	-0.0317^a	0.0553^a	-0.0073	-0.0141	-0.0129
	(0.0167)	(0.0123)	(0.0093)	**(0.7304)**	(0.0112)	(0.0156)	(0.0235)	(0.0132)	(0.0116)
Ln Price Fruits	-0.0053	-0.0027	0.0022	-0.0347	**0.0453**^{a}	-0.0022	-0.0472^a	-0.0060	0.0354^a
	(0.0070)	(0.0055)	(0.0047)	(0.0751)	**(0.0133)**	(0.0051)	(0.0134)	(0.0071)	(0.0073)
Ln Price Grains	-0.0166^c	-0.0047	0.0076	-0.0784	0.0279^a	**-0.1139**^{a}	0.0111	0.0117	-0.0252^b
	(0.0099)	(0.0088)	(0.0079)	(0.1483)	(0.0075)	**(0.0400)**	(0.0208)	(0.0113)	(0.0100)
Ln Price Meats	-0.0077	-0.0064	0.0015	-0.0112	0.0209^c	-0.0194	**0.1041**	0.0333^b	-0.0190
	(0.0183)	(0.0146)	(0.0145)	(0.0619)	(0.0123)	(0.0147)	**(0.0804)**	(0.0145)	(0.0150)
Ln Price Prepared	0.0057	-0.0016	0.0011	-0.0062	0.0020	-0.0079^a	-0.0035	**0.0218**^{b}	-0.0026
	(0.0050)	(0.0038)	(0.0027)	(0.0080)	(0.0037)	(0.0028)	(0.0058)	**(0.0097)**	(0.0040)
Ln Price Vegetables	0.0111^c	-0.0003	0.0030	-0.0005	-0.0028	-0.0087^a	0.0016	0.0098^c	**-0.0096**^{b}
	(0.0063)	(0.0040)	(0.0036)	(0.0045)	(0.0047)	(0.0030)	(0.0104)	(0.0053)	**(0.0046)**
Observations	13,623	13,623	13,623	13,623	13,623	13,623	13,623	13,623	13,623
Household Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE Departement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First-stage F-stat Expenditure	7.2037	14.2004	7.7598	7.1230	9.2859	9.6025	9.3807	7.2427	48.6118
First-stage F-stat Price	11.7664	272.7036	71.8191	1.7908	22.6469	12.9114	11.8784	8.5595	211.8751

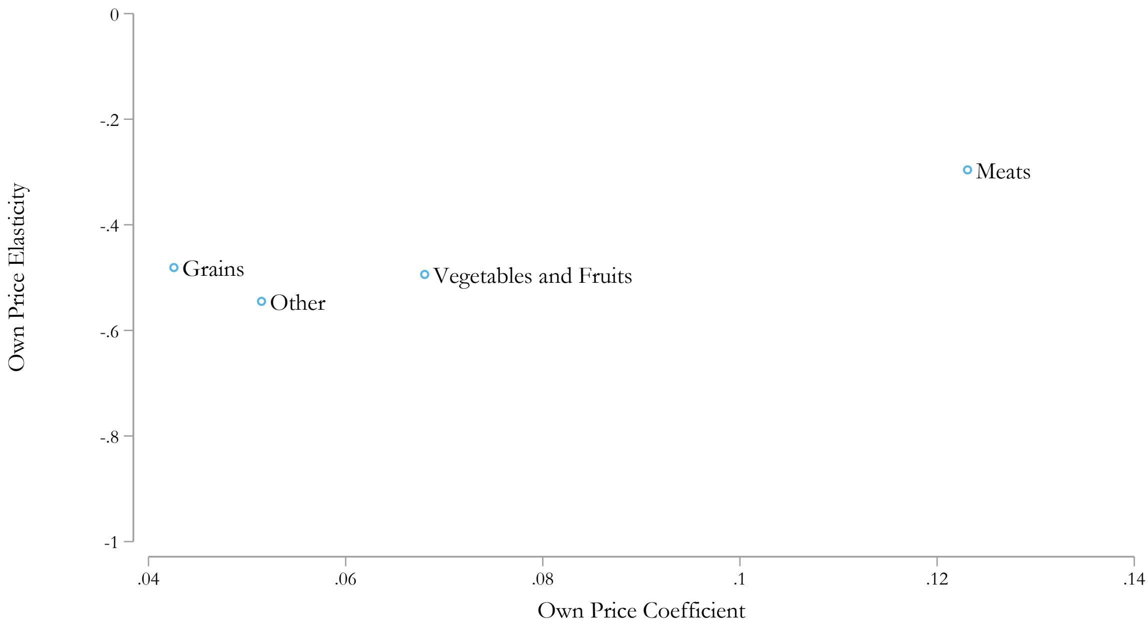
Notes: Each column is an AIDS 2SLS estimation of the demand for one broad category in the 1974 household survey (Equation 4). The dependent variable is the budget share $s_{ht,b}$ that household h spends on broad category b in survey year $t = 1974$. Ln Total Food Expenditure is the log of total food expenditure divided by a city-level Stone price index, and is instrumented by household income. Ln Price by broad category is the city-level median price index computed using the goods g within broad category b, and is instrumented by the average price in cities in same urban strata in contiguous departments (see section 4.2 for instrument construction). All regressions include a vector of household characteristics (fraction of people by age and gender, occupation, log of number of people, fraction of purchase in different types of store), as well as a department-specific fixed effect which provides our measure of taste. Standard errors clustered by city are in parentheses with ^{c} p < 0.10, ^{b} p < 0.05, ^{a} p < 0.01.

Table C4: 2SLS AIDS Estimation for Broad Categories, 2005

	Dependent Variable: Budget Share								
	(1) Alcohol	(2) Dairy	(3) Drinks	(4) Fats	(5) Fruits	(6) Grains	(7) Meats	(8) Prepared	(9) Vegetables
Ln Total Food Expenditure	0.0110[c]	-0.0091	0.0036	-0.0132[a]	0.0050	-0.0637[a]	0.0304[a]	0.0323[a]	-0.0040
	(0.0066)	(0.0068)	(0.0050)	(0.0038)	(0.0060)	(0.0055)	(0.0098)	(0.0098)	(0.0065)
Ln Price Alcohol	**0.1034**[a]	0.0011	0.0084[b]	-0.0024	-0.0074[c]	-0.0059	-0.0271[b]	0.0026	0.0056
	(0.0256)	(0.0054)	(0.0042)	(0.0036)	(0.0043)	(0.0047)	(0.0106)	(0.0090)	(0.0048)
Ln Price Dairy	-0.0006	**-0.0070**	-0.0039	-0.0059	-0.0097[a]	-0.0069[b]	0.0100[c]	0.0203[a]	-0.0138[a]
	(0.0042)	**(0.0045)**	(0.0027)	(0.0060)	(0.0031)	(0.0032)	(0.0059)	(0.0058)	(0.0028)
Ln Price Drinks	-0.0121[b]	0.0018	**-0.0071**	-0.0049	0.0044	-0.0044	-0.0114[c]	-0.0079	0.0027
	(0.0058)	(0.0039)	**(0.0081)**	(0.0122)	(0.0034)	(0.0030)	(0.0063)	(0.0057)	(0.0033)
Ln Price Fats	-0.0115	0.0122[b]	0.0174[a]	**0.1066**	-0.0136[b]	0.0097[b]	-0.0305[a]	0.0036	-0.0090
	(0.0113)	(0.0060)	(0.0051)	**(0.1650)**	(0.0061)	(0.0047)	(0.0111)	(0.0103)	(0.0069)
Ln Price Fruits	0.0012	-0.0048	-0.0025	-0.0014	**0.0639**[a]	-0.0054	-0.0076	-0.0133[c]	0.0007
	(0.0067)	(0.0042)	(0.0039)	(0.0046)	**(0.0199)**	(0.0037)	(0.0091)	(0.0074)	(0.0038)
Ln Price Grains	0.0157	-0.0083	0.0009	-0.0062	-0.0080	**-0.0173**	-0.0147	0.0012	-0.0094
	(0.0171)	(0.0067)	(0.0046)	(0.0057)	(0.0066)	**(0.0132)**	(0.0101)	(0.0119)	(0.0057)
Ln Price Meats	-0.0060	0.0073	-0.0001	-0.0186	-0.0052	-0.0180[a]	**0.0810**[c]	0.0116	-0.0161[a]
	(0.0064)	(0.0057)	(0.0046)	(0.0248)	(0.0056)	(0.0047)	**(0.0452)**	(0.0090)	(0.0047)
Ln Price Prepared	-0.0185[a]	-0.0031	-0.0063[c]	-0.0093	0.0045	-0.0203[a]	0.0031	**0.0393**[a]	0.0010
	(0.0055)	(0.0047)	(0.0033)	(0.0113)	(0.0033)	(0.0037)	(0.0095)	**(0.0118)**	(0.0039)
Ln Price Vegetables	0.0100[b]	-0.0053	0.0008	-0.0052	-0.0023	-0.0063[c]	0.0027	-0.0153[b]	**0.0349**[a]
	(0.0047)	(0.0041)	(0.0025)	(0.0074)	(0.0042)	(0.0034)	(0.0067)	(0.0060)	**(0.0080)**
Observations	9,693	9,693	9,693	9,693	9,693	9,693	9,693	9,693	9,693
Household Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE Departement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First-stage F-stat Expenditure	85.2094	85.7866	85.7753	84.7452	85.7693	86.5662	83.7449	111.2533	85.0909
First-stage F-stat Price	30.7166	590.9466	18.0073	1.2752	12.6859	69.4071	24.2635	75.1151	10.4812

Notes: Each column represents an AIDS 2SLS estimation of the demand for one broad category in the 1974 household survey (Equation 4). The dependent variable is the budget share $s_{ht,b}$ that household h spends on broad category b in survey year $t = 1974$. Ln Total Food Expenditure is the log of total food expenditure divided by a city-level Stone price index, and is instrumented by household income. Ln Price by broad category is the city-level median price index computed using the goods g within broad category b, and is instrumented by the average price in cities in same urban strata in contiguous departments (see Section 4.2 for instrument construction). All regressions include a vector of household characteristics (fraction of people by age and gender, occupation, log of number of people, fraction of purchase in different types of store), as well as a department-specific fixed effect which provides our measure of taste. Standard errors clustered by city are in parentheses with ^{c} $p < 0.10$, ^{b} $p < 0.05$, ^{a} $p < 0.01$.

Figure C1: AIDS Compensated Elasticities and Own Price Coefficients Estimated by Lecocq and Robin (2015)



Notes: The figure shows the scatterplot of compensated own price elasticities on own price coefficients estimated by Lecocq and Robin (2015) using AIDS with data from the 1987–1988 United States Nationwide Food Consumption Survey.

D Estimated Tastes by Food Category

D.1 Tastes for Alcohol

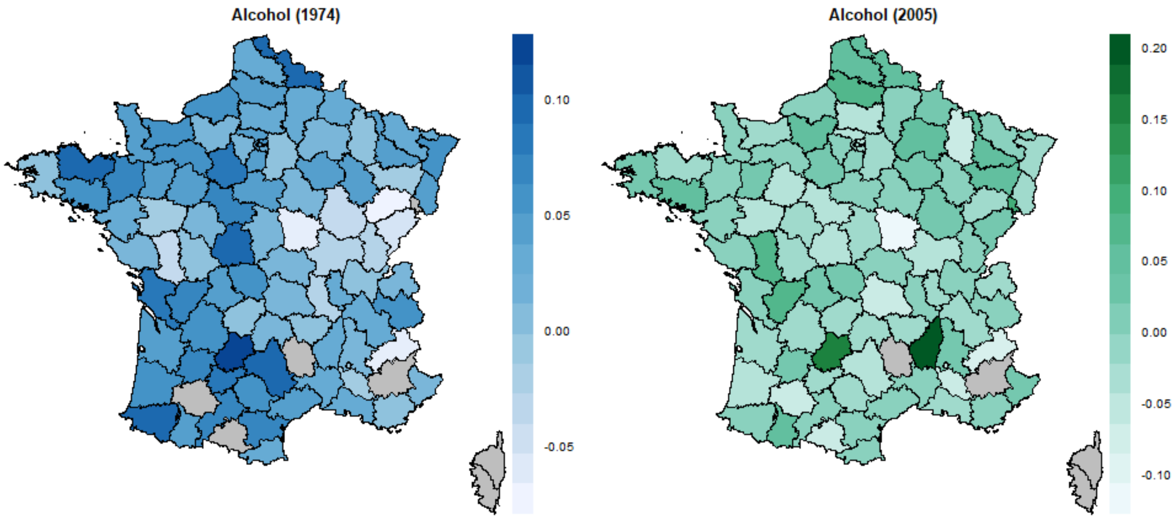


Figure D1: Estimated Tastes on Alcohol by Department, 1974 vs. 2005

Notes: The maps draw the estimated tastes for alcohol in 1974 (left) and 2005 (right) using unexplained department variation in food budget shares from AIDS 2SLS estimation instrumenting for total expenditure and prices. The department of Ain serves as the normalized reference category, and the estimated taste parameters are grouped into bins for each survey year. Departments not surveyed are shaded in gray. In 1974, the missing departments are Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère, while in 2005 the missing departments are Alpes-de-Haute-Provence, Corse-du-Sud, Haute-Corse, and Lozère.

D.2 Tastes for Dairy

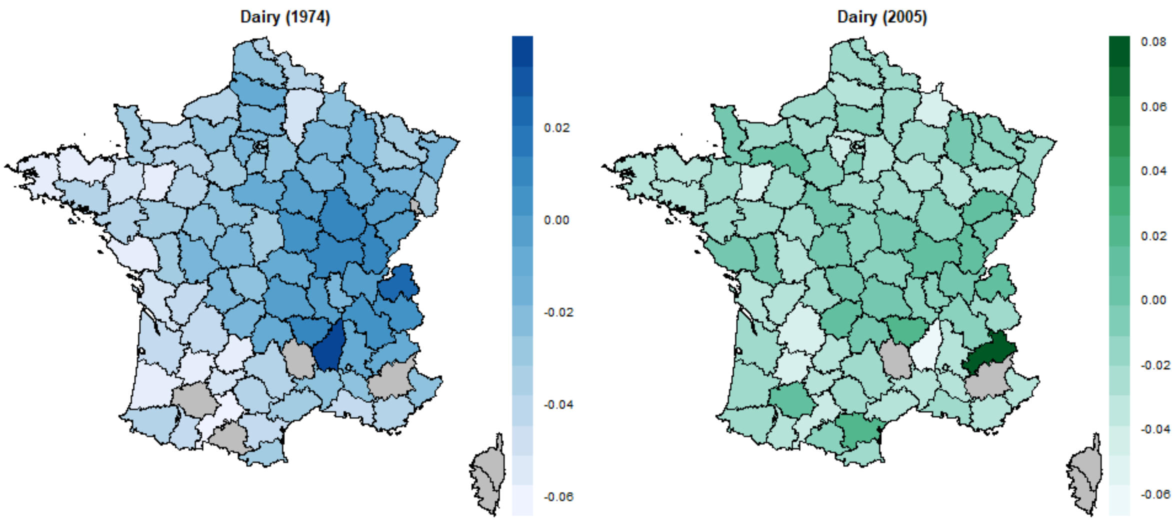


Figure D2: Estimated Tastes on Dairy Products by Department, 1974 vs. 2005

Notes: The maps draw the estimated tastes for dairy products in 1974 (left) and 2005 (right) using unexplained department variation in food budget shares from AIDS 2SLS estimation instrumenting for total expenditure and prices. The department of Ain serves as the normalized reference category, and the estimated taste parameters are grouped into bins for each survey year. Departments not surveyed are shaded in gray. In 1974, the missing departments are Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère, while in 2005 the missing departments are Alpes-de-Haute-Provence, Corse-du-Sud, Haute-Corse, and Lozère.

D.3 Tastes for Drinks

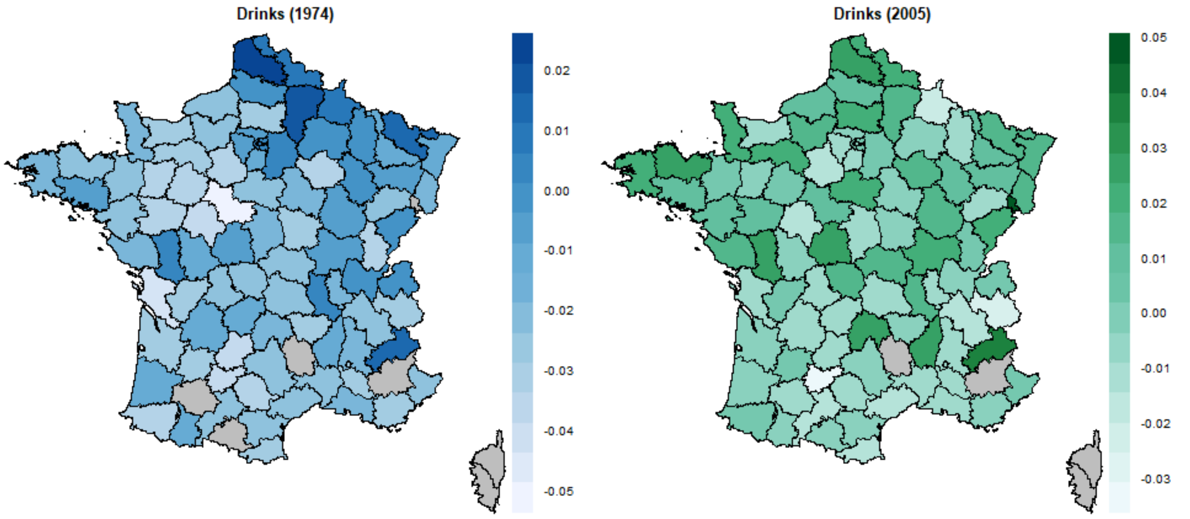


Figure D3: Estimated Tastes on Drinks by Department, 1974 vs. 2005

Notes: The maps draw the estimated tastes for non-alcoholic drinks in 1974 (left) and 2005 (right) using unexplained department variation in food budget shares from AIDS 2SLS estimation instrumenting for total expenditure and prices. The department of Ain serves as the normalized reference category, and the estimated taste parameters are grouped into bins for each survey year. Departments not surveyed are shaded in gray. In 1974, the missing departments are Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère, while in 2005 the missing departments are Alpes-de-Haute-Provence, Corse-du-Sud, Haute-Corse, and Lozère.

D.4 Tastes for Fats

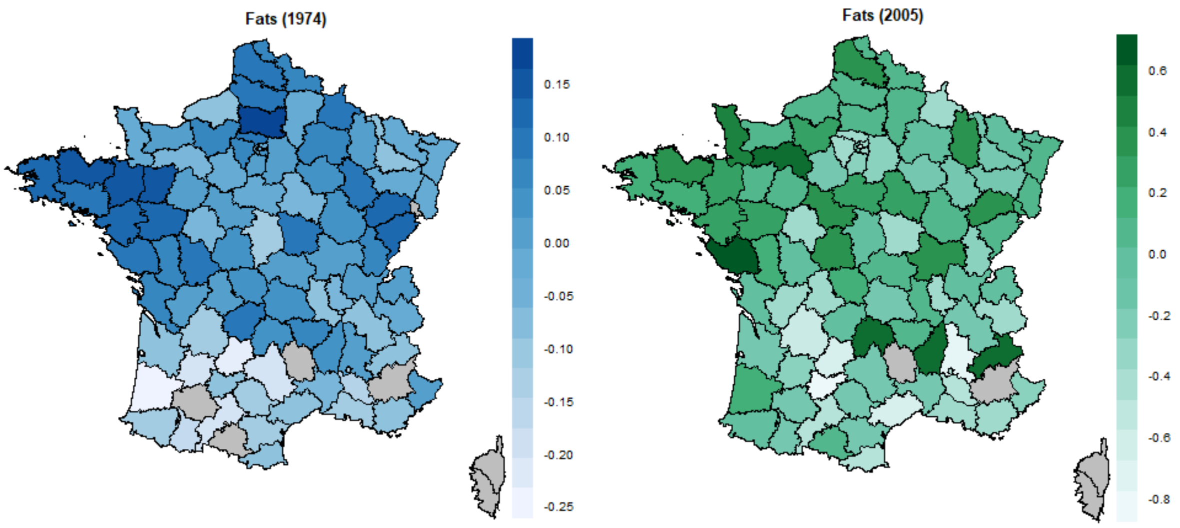


Figure D4: Estimated Tastes on Fat by Department, 1974 vs. 2005

Notes: The maps draw the estimated tastes for fat in 1974 (left) and 2005 (right) using unexplained department variation in food budget shares from AIDS 2SLS estimation instrumenting for total expenditure and prices. The department of Ain serves as the normalized reference category, and the estimated taste parameters are grouped into bins for each survey year. Departments not surveyed are shaded in gray. In 1974, the missing departments are Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère, while in 2005 the missing departments are Alpes-de-Haute-Provence, Corse-du-Sud, Haute-Corse, and Lozère.

D.5 Tastes for Fruits

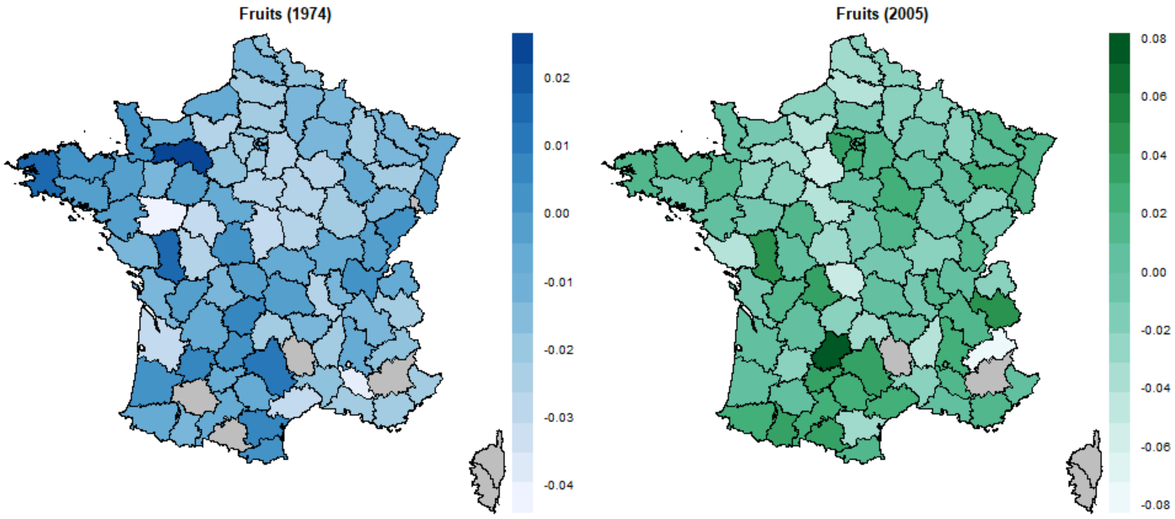


Figure D5: Estimated Tastes on Fruits by Department, 1974 vs. 2005

Notes: The maps draw the estimated tastes for fruits in 1974 (left) and 2005 (right) using unexplained department variation in food budget shares from AIDS 2SLS estimation instrumenting for total expenditure and prices. The department of Ain serves as the normalized reference category, and the estimated taste parameters are grouped into bins for each survey year. Departments not surveyed are shaded in gray. In 1974, the missing departments are Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère, while in 2005 the missing departments are Alpes-de-Haute-Provence, Corse-du-Sud, Haute-Corse, and Lozère.

D.6 Tastes for Grains

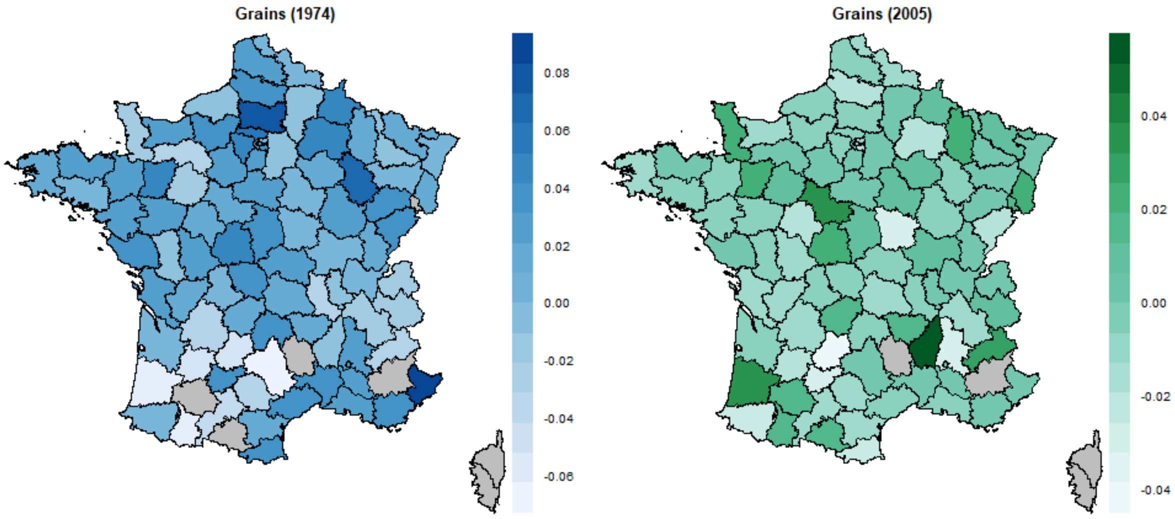


Figure D6: Estimated Tastes on Grains by Department, 1974 vs. 2005

Notes: The maps draw the estimated tastes for grains in 1974 (left) and 2005 (right) using unexplained department variation in food budget shares from AIDS 2SLS estimation instrumenting for total expenditure and prices. The department of Ain serves as the normalized reference category, and the estimated taste parameters are grouped into bins for each survey year. Departments not surveyed are shaded in gray. In 1974, the missing departments are Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère, while in 2005 the missing departments are Alpes-de-Haute-Provence, Corse-du-Sud, Haute-Corse, and Lozère.

D.7 Tastes for Meats

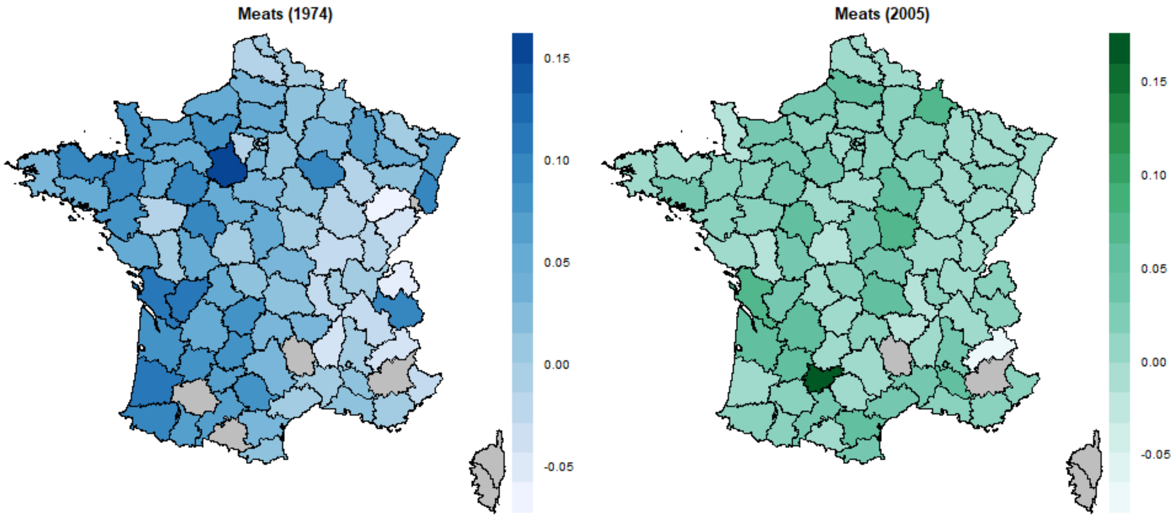


Figure D7: Estimated Tastes on Meat by Department, 1974 vs. 2005

Notes: The maps draw the estimated tastes for meat in 1974 (left) and 2005 (right) using unexplained department variation in food budget shares from AIDS 2SLS estimation instrumenting for total expenditure and prices. The department of Ain serves as the normalized reference category, and the estimated taste parameters are grouped into bins for each survey year. Departments not surveyed are shaded in gray. In 1974, the missing departments are Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère, while in 2005 the missing departments are Alpes-de-Haute-Provence, Corse-du-Sud, Haute-Corse, and Lozère..

D.8 Tastes for Prepared

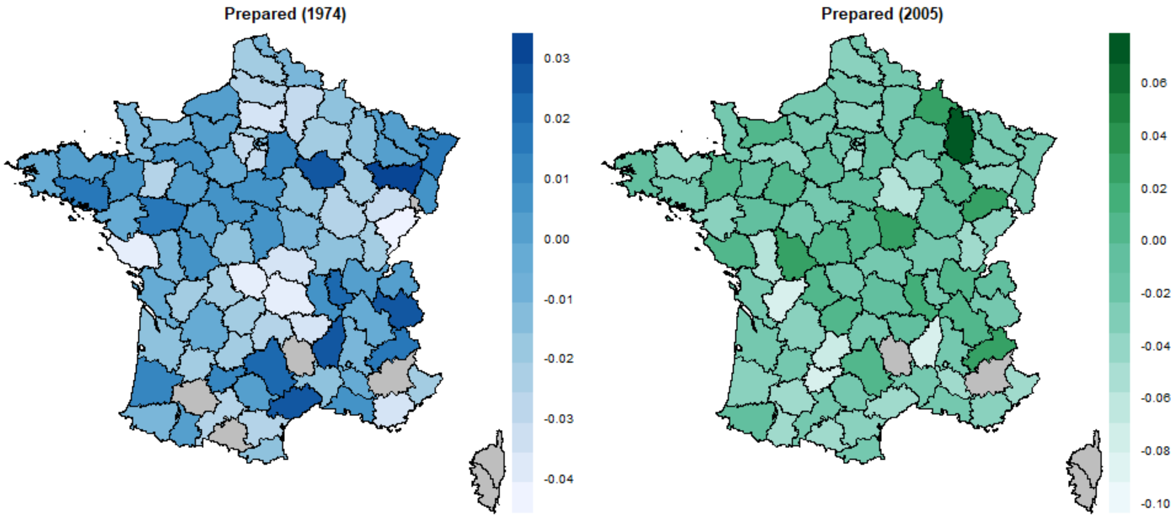


Figure D8: Estimated Tastes on Prepared Food by Department, 1974 vs. 2005

Notes: The maps draw the estimated tastes for prepared food in 1974 (left) and 2005 (right) using unexplained department variation in food budget shares from AIDS 2SLS estimation instrumenting for total expenditure and prices. The department of Ain serves as the normalized reference category, and the estimated taste parameters are grouped into bins for each survey year. Departments not surveyed are shaded in gray. In 1974, the missing departments are Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère, while in 2005 the missing departments are Alpes-de-Haute-Provence, Corse-du-Sud, Haute-Corse, and Lozère.

D.9 Tastes for Vegetables

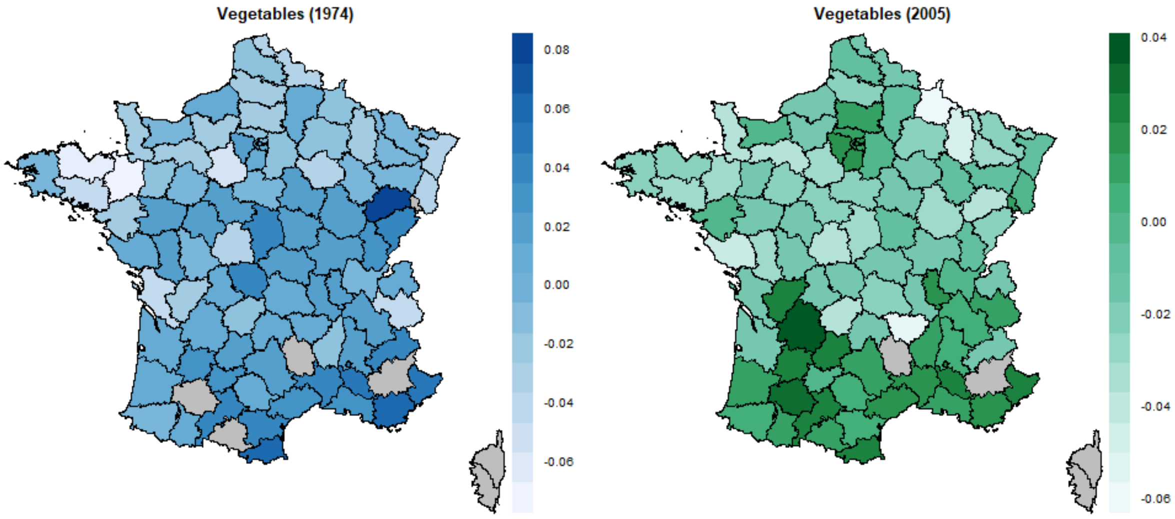


Figure D9: Estimated Tastes on Vegetables by Department, 1974 vs. 2005

Notes: The maps draw the estimated tastes for vegetables in 1974 (left) and 2005 (right) using unexplained department variation in food budget shares from AIDS 2SLS estimation instrumenting for total expenditure and prices. The department of Ain serves as the normalized reference category, and the estimated taste parameters are grouped into bins for each survey year. Departments not surveyed are shaded in gray. In 1974, the missing departments are Alpes-de-Haute-Provence, Ariège, Belfort, Corse-du-Sud, Haute-Corse, Gers, and Lozère, while in 2005 the missing departments are Alpes-de-Haute-Provence, Corse-du-Sud, Haute-Corse, and Lozère.

E Additional Results on Tastes and Geography

E.1 Broad Categories

Table E1: Tastes and Geography – Elasticities

	Dependent Variable: Ln Taste Difference$_{ijt}$					
	(1)	(2)	(3)	(4)	(5)	(6)
Ln Distance$_{ij}$ x 1974	0.207^a	0.298^a	0.193^a	0.203^a	0.235^a	0.209^a
	(0.013)	(0.021)	(0.010)	(0.013)	(0.015)	(0.015)
Ln Distance$_{ij}$ x 2005	0.077^a	0.090^a	0.086^a	0.079^a	0.070^a	0.063^a
	(0.009)	(0.010)	(0.009)	(0.009)	(0.008)	(0.008)
Observations	7,832	7,832	7,832	7,832	7,832	7,832
Adjusted R^2	0.594	0.822	0.608	0.606	0.600	0.587
Fixed Effects	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt
Estimation of Tastes ($\widehat{\theta}$)		Price IV Regional	OLS	Excluding Farmers	Hom.+Sym.	Hom.+Sym. + Quadratic

Notes: OLS estimates. Ln Taste Difference$_{ijt}$ is the log of the Manhattan distance of taste differences $\sum_b |\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|$ for broad category b, departments i and j, and survey year $t = \{1974, 2005\}$. Tastes $\widehat{\theta}$ are from AIDS 2SLS instrumenting for total expenditure and prices (col. 1-2 and 4), AIDS OLS (col. 3); AIDS ILLS instrumenting for total expenditure and prices (col. 5-6). In column 2, we instrument for prices using cities in contiguous regions (instead of departments). In column 4, we exclude farmers. In columns 5 and 6, we impose homogeneity and symmetry. In column 6, we add a quadratic total expenditure term. Distance$_{ij}$ is the geographic distance between departments i and j. All columns include monadic department-by-year fixed effects. 3,916 observations per year = (89 departments $i \times$ 88 departments j)/2. Standard errors clustered by department pairs are reported in parentheses with ^{c} $p < 0.10$, ^{b} $p < 0.05$ and ^{a} $p < 0.01$.

Table E2: Tastes and Geography – Robustness Specifications

	Dependent Variable: Ln Taste Difference				
	(1)	(2)	(3)	(4)	(5)
Ln Distance$_{ij}$	0.145^a	0.206^a	0.000	0.144^a	0.209^a
	(0.008)	(0.012)	(.)	(0.008)	(0.013)
Ln Distance$_{ij}$ x 2005		-0.121^a	-0.128^a		-0.128^a
		(0.016)	(0.015)		(0.016)
Observations	70,488	70,488	7,832	7,832	7,832
Adjusted R^2	0.427	0.428	0.609	0.588	0.593
Fixed Effects	itb, jtb	itb, jtb	it, jt, ij	it, jt	it, jt
Specifications:	Disaggregated	Disaggregated	Dyadic FE	Bootstrap	Bootstrap

Notes: OLS estimates. In columns 1-2, the dependent variable is the Broad Category Taste Difference $|\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|$ for broad category b, departments i and j, and survey year $t = 1974, 2005$ (observations: 7,832 $\times$ 9 categories). In columns 3-5, the dependent variable Ln Taste Difference$_{ijt}$ is the log of the Manhattan distance of taste differences $\sum_b |\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|$ for departments i and j, and survey year $t = 1974, 2005$. In all columns, $\widehat{\theta}_{it,b}$ is the estimated taste for broad category b in department i in year t using unexplained department variation in food budget shares from AIDS 2SLS estimations instrumenting for total expenditure and prices. Distance$_{ij}$ is the geographic distance between departments i and j. Columns 1-2 include monadic department-by-year-by-broad category fixed effects. Column 3 includes monadic department-by-year fixed effects and dyadic department-by-department fixed effects. Columns 4-5 include monadic department-by-year fixed effects and bootstrap standard errors. Standard errors clustered by department pairs are reported in parentheses with ^{c} $p < 0.10$, ^{b} $p < 0.05$ and ^{a} $p < 0.01$.

Table E3: Tastes and Geography – Euclidean Distance for Taste Differences

	Dependent Variable: Ln Taste Difference$_{ijt}$ Euclidean						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ln Distance$_{ij}$	0.146[a]	0.215[a]	0.328[a]	0.193[a]	0.212[a]	0.232[a]	0.203[a]
	(0.010)	(0.016)	(0.025)	(0.010)	(0.017)	(0.017)	(0.016)
Ln Distance$_{ij}$ x 2005		-0.139[a]	-0.233[a]	-0.115[a]	-0.132[a]	-0.164[a]	-0.142[a]
		(0.019)	(0.028)	(0.013)	(0.020)	(0.019)	(0.017)
Observations	7,832	7,832	7,832	7,832	7,832	7,832	7,832
Adjusted R^2	0.578	0.583	0.820	0.630	0.586	0.585	0.572
Fixed Effects	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt
Estimation of Tastes ($\widehat{\theta}$)			Price IV Regional	OLS	Excluding Farmers	Hom.+Sym.	Hom.+Sym. + Quadratic

Notes: OLS estimates. Ln Taste Difference$_{ijt}$ is the log of the Euclidean distance of taste differences $\left(\sum_b \left(\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}\right)^2\right)^{\frac{1}{2}}$ for broad category b, departments i and j, and survey year $t = \{1974, 2005\}$. Tastes $\widehat{\theta}$ are from AIDS 2SLS instrumenting for total expenditure and prices (col. 1-3 and 5), AIDS OLS (col. 4); AIDS ILLS instrumenting for total expenditure and prices (col. 6-7). In column 3, we instrument for prices using cities in contiguous regions (instead of departments). In column 5, we exclude farmers. In columns 6 and 7, we impose homogeneity and symmetry. In column 7, we add a quadratic total expenditure term. Distance$_{ij}$ is the geographic distance between departments i and j. All columns include monadic department-by-year fixed effects. 3,916 observations per year = (89 departments $i \times 88$ departments j)/2. Standard errors clustered by department pairs are reported in parentheses with ^{c} $p < 0.10$, ^{b} $p < 0.05$ and ^{a} $p < 0.01$.

Table E4: Tastes, Distance and Bilateral Integration Factors – Full Controls Displayed

	Dependent Variable: Ln Taste Difference$_{ijt}$					
	(1)	(2)	(3)	(4)	(5)	(6)
Ln Distance$_{ij}$	0.198^a	0.168^a	0.176^a	0.209^a	0.202^a	0.195^a
	(0.015)	(0.018)	(0.013)	(0.013)	(0.017)	(0.014)
Ln Distance$_{ij}$ x 2005	-0.132^a	-0.158^a	-0.108^a	-0.160^a	-0.154^a	-0.151^a
	(0.019)	(0.020)	(0.016)	(0.016)	(0.020)	(0.017)
Contiguity$_{ij}$	-0.039					
	(0.040)					
Contiguity$_{ij}$ x 2005	-0.011					
	(0.047)					
Ln Variety Difference$_{ijt}$		1.018^a	1.023^a			
		(0.143)	(0.143)			
Ln Variety Difference$_{ijt}$ $\times$ 2005		-0.520^a	-0.459^a			
		(0.156)	(0.158)			
Ln Supermarket Chain Difference$_{ijt}$		-0.029		-0.025		
		(0.038)		(0.039)		
Ln Supermarket Chain Difference$_{ijt}$ $\times$ 2005		0.262^a		0.340^a		
		(0.063)		(0.064)		
Ln Domestic Migration$_{ijt}$		0.077			-0.580	
		(1.338)			(1.330)	
Ln Domestic Migration$_{ijt}$ $\times$ 2005		-1.390			-2.303	
		(1.565)			(1.531)	
Ln Media Exposure Difference$_{ijt}$		0.051				0.054
		(0.037)				(0.037)
Ln Media Exposure Difference$_{ijt}$ $\times$ 2005		0.065				0.100^b
		(0.050)				(0.050)
Observations	7,832	7,832	7,832	7,832	7,832	7,832
Adjusted R^2	0.594	0.604	0.601	0.596	0.595	0.596
Fixed Effects	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt
Controls For:	Contiguity	Integration	Variety	Supermarket	Migration	Media

Notes: OLS estimates. Ln Taste Difference$_{ijt}$ is the log of the Manhattan distance of taste differences $\sum_b |\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|$ for broad category b, departments i and j, and survey year $t = \{1974, 2005\}$. In all columns, tastes $\widehat{\theta}$ are from AIDS 2SLS estimations instrumenting for total expenditure and prices. Distance$_{ij}$ is the geographic distance between departments i and j. Column 1 includes a dummy for contiguous departments and its interaction with 2005. Column 2 includes four bilateral integration factors detailed in Appendix F: difference in variety availability, difference in supermarket chain distribution, domestic migration and exposure to common regional newspapers. Columns 3–6 include them one at a time. All columns include monadic department-by-year fixed effects. 3,916 observations per year = (89 departments i $\times$ 88 departments j)/2. Standard errors clustered by department pairs are reported in parentheses with ^{c} $p < 0.10$, ^{b} $p < 0.05$ and ^{a} $p < 0.01$.

Table E5: OLS Summarized Statistics of Bilateral Taste Differences

	Broad Category Taste Difference $\lvert\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}\rvert$					
	Means			Standard Deviations		
	1974 (1)	2005 (2)	*Difference* (3) = (2) - (1)	1974 (4)	2005 (5)	*Ratio* (6) = (5)/(4)
Alcohol	0.022	0.021	-0.001[c]	0.017	0.018	1.040[b]
Dairy	0.021	0.019	-0.002[a]	0.016	0.016	1.047[b]
Drink	0.017	0.016	-0.001[c]	0.013	0.012	0.939[a]
Fat	0.032	0.012	-0.020[a]	0.024	0.010	0.419[a]
Fruit	0.023	0.020	-0.003[a]	0.017	0.016	0.919[a]
Grains	0.011	0.015	0.004[a]	0.008	0.013	1.500[a]
Meat	0.046	0.028	-0.019[a]	0.034	0.026	0.784[a]
Prepared	0.012	0.024	0.012[a]	0.009	0.021	2.292[a]
Vegetables	0.030	0.020	-0.011[a]	0.023	0.015	0.625[a]

Notes: Broad Category Taste Difference $\lvert\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}\rvert$ is the bilateral taste difference for departments i and j, broad category b and survey year $t = \{1974, 2005\}$. $\widehat{\theta}_{it,b}$ are from AIDS OLS estimations. *Difference* is the difference between the 2005 and 1974 means using a two-sample t test. *Ratio* is the ratio of the 2005 standard deviation to the 1974 standard deviation using a two-sample variance-comparison F test. [c] $p < 0.10$, [b] $p < 0.05$, [a] $p < 0.01$.

E.2 Goods

Table E6: Tastes and Geography – Good Level

	Dependent Variable: Ln Taste Difference$_{ijt,b}$								
	(1) Alcohol	(2) Dairy	(3) Drinks	(4) Fats	(5) Fruits	(6) Grains	(7) Meats	(8) Prepared	(9) Vegetables
Ln Distance$_{ij}$	0.261^a	0.225^a	0.147^a	0.317^a	0.131^a	0.084^a	0.201^a	0.053^a	0.119^a
	(0.014)	(0.017)	(0.015)	(0.020)	(0.011)	(0.015)	(0.009)	(0.011)	(0.018)
Ln Distance$_{ij}$ x 2005	-0.183^a	-0.150^a	-0.053^a	-0.203^a	-0.106^a	-0.019	-0.147^a	-0.019	-0.054^a
	(0.017)	(0.021)	(0.019)	(0.024)	(0.015)	(0.020)	(0.011)	(0.013)	(0.020)
Observations	7,832	7,832	7,832	7,832	7,832	7,832	7,832	7,832	7,832
Adjusted R^2	0.590	0.656	0.596	0.437	0.665	0.413	0.649	0.930	0.651
Fixed Effects	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt

Notes: OLS estimates. The dependent variable Ln Taste Difference$_{ijt,b}$ $= \sum_{g \in b} |\widehat{\theta}_{it,g} - \widehat{\theta}_{jt,g}|$ is the log of the Manhattan distance of taste differences of each good g in broad category b between departments i and j in survey year $t = \{1974, 2005\}$. Tastes $\widehat{\theta}$ are from AIDS 2SLS estimations instrumenting for total expenditure and prices. Distance$_{ij}$ is the geographic distance between departments i and j. All columns include monadic department-by-year fixed effects. 3,916 observations per year = (89 departments $i \times$ 88 departments j)/2. Standard errors clustered by department pairs are reported in parentheses with ^{c} p < 0.10, ^{b} p < 0.05 and ^{a} p < 0.01.

Table E7: Tastes and Geography – Good Level, Bootstrap Standard Errors

	Dependent Variable: Ln Taste Difference$_{ijt,b}$								
	(1) Alcohol	(2) Dairy	(3) Drinks	(4) Fats	(5) Fruits	(6) Grains	(7) Meats	(8) Prepared	(9) Vegetables
Ln Distance$_{ij}$	0.261^a	0.225^a	0.147^a	0.317^a	0.131^a	0.084^a	0.201^a	0.053^a	0.119^a
	(0.015)	(0.017)	(0.015)	(0.019)	(0.011)	(0.015)	(0.009)	(0.011)	(0.017)
Ln Distance$_{ij}$ x 2005	-0.183^a	-0.150^a	-0.053^a	-0.203^a	-0.106^a	-0.019	-0.147^a	-0.019	-0.054^a
	(0.018)	(0.021)	(0.019)	(0.022)	(0.015)	(0.020)	(0.011)	(0.014)	(0.019)
Observations	7,832	7,832	7,832	7,832	7,832	7,832	7,832	7,832	7,832
Adjusted R^2	0.772	0.817	0.785	0.765	0.804	0.751	0.770	0.948	0.871
Fixed Effects	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt

Notes: OLS estimates. The dependent variable Ln Taste Difference$_{ijt,b} = \sum_{g \in b} |\widehat{\theta}_{it,g} - \widehat{\theta}_{jt,g}|$ is the log of the Manhattan distance of taste differences of each good g in broad category b between departments i and j in survey year $t = \{1974, 2005\}$. Tastes $\widehat{\theta}$ are from AIDS 2SLS estimations instrumenting for total expenditure and prices. Distance$_{ij}$ is the geographic distance between departments i and j. All columns include monadic department-by-year fixed effects. 3,916 observations per year = (89 departments $i \times 88$ departments j)/2. Bootstrap standard errors clustered by department pairs are reported in parentheses with ^{c} $p < 0.10$, ^{b} $p < 0.05$ and ^{a} $p < 0.01$.

Table E8: Tastes and Geography: Good-level, Taste Estimates from AIDS OLS

	Dependent Variable: Ln Taste Difference$_{ijt,b}$								
	(1) Alcohol	(2) Dairy	(3) Drinks	(4) Fats	(5) Fruits	(6) Grains	(7) Meats	(8) Prepared	(9) Vegetables
Ln Distance$_{ij}$	0.309^a	0.202^a	0.234^a	0.497^a	0.102^a	0.122^a	0.165^a	0.059^a	0.103^a
	(0.014)	(0.016)	(0.015)	(0.023)	(0.013)	(0.014)	(0.008)	(0.010)	(0.011)
Ln Distance$_{ij}$ x 2005	-0.219^a	-0.121^a	-0.140^a	-0.315^a	-0.076^a	-0.035^c	-0.096^a	-0.023^c	-0.056^a
	(0.017)	(0.020)	(0.019)	(0.023)	(0.017)	(0.019)	(0.012)	(0.012)	(0.015)
Observations	7,832	7,832	7,832	7,832	7,832	7,832	7,832	7,832	7,832
Adjusted R^2	0.547	0.455	0.515	0.512	0.533	0.390	0.600	0.671	0.551
Fixed Effects	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt	it, jt

Notes: OLS estimates. The dependent variable Ln Taste Difference$_{ijt,b}$ $= \sum_{g \in b} |\widehat{\theta}_{it,g} - \widehat{\theta}_{jt,g}|$ is the log of the Manhattan distance of taste differences of each good g in broad category b between departments i and j in survey year $t = \{1974, 2005\}$. Tastes $\widehat{\theta}$ are from AIDS 2SLS estimations instrumenting for total expenditure and prices. Distance$_{ij}$ is the geographic distance between departments i and j. All columns include monadic department-by-year fixed effects. 3,916 observations per year = (89 departments $i \times$ 88 departments j)/2. Standard errors clustered by department pairs are reported in parentheses with ^{c} p $<$ 0.10, ^{b} p $<$ 0.05, ^{a} p $<$ 0.01.

Table E9: Summarized Statistics of Bilateral Taste Differences

		Good Taste Difference $\lvert\widehat{\theta}_{it,g} - \widehat{\theta}_{jt,g}\rvert$					
		Means			Standard Deviations		
		1974 (1)	2005 (2)	*Difference* (3) = (2) - (1)	1974 (4)	2005 (5)	*Ratio* (6) = (5)/(4)
Alcohol	Aperitif	0.145	0.108	-0.037^a	0.106	0.113	1.066^a
	Beer	0.103	0.108	0.00^b	0.080	0.096	1.200^a
	Champagne	0.033	0.049	0.016^a	0.025	0.037	1.480^a
	Cider	0.247	0.028	-0.219^a	0.197	0.024	0.122^a
	Wine	0.172	0.127	-0.045^a	0.124	0.106	0.855^a
Dairy	Cheese	0.092	0.057	-0.035^a	0.072	0.061	0.847^a
	Cream	0.027	0.018	-0.008^a	0.023	0.016	0.696^a
	Milk	0.172	0.041	-0.131^a	0.141	0.034	0.241^a
	Yogurt	0.117	0.053	-0.064^a	0.092	0.063	0.685^a
Drinks	Coffee	0.117	0.057	-0.060^a	0.084	0.045	0.536^a
	Hot Beverages	0.057	0.081	0.024^a	0.043	0.068	1.581^a
	Cold Beverages	0.034	0.051	0.017^a	0.029	0.045	1.552^a
	Water	0.232	0.056	-0.176^a	0.176	0.056	0.318^a
Fats	Butter	0.259	0.356	0.097^a	0.199	0.325	1.633^a
	Animal Fat	0.069	0.107	0.038^a	0.051	0.132	2.588^a
	Vegetable Fat	0.448	0.166	-0.283^a	0.324	0.128	0.395^a
	Vegetable Oil	0.304	0.778	0.474^a	0.233	0.659	2.828^a
Fruits	Citrus	0.081	0.081	0.000	0.063	0.060	0.952^a
	Dry Fruits	0.031	0.066	0.035^a	0.025	0.080	3.200^a
	Exotic Fruits	0.264	0.057	-0.207^a	0.254	0.048	0.189^a
	Other Fruits	0.094	0.049	-0.045^a	0.071	0.054	0.761^a
	Seasonal Fruits	0.117	0.106	-0.011^a	0.089	0.086	0.968^b
Grains	Bread	0.065	0.098	0.033^a	0.051	0.074	1.451^a
	Other Cereals	0.075	0.029	-0.046^a	0.056	0.023	0.411^a
	Pasta	0.029	0.066	0.038^a	0.021	0.054	2.571^a
	Rice	0.030	0.015	-0.015^a	0.022	0.011	0.500^a
Meats	Beef	0.045	0.039	-0.006^a	0.035	0.030	0.857^a
	Delicatessen	0.046	0.053	0.006^a	0.040	0.042	1.050^a
	Eggs	0.026	0.015	-0.011^a	0.019	0.011	0.579^a
	Fish	0.033	0.036	0.003^a	0.024	0.029	1.208^a
	Mutton	0.024	0.020	-0.005^a	0.020	0.015	0.750^a
	Other Meats	0.027	0.027	0.000	0.020	0.030	1.500^a
	Pork	0.034	0.030	-0.004^a	0.026	0.037	1.423^a
	Poultry	0.033	0.034	0.001^c	0.027	0.037	1.018
	Seafood	0.116	0.058	-0.057^a	0.099	0.048	0.485^a
Prepared	Biscuits	0.652	0.026	-0.626^a	0.754	0.029	0.038^a
	Condiments	0.040	0.021	-0.019^a	0.031	0.017	0.548^a
	Baby Food	0.032	0.012	-0.020^a	0.043	0.010	0.233^a
	Pastries	0.335	0.030	-0.304^a	0.329	0.026	0.079^a
	Prepared Meat	0.032	0.031	-0.001^c	0.025	0.024	0.960^b
	Prepared Vegetables	0.295	0.029	-0.265^a	0.347	0.032	0.092^a
	Sweets	0.094	0.039	-0.055^a	0.068	0.034	0.500^a
Vegetables	Tubers	0.210	0.059	-0.151^a	0.157	0.050	0.318^a
	Vegetable Fruits	0.187	0.084	-0.102^a	0.144	0.089	0.618^a
	Vegetable Leaves	0.201	0.062	-0.139^a	0.159	0.050	0.314^a
	Other Vegetables	0.069	0.035	-0.034^a	0.050	0.028	0.560^a
	Vegetable Roots	0.168	0.053	-0.115^a	0.127	0.040	0.315^a

Notes: Good Taste Difference $\lvert\widehat{\theta}_{it,g} - \widehat{\theta}_{jt,g}\rvert$ is the bilateral taste difference for departments i and j, good g (in broad category b) and survey year $t = 1974, 2005$. Tastes $\widehat{\theta}$ are from AIDS 2SLS estimations instrumenting for total expenditure and prices. *Difference* is the difference between the 2005 and 1974 means using a two-sample t test. *Ratio* is the ratio of the 2005 standard deviation to the 1974 standard deviation using a two-sample variance-comparison F test. ^{c} $p < 0.10$, ^{b} $p < 0.05$, ^{a} $p < 0.01$.

F Bilateral Integration

Table F1: Descriptive Statistics on Bilateral Integration Between Departments

	Means			Standard Deviations		
	1974	2005	*Difference*	1974	2005	*Ratio*
	(1)	(2)	(3) = (2) - (1)	(4)	(5)	(6) = (5)/(4)
Variety Difference$_{ijt}$	0.260	0.286	0.026[a]	0.061	0.136	2.249[a]
Supermarket Chain Difference$_{ijt}$	1.593	0.872	-0.721[a]	0.298	0.222	0.746[a]
Domestic Migration$_{ijt}$	0.004	0.004	0.001[a]	0.008	0.010	1.158[a]
Media Exposure Difference$_{ijt}$	1.924	1.924	0.000	0.342	0.343	1.002

Notes: Values are sample means and standard deviations over all observations for each year and variable. *Difference* is the difference between the 2005 and 1974 means using a two-sample t test. *Ratio* is the ratio of the 2005 standard deviation to the 1974 standard deviation using a two-sample variance-comparison F-test. ^{c} $p < 0.10$, ^{b} $p < 0.05$, ^{a} $p < 0.01$. Data sources and construction are described in this Appendix section below.

Movement of Goods: Supply-Side Environment. We construct two bilateral supply-side measures. The first is the Manhattan distance of sharing the same variety in department i and department j in year t: *Variety Difference*$_{ijt} = \sum_b |v_{it,b} - v_{jt,b}|$, where $v_{it,b}$ is the share of a variety consumed within category b in department i and year t.

As the bilateral variety difference relies on households' survey response and may not fully capture actual product availability, we compute a second measure of bilateral supply-side: the presence of the same supermarket chains across locations. This measure is more exogenous and better captures the supply-side environment, as a supermarket chain is likely to offer similar ranges of varieties across locations—due to nationwide sourcing decisions, for instance. We use an external dataset obtained from Allain et al. (2017), which provides information on the complete set of supermarkets in France in 1974 and 2005 along with their exact location and surface area. We compute the Manhattan distance of exposure to the same supermarket chain, named *Supermarket Chain Difference*$_{ijt} = \sum_\ell |w_{it,\ell} - w_{jt,l}|$, where $w_{it,\ell}$ is the share of supermarket area taken by supermarket chain ℓ in department i and year t.

Movement of People: Domestic Migration. We capture bilateral migration effects by using the census data (INSEE) and constructing the bilateral variable *Domestic Migration*$_{ijt}$ as the average of the share of people born in department j living in department i and the share of people born in department i living in department j in year t.

Movement of Ideas: Media Exposure. We construct the Manhattan distance of reading the same regional newspaper, named *Media Exposure Difference*$_{ijt} = \sum_m |r_{it,m} - r_{jt,m}|$, where $r_{it,m}$ is the share of publications by regional newspaper m in department i and year t. The ACPM (*Alliance pour les chiffres de la presse et des medias*) provides data on the share of sales by department for 48 newspapers in 2012, alongside the total number of sales in France for each newspaper in 2005 and 1979 (earliest year in the database).[37] We combine the total number of

[37] The 48 regional newspapers are as follows: Ouest France, Sud Ouest, La Voix du Nord, Le Parisien, La Tribune/Le Progrès, La Montagne, Le Dauphine Libéré, Le Télégramme, La Nouvelle République du Centre-Ouest, Dernières Nouvelles d'Alsace, La Dépêche du Midi, L'Est Republicain, Midi Libre Semaine, Le Républicain Lorrain, La Provence (Le provencal, Le Meridional), Le Courrier de l'Ouest, L'Union-L'Ardennais, Nice Matin, L'Alsace, Var Matin, Courrier Picard, Paris Normandie, L'Indépendant Semaine, Le Maine Libre, Le Bien Public, Le Populaire du Centre, Corse Matin, La République du Centre, La Charente Libre, Le Berry Republicain, Presse Océan, La République des Pyrénées, L'Yonne Républicaine, L'Echo Républicain de Chartres, Le Journal de Saône et Loire, Vosges Matin (La liberté de l'Est), Le Journal du Centre, L'Est Eclair, Le Journal de la Haute-Marne (La Haute

sales per year with the 2012 shares to allocate these sales per department. This computation assumes that the observed shares are constant over time, which is reasonable as the regional newspapers are tailored to and sold only in certain departments. For instance, Le Télégramme, a Brittany-based newspaper, is primarily distributed in Finistère, followed by Côtes d'Armor and Morbihan—all departments of Brittany.

Marne Libérée), La Presse de la Manche, Nord Eclair, L'Eveil de la Haute Loire, L'Aisne Nouvelle, Centre Presse Poitiers, La Nouvelle République des Pyrénées, Nord Littoral, Le Petit Bleu du Lot et Garonne, and Centre Presse Aveyron Semaine.

G Socio-Cultural Factors

Table G1: Descriptive Statistics on Sociocultural Differences Between Departments

	Means			Standard Deviations		
	1974 (1)	2005 (2)	*Difference* (3) = (2) - (1)	1974 (4)	2005 (5)	*Ratio* (6) = (5)/(4)
Education Difference$_{ijt}$	0.165	0.187	0.022^a	0.091	0.123	1.350^a
Nationality Difference$_{ijt}$	0.127	0.119	-0.009^a	0.075	0.100	1.333^a
First Names Difference$_{ijt}$	0.575	0.744	0.168^a	0.092	0.137	1.480^a

Notes: Values are sample means and standard deviations over all observations for each year and variable. *Difference* is the difference between the 2005 and 1974 means using a two-sample *t* test. *Ratio* is the ratio of the 2005 standard deviation to the 1974 standard deviation using a two-sample variance-comparison *F*-test. ^{c} $p < 0.10$, ^{b} $p < 0.05$, ^{a} $p < 0.01$. Data sources and construction of variables are described in this Appendix section below.

Educational Composition. We construct a measure of educational differences between departments using French census data, as $\textit{Education Difference}_{ijt} = \sum_e |q_{it,e} - q_{jt,e}|$, where $q_{it,e}$ is the share of education level e in department i and year t. French census data report six education levels: no diploma, elementary primary education (CEP diploma), ninth grade (BEPC diploma), vocational secondary education (CAP-BEP diploma), secondary education (*baccalauréat*), and university degree.

Nationality Composition. We construct a measure of differences in nationalities between departments using French census data, as $\textit{Nationality Difference}_{ijt} = \sum_n |k_{it,n} - k_{jt,n}|$, where $k_{it,n}$ is the share of nationals in category n in department i and year t. French census data report ten categories of nationalities: France (local), Algeria, Italy, Morocco, Portugal, Spain, Tunisia, Turkey, other European countries, other African countries.

Choice of First Names. We measure first-name dissimilarity using the Manhattan distance: $\textit{First Names Difference}_{ijt} = \sum_f |h_{it,f} - h_{jt,f}|$, where $h_{it,f}$ is the share of first name f in department i and year t. This variable draws on INSEE data and comes from Head and Mayer (2008). INSEE records every first name given to more than two births, by sex, department, and year.

Table G2: Correlation between Sociocultural Factors, 1974

	Education	Nationality	Names
Ln Education Difference$_{ijt}$	1.000		
Ln Nationality Difference$_{ijt}$	0.427a	1.000	
Ln First Names Difference$_{ijt}$	0.320a	0.329a	1.000

Notes: Variables described in the same Appendix section. ^{c} p < 0.10, ^{b} p < 0.05, ^{a} p < 0.01.

Table G3: Correlation between Sociocultural Factors, 2005

	Education	Nationality	Names
Ln Education Difference$_{ijt}$	1.000		
Ln Nationality Difference$_{ijt}$	0.594a	1.000	
Ln First Names Difference$_{ijt}$	0.409a	0.439a	1.000

Notes: Variables described in the same Appendix section. ^{c} p < 0.10, ^{b} p < 0.05, ^{a} p < 0.01.

Table G4: Tastes and Sociocultural Factors without Geography

	Dependent Variable: Ln Taste Difference_{ijt}				
	(1)	(2)	(3)	(4)	(5)
Ln Education Difference_{ijt}	0.497^a			-0.360^a	-0.042
	(0.109)			(0.121)	(0.181)
Ln Education $\text{Difference}_{ijt} \times 2005$	0.805^a			1.101^a	0.993^a
	(0.135)			(0.153)	(0.169)
Ln Nationality Difference_{ijt}		1.361^a		0.878^a	0.893^a
		(0.109)		(0.123)	(0.235)
Ln Nationality $\text{Difference}_{ijt} \times 2005$		0.442^a		0.295^c	0.385^b
		(0.139)		(0.159)	(0.177)
Ln First Names Difference_{ijt}			1.325^a	1.087^a	1.368^a
			(0.130)	(0.152)	(0.219)
Ln First Names $\text{Difference}_{ijt} \times 2005$			-0.329^b	-0.890^a	-0.718^a
			(0.135)	(0.173)	(0.178)
Observations	7,832	7,832	7,832	7,832	7,832
Adjusted R^2	0.577	0.591	0.588	0.602	0.614
Fixed Effects	it, jt	it, jt	it, jt	it, jt	it, jt, ij

Notes: OLS estimates. Ln Taste Difference_{ijt} is the log of the Manhattan distance of taste differences $\sum_b |\widehat{\theta}_{it,b} - \widehat{\theta}_{jt,b}|$ for broad category b, departments i and j, and survey year $t = \{1974, 2005\}$. In all columns, tastes $\widehat{\theta}$ are from AIDS 2SLS estimations instrumenting for total expenditure and prices. Column 1 includes Ln Education Difference_{ijt}, log of the Manhattan distance in education composition. Column 2 includes Ln Nationality Difference_{ijt}, log of the Manhattan distance in nationality composition. Column 3 includes Ln First Names Difference_{ijt}, log of the Manhattan distance in name types. Columns 4 and 5 include the three sociocultural factors, detailed in text above. Column 5 includes dyadic department-by-department fixed effects. All columns include monadic department-by-year fixed effects. 3,916 observations per year = (89 departments $i \times 88$ departments j)/2. Standard errors clustered by department pairs are reported in parentheses with ^{c} $p < 0.10$, ^{b} $p < 0.05$ and ^{a} $p < 0.01$.

April 10, 2025

Daniel Sturm,

Co-Editor,

Journal of Urban Economics

RE: Ms. Ref. No.: YJUEC-D-23-00266: Tastes, Geography and Culture

Dear Daniel Sturm,

Attached is the revision of the paper "Tastes, Geography and Culture" (Ms. Ref. No.: YJUEC-D-23-00266). We enclose a letter of response to the specific comments you raised in your letter and letters of response to the two Reviewers.

Thanks to these excellent comments and suggestions, we have performed a number of modifications and additional analyses that we believe have substantially improved the paper, and for that we are extremely grateful. We briefly summarize the main changes below and describe them in greater detail in the relevant responses:

1. Two sections have undergone substantial changes: Section 3 and Section 6
   (a) Section 3 now introduces a simple conceptual framework that explains the mechanisms underlying changes in tastes with market integration (Section 3.1), followed by stylized facts on historical food cultures (Section 3.2) and market integration in France (Section 3.3), and concluding with three empirical facts on how prices and consumption patterns relate to geography (Section 3.4).
   (b) Section 6 has been restructured to address why tastes have not homogenized despite market integration. It now focuses on the rising salience of sociocultural factors and their correlation with tastes.
2. We have also made additional changes to the introduction and other sections to incorporate your and the reviewers' comments, while streamlining the text to keep the overall length roughly unchanged. We also introduced the terminology "gravity in taste" to clarify the geographic effect on tastes.
3. Changes to the figures and tables in the main text are as follows:
   (a) In Section 3, Figure 1 has been added to illustrate the evolution of the highway network over the study period. Figure 4b is now combined with Figure 4a to show side-by-side prices, consumption, and geographic relationships in 1974 and 2005.
   (b) In Section 5, the main results are now presented in two tables. Table 1 includes the baseline specification along with alternative first step specifications (taste estimation). Three additional columns—excluding farmers, adding homogeneity, symmetry, and quadratic total expenditure terms—have been incorporated in response to reviewer suggestions. Table 2 presents alternative second step specifications such as step-distance and contiguity. One additional column includes bilateral integration factors.
   (c) In Section 6, Table 4 now presents only the correlation between tastes and sociocultural similarity factors, reflecting the restructuring of this section.

We would like to thank you for the detailed and clear editorial letter, and for giving us the opportunity to revise and resubmit our work. We apologize for the delay in revising the paper, which was due to unforeseen personal circumstances and the extended process involved in obtaining additional data.

Sincerely,

José De Sousa, Eve Colson-Sihra and Thierry Mayer

Response to the Editor

We will respond individually to the points laid out in your decision letter. We have also made additional changes to the draft in response to the other points raised by the Reviewers. These changes are detailed in the relevant Reviewer replies. For clarity, each of the comments in your letter is transcribed below (italicized) along with our response, and direct citations from the paper (not italicized).

I have received two referee's reports for your paper, one of which is appended below and the other one is attached. Both referees have criticisms of the paper as it stands, but also see a number of key strengths. Both referees recommend a revision. Based on my own reading of the paper and the reports I would like to offer you the opportunity to submit a revised version to the Journal of Urban Economics.

We thank you very much for this assessment of our paper, and giving us a chance to provide a revised version incorporating your and the referees' comments.

Referee 1 has a number of detailed comments about the demand estimation strategy that you should address carefully. Referee 2 makes a good point about agricultural employment that it would be good to address in some form if possible. Both referees are least enthusiastic about Section 6 of the paper. Some of this lack of enthusiasm comes through more clearly in the editorial letters. I share this feeling and let me sketch some ideas how this could be addressed.

One way to do a much more thorough job in this section would be to develop a fully structural model that could be used to address the potential contribution of different factors to changing expenditure shares. Unless you are dying to do this, I think this is beyond the contribution of this paper, which shows some really interesting empirical patterns. Short of this, I have a few suggestions how this section could potentially be improved nevertheless: (1) The section and maybe also the introduction could have a more effective discussion of the channels through which expenditure shares might change over time.

We thank you for pushing us to clarify this aspect. We now propose a simple conceptual framework in Section 3.1 as follows:

> France has distinct regional food cultures that have evolved over centuries from a complex mix of factors (Braudel et al., 1961).[2] A key factor is the regional variation in agro-climatic conditions that favors the cultivation of specific, locally adapted crops (e.g., southwestern Bordeaux vineyards for grape production and northern Normandy apple orchards for cider production, see Appendix Figure B3 and Section 3.2). In a context of high trade costs, transporting goods is so expensive that arbitrage opportunities are precluded. As a result, regional differences in crop suitability lead to spatial price differentials, where prices vary with distance from production centers. Regions with favorable conditions for growing certain crops experience lower prices for foods produced from those crops, encouraging their consumption early in life. Past prices, therefore, play a critical role in shaping current tastes through habit formation, which in turn establishes enduring regional taste preferences.[3]
>
> But what happens when trade costs decrease? Market integration can lead to price convergence across regions (Donaldson, 2018). Since the 1970s, France has experienced significant market integration (Combes and Lafourcade, 2005), driven by a denser highway network and the rapid expansion of high-speed rail, leading to price convergence (see Section 3.3). Although historically lower prices have entrenched early life consumption and taste formation, the gradual equalization of prices across regions exposes consumers to a broader array of food options. As lower prices increase access to these previously less consumed alternatives, demand for them may grow over time, gradually changing tastes.

[2] For historical examples, see food culture maps such as Tourcaty (1809) and Bourguignon (1932) digitalized by the Cornell University Library (https://digital.library.cornell.edu/catalog).

[3] Atkin (2013) demonstrates how sustained consumption patterns favor locally abundant crops over generations using an overlapping-generations general equilibrium model with habit formation.

> Would the homogenization of prices eventually lead to homogenization of tastes? The habit formation literature asserts that as consumers are exposed to increasingly similar prices and products, their consumption patterns should converge. In contrast, the social identity literature contends that even under similar market conditions, consumption choices can remain distinct, or diverge further, as individuals express evolving group identities, for example shifting from regional to broader sociocultural affiliations (Atkin et al., 2021; Nardotto and Sequeira, Forthcoming). These frameworks offer contrasting predictions: one anticipates convergence in tastes, the other expects persistent or reconfigured divergence that mirrors social divisions.

(2) One maybe not very deep but empirically not impossible reason for the empirical results could be decreases in trade costs well before 1974. If such market integration has resulted in a decrease in price gaps for particular types of food across locations, the induced changes in preferences and expenditure shares could evolve very slowly over many decades and we might just be seeing this evolution between 1974 and today.

This may well have been the case, and would suggest that the changes observed since 1974 could be the result of dynamics that began well before that date. However, to the best of our knowledge, trade costs were relatively high before the 1970s in France. For instance, France's first highway connecting Paris and Normandy was inaugurated in 1946, yet by 1960 only 170 km of highways had been built nationwide, and the first high-speed rail line (TGV) did not open until 1981. This timeline suggests that significant reductions in trade costs likely began in the 1970s (see also Combes and Lafourcade, 2005). We now detail this information on market integration in France in Section 3.3 and add maps of the development of highways in 1974 and 2005 in Figure 1 (Appendix Figure B5 for 1960).

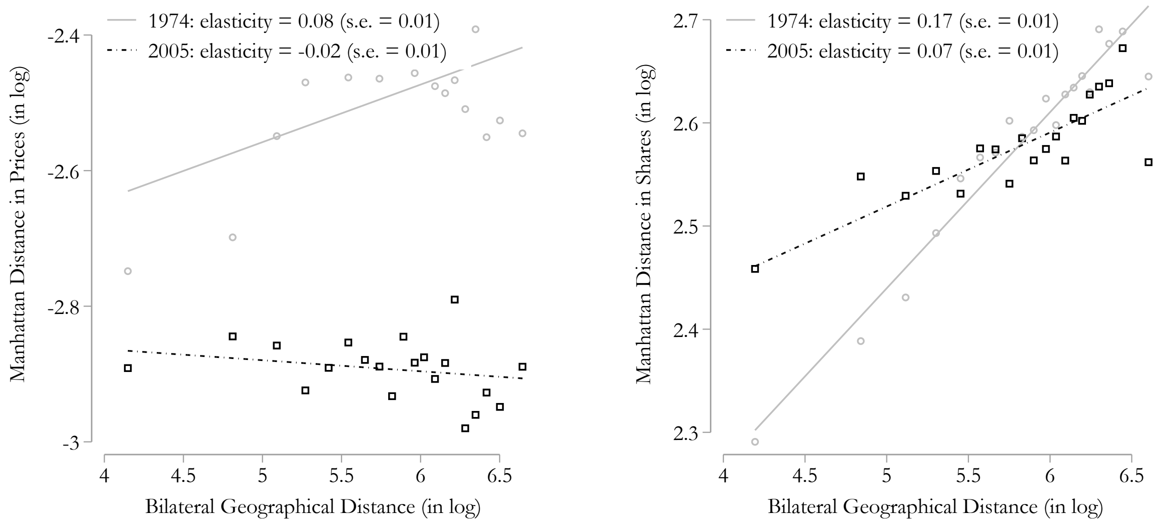
(3) The paper points to the region by time fixed effects in the key specifications that capture changes in prices of different foods across regions. While adding these fixed effects is a nice econometric strategy, I would quite like to see whether price gaps across regions have indeed narrowed over time in your data, if only to back up the claims about increased market integration since 1974. The sort of flip-side of this comment is that the bilateral market integration variables that the paper includes in Section 6 feel a bit like tinkering at the edges and it is maybe not too surprising that they are not explaining much.

Section 3 now features Figure 4a (previously in appendix) showing that price gaps across departments have indeed narrowed over time in our data. Below, we reproduce our Fact #1 alongside with the new figure:

> Figure 4a presents a binned scatterplot of log Manhattan distance in prices across the nine broad categories between two departments on their log bilateral geographic distance.[4] In 1974, the solid line indicates a positive correlation: a 10% increase in distance is associated with a 0.8% difference in prices.[5] Geographically distant departments exhibit greater price disparities in 1974. By 2005, however, the dashed line shows a near-flat slope, with an elasticity statistically indistinguishable from zero, indicating no systematic relationship between distance and price differences. As documented in the trade and economic geography literature, price convergence may stem from market integration, driven by reductions

[4]The Manhattan distance provides a bilateral aggregate measure of dissimilarity in prices between two departments across the nine broad categories. Formally, $\textit{Manhattan Distance in Prices}_{ijt} = \sum_b |p_{it,b} - p_{jt,b}|$, where p denote prices for departments i and j in year $t = \{1974, 2005\}$ in broad category b. As a metric, the Manhattan distance satisfies two desirable conditions for distance measures: it equals zero when two departments exhibit identical prices, and increases linearly with absolute deviations, avoiding the disproportionate impact of large differences that arises with squared deviations (e.g., Euclidean distance).

[5]For comparison, Donaldson (2018) finds that in colonial India, a 10% increase in the distance to source (measured along the lowest-cost route) is associated with a 0.9% increase in the log salt price at the destination. This distance elasticity is remarkably close to our 1974 estimate under relatively high trade costs.



(a) Prices (b) Consumption Shares

Geographic Distance, Prices and Consumption

Notes: Binned scatterplots showing log Manhattan distance in prices (left) and consumption shares (right) against log bilateral geographic distance between department pairs, separately by survey round (1974 and 2005). Linear regression lines are shown by round.

> in transport costs and improvements in infrastructure (Anderson and van Wincoop, 2004; Donaldson, 2018).

In addition, bilateral integration factors now play a less central role. We have fully restructured Section 6 and incorporated these factors as robustness checks in Section 5 (Table 2, column 5). All associated variables and interactions remain visible in Appendix Table E4. The small or negligible effects of these variables are indeed reassuring, as they suggest that our two-step procedure and fixed effects already account for potential confounding influences. Nonetheless, we believe that bilateral integration factors that may be correlated with distance are conceptually important and worth testing explicitly.

Apart from these substantive comments, I have a number of comments on the way the results are presented and hope you can address these as well in the revision. The comments are in the order of the section to which they apply and not importance:

(1) The first sentence of the introduction is too long and convoluted and the paper gets off to the wrong start!

We agree that the first paragraph was convoluted and changed it accordingly. We hope that this is now a good start for the paper.

(2) When you first introduce your two-step estimation approach in the introduction or later in the paper, could you compare it more effectively to the approaches used in the existing literature?

Absolutely, we now clarify from the introduction that our contribution is to develop a two-step method for studying regional taste differences, with the second step being novel. For instance, in the third paragraph of the Introduction, we write:

> We contribute to the literature on taste formation (Bowles, 1998; Bisin and Verdier, 2001; Fehr and Hoff, 2011) by developing a two-step method to study regional taste differences.

> First, we adapt Atkin (2013)'s structural-demand approach to estimate geographically localized tastes—addressing the key identification challenge of disentangling changes in preferences from changes in the economic environment (Stigler and Becker, 1977). Second, we compute bilateral taste differences between regions and analyze their evolution over time.

In Section 4, we have clarified the structure of the demand system and the assumptions underlying it, drawing on both the AIDS literature (e.g., multi-level demand systems) and the method proposed by Atkin (2013) for retrieving tastes using AIDS.

(3) Section 2 on page 6 mentions why you are using these two particular years. I would already mention that in the introduction, as the choice of years otherwise looks somewhat idiosyncratic.

Thank you for noticing this lack of clarity. We now mention in the fourth paragraph of the Introduction:

> Fourth, unlike other survey rounds, the 1974 and 2005 surveys record both expenditures and quantities, allowing us to construct unit values as proxies for prices.

(4) Section 3 is very nice, but sort of drops out of the sky at the moment and starts with "Fact 1". The section needs a brief introduction to explain why you are presenting these results ahead of estimating the full specification. This introduction or some other part of the section needs to explain why both the regressions and the reduced form facts shown in Section 3 are complimentary and both interesting. The final sentence of this section sort of tries to make this point, but is "too little too late" in my opinion.

Thank you for your valuable comment and encouragement. This and related suggestions led us to revise Section 3, which now begins with a simple conceptual framework reproduced above. The framework is followed by two subsections that document historical patterns of local tastes and market integration in France, before turning to the empirical facts. Our aim is to ground the structural estimation in a transparent set of stylized facts that illustrate how the influence of geography on prices and consumption has weakened over time, thus motivating the subsequent analysis of geography's impact on tastes. We also leverage intermediate survey rounds in 1984 and 1995 to enrich our analysis; however, quantity data are unavailable for these rounds, precluding AIDS estimation using unit values.

(5) I think you should justify the choice of Manhattan distances with a couple of sentences. Why does it make sense to look at absolute differences rather than squared deviations?

We agreed and justified our choice in Footnote 15:

> As a metric, the Manhattan distance satisfies two desirable conditions for distance measures: it equals zero when two departments exhibit identical prices, and increases linearly with absolute deviations, avoiding the disproportionate impact of large differences that arises with squared deviations (e.g., Euclidean distance).

We also test the robustness of our results to an alternative measure of taste differences: Appendix Table E3 now reproduces Table 1 using Euclidian distance (squared deviations) rather than Manhattan distance and find strikingly similar results.

(6) To me specification (6) in the paper is both very simple and a little confusing. What confused me when I first looked at this equation are the references to the structural gravity literature and the presence of both i and j fixed effects in the regression. In many gravity equations we would have flows from i to j and hence a N x N matrix of flows (including the own flows) and include both importer and exporter fixed effects. Here the i to j and j to i observation are the same bilateral difference. Even if that is the

case, we can still identify both "importer" and "exporter" fixed effects. Just explain this a bit better to help people like me understand the specification quicker.

You are right that our setup can look confusing if you think in terms of directional flows. We draw inspiration from the gravity literature to measure the "gravity of tastes", that is, to examine whether tastes are influenced by geography. However, we have now removed all references to "structural gravity" to avoid any confusion. As taste differences are symmetric, Taste Difference_{ij} = Taste Difference_{ji}, we include each department pair only once. Moreover, it is true that we do not have "own-department tastes" (i.e., *ii*). In conclusion, with 89 departments our regression uses $(89 \times 88)/2$) observations per year, amounting to 7,832 observations across 1974 and 2005. We clarify this now in the tables and text.

(7) It feels like footnote 25 comes too early. I would present first the baseline results and then discuss their robustness. Maybe the material in footnote 25 should also be moved into the main text.

Thank you for this point, we agree that this information was misplaced. We now put it after the discussion of the baseline results and in the main text, in Section 5.

(8) The column references in the second paragraph on page 19 are wrong.

We are sorry for this typo. We modified the table in the revised version and reference columns appropriately in the text.

(9) The paragraph on page 20 which includes "(see Table 2)" should start with "Table 2 shows ..."

This is also modified in the revised version.

Response to Reviewer 1

We would like to thank the Reviewer for these very useful comments. We have tried to address all of them in the revised version of the paper. For clarity, each of the comments in your letter is transcribed below (italicized) along with our response, and direct citations from the paper (not italicized).

We start by briefly summarizing the main changes and provide a detailed response to each comments and suggestions below:

1. Two sections have undergone substantial changes: Section 3 and Section 6
   (a) Section 3 now introduces a simple conceptual framework that explains the mechanisms underlying changes in tastes with market integration (Section 3.1), followed by stylized facts on historical food cultures (Section 3.2) and market integration in France (Section 3.3), and concluding with three empirical facts on how prices and consumption patterns relate to geography (Section 3.4).
   (b) Section 6 has been restructured to address why tastes have not homogenized despite market integration. It now focuses on the rising salience of sociocultural factors and their correlation with tastes.
2. We have also made additional changes to the introduction and other sections to incorporate your and the reviewers' comments, while streamlining the text to keep the overall length roughly unchanged. We also introduced the terminology "gravity in taste" to clarify the geographic effect on tastes.
3. Changes to the figures and tables in the main text are as follows:
   (a) In Section 3, Figure 1 has been added to illustrate the evolution of the highway network over the study period. Figure 4b is now combined with Figure 4a to show side-by-side prices, consumption, and geographic relationships in 1974 and 2005.
   (b) In Section 5, the main results are now presented in two tables. Table 1 includes the baseline specification along with alternative first step specifications (taste estimation). Three additional columns—excluding farmers, adding homogeneity, symmetry, and quadratic total expenditure terms—have been incorporated in response to reviewer suggestions. Table 2 presents alternative second step specifications such as step-distance and contiguity. One additional column includes bilateral integration factors.
   (c) In Section 6, Table 4 now presents only the correlation between tastes and sociocultural similarity factors, reflecting the restructuring of this section.

The paper estimate taste differences across French regions (departments or cities), controlling for prices, and investigates the determinants of these differences: distance or socio-economic variables. The data for 1974 and 2005 covers about 14,000 and 10,000 households respectively, with information on consumption and prices (unit values) on about 50 categories of goods, and a uniform geographic coverage across French regions. The authors estimate an AIDS demand system across and within broad categories of goods (instrumenting prices with Hausman-like instruments), and back out taste shifters across locations after adjusting for price differences. Then, in a second step, they regress the log differences in tastes (sum of absolute value of differences in AIDS taste shifters) on distance and a variety of other socio-economic variables. They find a large effect of distance in 1974, and a smaller but still significant effect of distance in 2005, while taste differences are still large in 2005 (no homogenization). However, in 2005, differences in education and in the nationality of immigrants seems to play a greater role in explaining taste differences.

I find the topic and the approach of the paper very interesting. The dataset is also a strength of the paper – it's hard to go back that far in time with a harmonized dataset. But there are a few issues:

1) The paper highlights a role for geography (distance) but does not really provide a consistent mechanism through which geography would have affected tastes differences.

2) Identification of income and cross-price elasticities is tricky and I would not put a lot of trust into it. It might also be useful to impose additional structural restrictions on the demand system for the estimation.

More details and robustness checks on 2) should be provided. For 1), I would expect a reasonable rebuttal (if the editor is not as concerned as I am) or a more structural approach and some back-of-the envelop calculations to explain how geography may affect tastes in a way that would be consistent with the reduced-form estimates.

We thank Reviewer 1 for this summary, for their positive assessment of the paper approach and contribution and for their thoughtful remarks about the motivation and identification.

1) Geography and prices

I believe that the price elasticity estimation is not consistent with an effect of geography on tastes through trade costs and prices. In particular, one would need expenditure shares to depend negatively on prices in order to induce larger expenditure shares (through habit formation) in goods in which the surrounding regions have a comparative advantage.

Thank you for your comment prompting greater clarity. The negative relationship between expenditure shares and prices depends critically on the price elasticity of demand. In a standard demand framework, if demand is highly **elastic** (i.e., elasticity < -1), then an increase in price leads to a more than proportional **decrease** in quantity demanded. In that case, the expenditure share—defined as $(p \times q) / \sum(p \times q)$—would decline with the price, and one would indeed expect a negative relationship.

However, our estimates indicate that demand is **inelastic**, meaning the quantity demanded decreases less than proportionally in response to a price increase. As a result, the expenditure share **increases** with the price. As AIDS models regress expenditure shares on log prices, inelastic demand implies a positive coefficient on the own-price term—a relationship consistent with theory and shown in Deaton and Muellbauer (1980).

We now clarify this interpretation in Section 4.3 and cite meta-analyses demonstrating that food demand is typically inelastic.

To begin with, why would geography and distance affect consumption patterns? For instance, a mechanism highlighted in Atkin (2012) is that the relative price of a good (e.g. olive oil) would be lower in a region who has a comparative advantage in olive oil. If expenditure shares decrease with relative prices (a key assumption?), a region with lower relative prices in certain goods would have a greater expenditure share in such goods and would subsequently develop a greater taste for such goods.

We thank you for pushing us to clarify this aspect. We now propose a simple conceptual framework in Section 3.1 as follows:

> France has distinct regional food cultures that have evolved over centuries from a complex mix of factors (Braudel et al., 1961).[2] A key factor is the regional variation in agro-climatic conditions that favors the cultivation of specific, locally adapted crops (e.g., southwestern Bordeaux vineyards for grape production and northern Normandy apple orchards for

[2]For historical examples, see food culture maps such as Tourcaty (1809) and Bourguignon (1932) digitalized by the Cornell University Library (https://digital.library.cornell.edu/catalog).

cider production, see Appendix Figure B3 and Section 3.2). In a context of high trade costs, transporting goods is so expensive that arbitrage opportunities are precluded. As a result, regional differences in crop suitability lead to spatial price differentials, where prices vary with distance from production centers. Regions with favorable conditions for growing certain crops experience lower prices for foods produced from those crops, encouraging their consumption early in life. Past prices, therefore, play a critical role in shaping current tastes through habit formation, which in turn establishes enduring regional taste preferences.[3]

But what happens when trade costs decrease? Market integration can lead to price convergence across regions (Donaldson, 2018). Since the 1970s, France has experienced significant market integration (Combes and Lafourcade, 2005), driven by a denser highway network and the rapid expansion of high-speed rail, leading to price convergence (see Section 3.3). Although historically lower prices have entrenched early life consumption and taste formation, the gradual equalization of prices across regions exposes consumers to a broader array of food options. As lower prices increase access to these previously less consumed alternatives, demand for them may grow over time, gradually changing tastes.

Would the homogenization of prices eventually lead to homogenization of tastes? The habit formation literature asserts that as consumers are exposed to increasingly similar prices and products, their consumption patterns should converge. In contrast, the social identity literature contends that even under similar market conditions, consumption choices can remain distinct, or diverge further, as individuals express evolving group identities, for example shifting from regional to broader sociocultural affiliations (Atkin et al., 2021; Nardotto and Sequeira, Forthcoming). These frameworks offer contrasting predictions: one anticipates convergence in tastes, the other expects persistent or reconfigured divergence that mirrors social divisions.

If expenditure shares increase with the relative price of a good, I am not sure that such a mechanism would work. There would still be greater quantities consumed for a good with a lower relative price (e.g. due to comparative advantage), but I fail to see how this would translate in larger expenditure shares through habit formation.

We distinguish here between the static response of consumption to prices, related to the discussion of price elasticity above, and the more dynamic question linked to the mechanism of habit formation.

Our **key assumption** is that current tastes are shaped by *past* prices. We acknowledge that a region with a comparative advantage in producing a particular good will historically experience lower relative prices for that good. In our conceptual framework (reproduced above), regions with lower relative past prices for certain goods develop a stronger taste for these goods over time. This is consistent with Atkin (2013), who shows that tastes are indeed correlated with past prices (Table 1 in his paper). Atkin (2013) "firmly reject[s] the hypothesis of no habit formation [...] there are significantly negative lagged price terms, with high prices in the past reducing tastes for a food today". Unfortunately, we cannot replicate his test of habit formation directly because prices in our context are not available in intermediate rounds. However, we can test the long-run relationship by correlating our estimated 2005 tastes with 1974 prices. These tastes are estimated using unexplained regional variation in food budget shares and are thus controlling for current prices. We then regress the 2005 tastes on the log of 1974 prices, controlling for department and broad category fixed effects, and we cluster robust standard errors at the department-food category level. The results of this analysis are available in the following output table. If you find these results convincing enough, we would be happy to include them in the paper's appendix.

Similarly, are the changes in trade costs between 1974 and 2005 consistent with the changes in

[3] Atkin (2013) demonstrates how sustained consumption patterns favor locally abundant crops over generations using an overlapping-generations general equilibrium model with habit formation.

Output Stata Table: Regression of 2005 Tastes on 1974 Prices

```
. reghdfe Tastes2005 logPrices1974, absorb(dep category) vce(cluster depcat)
(MWFE estimator converged in 2 iterations)

HDFE Linear regression                            Number of obs     =        801
Absorbing 2 HDFE groups                           F(   1,     703)  =      16.28
Statistics robust to heteroskedasticity           Prob > F          =     0.0001
                                                  R-squared         =     0.1946
                                                  Adj R-squared     =     0.0834
                                                  Within R-sq.      =     0.0346
Number of clusters (depcat)  =        801         Root MSE          =     0.0314

                               (Std. Err. adjusted for 801 clusters in depcat)
------------------------------------------------------------------------------
             |               Robust
  Tastes2005 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
logPrices1974|  -.0173035   .0042882    -4.04   0.000    -.0257227   -.0088843
       _cons |   -.078294   .0191867    -4.08   0.000    -.1159641   -.0406238
------------------------------------------------------------------------------

Absorbed degrees of freedom:
-----------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
-------------+---------------------------------------|
         dep |        89           0          89     |
    category |         9           1           8     |
-----------------------------------------------------+
```

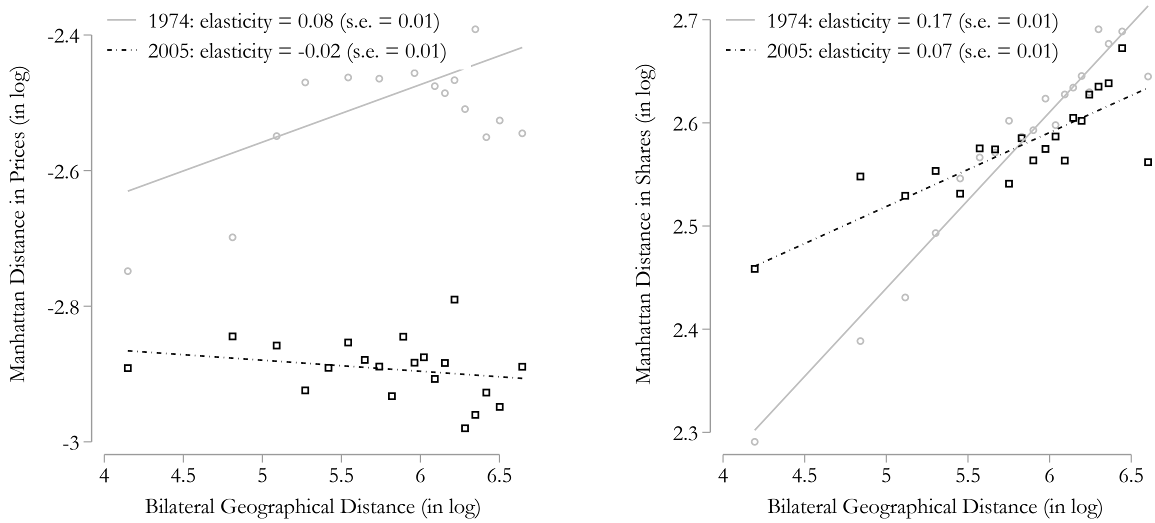
tastes? If the role of geography is less prominent in 2005, is that because of lower trade costs? If so, this should be reflected in changes in prices, but the authors do not provide much details on the evolution of prices. Are prices now more homogeneous nationally in 2005 relative to 1974? (looking for instance at the Manhattan difference in log prices, as they do for tastes)

We greatly appreciate your comment. In response, we now clarify in the conceptual framework that the reduced role of geography in 2005 could be attributable to lower trade costs, and should indeed be reflected in changes in prices. We also moved key material from the appendix into the main text to clearly demonstrate that prices have converged. Below, we reproduce our Fact #1 alongside with the new figure:

> Figure 4a presents a binned scatterplot of log Manhattan distance in prices across the nine broad categories between two departments on their log bilateral geographic distance.[4] In 1974, the solid line indicates a positive correlation: a 10% increase in distance is associated with a 0.8% difference in prices.[5] Geographically distant departments exhibit greater price disparities in 1974. By 2005, however, the dashed line shows a near-flat slope, with an elasticity statistically indistinguishable from zero, indicating no systematic relationship between distance and price differences. As documented in the trade and economic geography literature, price convergence may stem from market integration, driven by reductions in transport costs and improvements in infrastructure (Anderson and van Wincoop, 2004; Donaldson, 2018).

[4]The Manhattan distance provides a bilateral aggregate measure of dissimilarity in prices between two departments across the nine broad categories. Formally, $\textit{Manhattan Distance in Prices}_{ijt} = \sum_b |p_{it,b} - p_{jt,b}|$, where p denote prices for departments i and j in year $t = \{1974, 2005\}$ in broad category b. As a metric, the Manhattan distance satisfies two desirable conditions for distance measures: it equals zero when two departments exhibit identical prices, and increases linearly with absolute deviations, avoiding the disproportionate impact of large differences that arises with squared deviations (e.g., Euclidean distance).

[5]For comparison, Donaldson (2018) finds that in colonial India, a 10% increase in the distance to source (measured along the lowest-cost route) is associated with a 0.9% increase in the log salt price at the destination. This distance elasticity is remarkably close to our 1974 estimate under relatively high trade costs.



(a) Prices

(b) Consumption Shares

Geographic Distance, Prices and Consumption

Notes: Binned scatterplots showing log Manhattan distance in prices (left) and consumption shares (right) against log bilateral geographic distance between department pairs, separately by survey round (1974 and 2005). Linear regression lines are shown by round.

2) Estimation of demand

Estimation of demand is rather unclear. This should be better polished as demand estimation (especially so many cross-price coefficients!) is tricky, and often not very robust to small changes in specifications.

a. First, it is not clear from the draft that demand is estimated purely from cross-sectional variation. This should be made more explicit in the draft. One should either drop all the "t" subscripts or include the subscripts for all variables and coefficients. In equations 4 and 5, one should include subscripts for coefficients beta, gamma and pi as they are estimated separately for 1974 and 2005 (see tables C1, C2, C3 and C4).

This is absolutely correct and we opted for dropping the t subscripts in Equations 4 and 5.

b. Second, the authors claim to be using "Hausman-type" instruments but such instruments are typically constructed using first differences or using fixed effects, instrumenting the changes in local prices by changes in neighboring prices. Here, instruments are based on levels and used in the cross section.

We now clarify in Section 4.2 that:

> ...we address price endogeneity concerns by using an instrument that is correlated with underlying costs (e.g., production, distribution) but uncorrelated with idiosyncratic city taste. Following Atkin (2013) in using a Hausman (1996)-inspired approach, we leverage cross-sectional spatial differences in costs.

c. It is also surprising that the authors are able to identify demand parameters from variation within "departments" as those are very small regions. With about 10,000 households and about 100 departments, we are left with about 100 households by department on average. With prices inferred from unit values, I would also expect very large measurement errors (e.g. due to variation in packaging size, etc.).

Your comment is entirely valid. We address this issue by dropping departments with very few observations. For instance, in our sample, we have 89 departments in 1974 with 14,082 observations and 91 departments in 2005 with 10,240 observations. Although the number of observations per department is not large, the variation appears sufficient to estimate tastes by department and category (see Appendix section D). The decline in taste gravity remains robust across a range of specifications, including those that, following your suggestion, impose symmetry and homogeneity constraints and thus reduce the number of estimated parameters.

d. While the specification of demand across groups (equation 2) is theoretically consistent with the AIDS expenditure function, I believe that the specification within groups (equation 3) is not consistent with it. In the within-group specification, they use some measure of real expenditure constructed just for the group of goods (expenditure divided by a price index for this group of goods) instead of real income (ratio of total income and overall price index across the entire basket). When we then aggregate at the level of the broad category, this within-specification is not consistent with the demand specification used at the level of the broad category shown in equation 2 – or at least this is not obvious at all and additional derivation details should be provided in Appendix. In particular, one cannot have a sub-category price index unless we impose some form of homotheticity within that category.

It is true that our earlier presentation of the assumptions and methodological steps lacked clarity, and we have now revised Section 4 accordingly. In particular, we added:

> While AIDS demand estimation offers functional form flexibility, it poses the challenge of high product dimensionality. In response to the dimensionality issue, the literature suggests a multi-stage budgeting approach, which involves constructing a multi-level demand system with separate groups (see Nevo, 2011). This approach assumes weak separability, that is, each good belongs to only one separable segment (one category), and its demand can be written as a function of the total expenditure spent in that specific segment and prices of other products within the segment. Following this approach, we derive a multi-level demand estimation with a higher level, the broad categories g, and a lower level, the goods g.

Later, we add in Footnote 20:

> These parameters are theoretically required to satisfy the following restrictions: adding up ($\sum_k \theta_{d,k} = 1$), homogeneity ($\sum_k \gamma_{kk'} = \sum_k \beta_k = 0$), and symmetry ($\gamma_{kk'} = \gamma_{k'k}$ for all k, k'). In practice, empirical applications often relax these constraints to allow for greater flexibility in fitting the data. Our results on gravity in tastes are robust to whether or not these restrictions are imposed in the demand estimation.

And we clarify the price index in Equation (2) (broad category-level):

> $\ln P_{h,b'}$ is the household AIDS price index of broad category b' constructed from good-level demand (see Equation 3 below) under the multi-stage budgeting approach reviewed in Nevo, 2011.

As well as the total category expenditure in Equation (3) (good-level):

> $\frac{X_{bh}}{P_{bh}}$ is the real household expenditure in broad category b with X_{bh} being the broad category expenditure and P_{bh} being the broad category AIDS price index. Following the weak separability assumption of multi-stage budgeting, real expenditure is expressed at the category (not household) level for good-level demand.[6]

[6] In particular, the additivity restriction of the AIDS demand system requires the denominator of the expenditure shares on the left-hand side to equal the total expenditure on the right-hand side, here X_{bh}, ensuring that the shares sum to 1 (Deaton and Muellbauer, 1980).

We hope these clarifications address your concerns about the consistency of demand estimations across levels.

e. The AIDS demand system imposes the restrictions described in footnote 16. These restrictions are currently not imposed in the estimation, but imposing these symmetry and adding-up restrictions might lead to very different results for price coefficients. Maybe the authors should try to estimate demand with such restrictions, and use the implied tastes differences in the second step as a robustness check? Another common restriction is to impose uniform cross-price effects, e.g. as in Fajgelbaum and Khandelwal (2016). There would then only be a single parameter to estimate rather than many crossprice elasticities. Would we get similar results in the second step if we adopt this strategy?

We thank you for pushing us on the taste estimation. We added two robustness specifications to Table 1 following your comment. We use the AIDS ILLS estimator from Lecocq and Robin (2015) to obtain taste estimates adding homogeneity+symmetry (used in column 6), which significantly reduce the number of parameters (cross-elasticities) to estimate. We also add more flexibility in total expenditure by adding a quadratic term (used in column 7). Reassuringly, our results are stable across these specifications. In the text of Section 5, we added:

> The fourth and fifth robustness specifications rely on taste estimates from AIDS demand systems that impose homogeneity and symmetry restrictions (column 6) and add total expenditure flexibility through a quadratic term (column 7). While these restrictions ensure internal consistency with the underlying consumer theory and reduce the dimensionality of the parameter space, they also limit flexibility (Nevo, 2011). For instance, the symmetry condition–which requires that the cross-price elasticity of one good with respect to another equals the reverse–may overlook heterogeneity in consumer responses and potentially affect the identification of tastes. In our case, both sets of robustness estimates closely align with the baseline results in column 2.

Response to Reviewer 2

We would like to thank the Reviewer for these very useful comments. We have tried to address all of them in the revised version of the paper. For clarity, each of the comments in your letter is transcribed below (italicized) along with our response, and direct citations from the paper (not italicized).

We start by briefly summarizing the main changes and provide a detailed response to each comments and suggestions below:

1. Two sections have undergone substantial changes: Section 3 and Section 6
   (a) Section 3 now introduces a simple conceptual framework that explains the mechanisms underlying changes in tastes with market integration (Section 3.1), followed by stylized facts on historical food cultures (Section 3.2) and market integration in France (Section 3.3), and concluding with three empirical facts on how prices and consumption patterns relate to geography (Section 3.4).
   (b) Section 6 has been restructured to address why tastes have not homogenized despite market integration. It now focuses on the rising salience of sociocultural factors and their correlation with tastes.
2. We have also made additional changes to the introduction and other sections to incorporate your and the reviewers' comments, while streamlining the text to keep the overall length roughly unchanged. We also introduced the terminology "gravity in taste" to clarify the geographic effect on tastes.
3. Changes to the figures and tables in the main text are as follows:
   (a) In Section 3, Figure 1 has been added to illustrate the evolution of the highway network over the study period. Figure 4b is now combined with Figure 4a to show side-by-side prices, consumption, and geographic relationships in 1974 and 2005.
   (b) In Section 5, the main results are now presented in two tables. Table 1 includes the baseline specification along with alternative first step specifications (taste estimation). Three additional columns—excluding farmers, adding homogeneity, symmetry, and quadratic total expenditure terms—have been incorporated in response to reviewer suggestions. Table 2 presents alternative second step specifications such as step-distance and contiguity. One additional column includes bilateral integration factors.
   (c) In Section 6, Table 4 now presents only the correlation between tastes and sociocultural similarity factors, reflecting the restructuring of this section.

Short Summary

This paper asks whether geography still shapes culture in France. To answer this question, it looks at taste differences for different types of food across French departments. The paper's main conclusion is that geographic distances played an important role in explaining taste differences in 1974, but this was no longer the case in 2005. However, taste heterogeneity did not decline, it simply became less correlated with geography, and more with other factors, such as education.

Longer summary

The paper uses French expenditure survey data from 1974 and 2005 to estimate demand functions for different food products. The richness of the data allows estimating a taste parameter for each good and each French department (essentially a demand shifter, after controlling for prices and income). These taste parameters are then used to compute bilateral taste distances between departments for 1974 and 2000. By regressing these bilateral taste distances on geographic distances, the paper establishes the first two key results. First, taste differences in 1970 showed a strong correlation with geographic distances. Second, that correlation became much weaker by 2005. While these results might seem to suggest that tastes converged, this is not the case: a third result is that taste heterogeneity did not decline, it is simply that taste distances have become less correlated with geographic distances (the paper refers to this as the emergence of a "taste mosaic" — some kind of heterogeneity but not in a specific geographic order). The last part of the paper establishes that while geographic distances have become less important in explaining taste differences, other types of distances have become more important. In particular, differences in education and national origin are more predictive of taste differences across departments in 2005 than in 1974.

Overall assessment

This is a great paper; in my view, it will make a very nice contribution to the JUE. Below I list a few comments. Only the first one is really important.

We thank Reviewer 2 very much for these summaries and for their positive assessment of the paper approach and contribution.

Comments

1. Given that the paper is about food, I wonder how important consumption from home production might have been in the 1970s. Farmers typically eat their own food, and in the early 1970s over 15% of the French were still employed in agriculture. The same may be true for rural households who grow their food in their backyard. In this case, a food expenditure survey might not give a reliable picture of actual food consumption. For example, it might show smaller expenditure shares for the type of food products grown for home consumption. If rural areas are clustered in space, that might generate a stronger correlation between geographic distance and taste distance in 1974 than in 2005, when the share of farmers was much lower.

It would be good to do some robustness, either by dropping farmers from the survey or by maybe dropping the more rural departments.

We thank you for the suggested robustness check. You are absolutely right that the share of farmers fell dramatically over our study period, which could lead us to underestimate the true decline in the distance effect if farmers' unreported own-consumption is concentrated locally. To address this, we re-estimate our taste parameters excluding all farmer households. Reassuringly, we find very consistent estimates. The results are reported in column 5 of Table 1, and is accompanied by the following text in Section 5 :

> Third, France experienced a significant decline in the proportion of farmers—from 9.6% in 1974 in our data to 2.4% in 2005. If consumer surveys underreport own consumption and farmers develop a strong taste for their own products, the estimated 1974 distance effect may be downward biased. Specifically, if farmers producing a local product—such as olive oil—consume additional, unreported quantities, the estimated taste for that product is biased downward. Column 5 presents the taste estimates using the baseline AIDS 2SLS, excluding farmer households from the estimation. The estimates are similar to column 2,

> suggesting that either own consumption is well recorded, or that it does not affect bilateral taste differences in our specification.

2. I would suggest you have a quick look at Collado, Ortuno-Ortin and Romeu, "Intergenerational Linkages in Consumption Patterns and the Geographical Distribution of Surnames," Regional Science and Urban Economics, 2012. This paper shows that there is little intergenerational transmission of references, except for food. In that sense, it suggests that cultural change in food preferences is relatively slow.

Thank you for informing us of this very relevant paper, which helps us strengthen the argument of food as (potentially persistent) culture. It is now cited in Section 2.3.

3. Section 6 is interesting, but it also left me wondering what the mechanism of geographic convergence might be (given that the different channels you explore are unable to "kill" the central finding).

Your comment prompted us to rethink and restructure Section 6, in coordination with the newly added conceptual framework in Section 3.1 reproduced below:

> France has distinct regional food cultures that have evolved over centuries from a complex mix of factors (Braudel et al., 1961).[2] A key factor is the regional variation in agro-climatic conditions that favors the cultivation of specific, locally adapted crops (e.g., southwestern Bordeaux vineyards for grape production and northern Normandy apple orchards for cider production, see Appendix Figure B3 and Section 3.2). In a context of high trade costs, transporting goods is so expensive that arbitrage opportunities are precluded. As a result, regional differences in crop suitability lead to spatial price differentials, where prices vary with distance from production centers. Regions with favorable conditions for growing certain crops experience lower prices for foods produced from those crops, encouraging their consumption early in life. Past prices, therefore, play a critical role in shaping current tastes through habit formation, which in turn establishes enduring regional taste preferences.[3]
>
> But what happens when trade costs decrease? Market integration can lead to price convergence across regions (Donaldson, 2018). Since the 1970s, France has experienced significant market integration (Combes and Lafourcade, 2005), driven by a denser highway network and the rapid expansion of high-speed rail, leading to price convergence (see Section 3.3). Although historically lower prices have entrenched early life consumption and taste formation, the gradual equalization of prices across regions exposes consumers to a broader array of food options. As lower prices increase access to these previously less consumed alternatives, demand for them may grow over time, gradually changing tastes.
>
> Would the homogenization of prices eventually lead to homogenization of tastes? The habit formation literature asserts that as consumers are exposed to increasingly similar prices and products, their consumption patterns should converge. In contrast, the social identity literature contends that even under similar market conditions, consumption choices can remain distinct, or diverge further, as individuals express evolving group identities, for example shifting from regional to broader sociocultural affiliations (Atkin et al., 2021; Nardotto and Sequeira, Forthcoming). These frameworks offer contrasting predictions: one anticipates convergence in tastes, the other expects persistent or reconfigured divergence that mirrors social divisions.

Section 6 now focuses exclusively on understanding the absence of taste homogenization, drawing on recent literature on identity shifts and the rising salience of sociocultural factors.

[2] For historical examples, see food culture maps such as Tourcaty (1809) and Bourguignon (1932) digitalized by the Cornell University Library (https://digital.library.cornell.edu/catalog).

[3] Atkin (2013) demonstrates how sustained consumption patterns favor locally abundant crops over generations using an overlapping-generations general equilibrium model with habit formation.

Accordingly, bilateral integration measures have been moved to Section 5, as a robustness check (Table 2, column 5), with all variables and interactions reproduced in the appendix. We hope this restructuring makes each section's purpose and the mechanisms behind the geographic decline in taste differences more transparent.