Immigrant Cities and Swiss Prices

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Very Preliminary

Abstract

This paper uses CPI data for over 1080 items and 138 municipalities to investigate the effect of immigrant cities on prices of goods and services in Switzerland between 2001 and 2005. Special attention is given to the price impact linked to different immigrant groups. The empirical results show that European immigration had only a muted influence on Swiss prices at the city level. However, a different picture emerges when studying price effects of immigrants from Germany and South-Eastern Europe. We show that German immigrants to Switzerland are more price sensitive than other immigrant groups. The price impact is largest for semi-durable goods.

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1. Introduction

Are immigrants from a low inflation country more price sensitive than natives? To answer this question we study the influence of European immigration on prices across Swiss cities. We consider two immigration groups: Germans and South Eastern Europeans (SEE). The latter group are immigrants from Italy, Portugal, Serbia, Spain, and Turkey. The first group speaks a common language and shares similar cultural affinities to the Swiss. Further, the Swiss and the Germans enjoy a similar environment of low inflation. The main difference for Germans settling in Switzerland is that Swiss wages and Swiss prices are higher than north of the border. In contrast, immigrants from SEE countries do not share the same Swiss affinities as German immigrants. Aside from their lower average skill level, SEE immigrants come from countries with a higher inflation record. Our conjecture is that German immigrants are more price sensitive than their colleagues from Portugal or Spain.

The literature argues that two channels can explain the impact of immigration on prices at the city level. The first, the demand channel, says that immigrants are more price sensitive, are less brand loyal, or have lower search costs than natives. Evidence of a negative correlation between the immigrant

to native ratio and prices from a broad range of imported and domestic goods is consistent with the demand channel. Lach's (2007) case study of immigrants from the Former Soviet Union settling in 52 Israeli cities argues in favor of the demand channel. He shows that prices for a broad range of goods, including select Russian goods not traditionally consumed by Israelis, fell strongest in Israeli cities with a high concentration of newly arrived immigrants. In contrast, the supply channel argues that the negative price impact through immigration results from lower wage costs driven by an increase in low-skilled foreign labor. Cortes (2008) examines the skill content and wages of immigrants active in services dominated by immigrants. She shows that select prices linked to house cleaning or car washing fell in 25 U.S. cities with a high immigration rate.

We use quarterly Consumer Price Index (CPI) data for over 1080 items and 138 municipalities to investigate the effect of immigrant cities on prices of goods and services in Switzerland between 2001 and 2005. We focus on price changes in immigrant cities grouped by German and SEE immigrants at the time of sales and end-of-season bargains. Our empirical strategy rests on showing that in regressions with immigrant-to-native ratios and total population, immigrant groups with the closest affinity to German-speaking

Swiss explain the price dynamics in our sample best.

We extend the young literature that documents the negative correlation between regional price changes and the foreign-to-native ratio in three ways. First, immigration in Switzerland differs strongly from previous case studies. At 21%, Switzerland has the highest foreign-to-population ratios among OECD countries. Yet, immigration flows in Switzerland are moderate compared to the case studies by Lach (2007) for Israel, Cortes (2008) for the United States, and Frattini (2008) for the United Kingdom. These studies had lower foreign to native ratios, but were partially motivated by unexpected immigration spurts. This means that our results should be generalizable, because the causal impact does not rest on an unexpected shock for a specific market at a particular point in time. Second, measurement issues on the immigrant's residence have plagued previous studies. Swiss data on immigrants residence and origin are accurate and are available on a monthly basis. Further, Switzerland's shadow economy is estimated by Schneider (2007) to be small (between 8% and 9% for the years from 2001 to 2005), implying that the price impact through illegal immigration should be limited. Third, the linguistic regions and the federalistic structure in Switzerland allow us to test whether the price impact is constant across geographic areas. Swiss

diversity in county characteristics makes it an ideal test case of European migration policy.

The empirical results show that European immigration had only a muted effect on Swiss prices at the city level. The price effect is regional and restricted to semi-durable goods. However, a different picture emerges when studying the price impact of immigrants between Germany and SEE countries. We find that the largest price responses are linked to German immigrants. Moreover, the price impact is strongest for imported goods. Our evidence for German immigrants excludes supply arguments motivated by immigrants' skill content.

The paper is organized as follows. Section 2 outlines the main features of European immigration in Switzerland. Section 3 discusses the price and immigration data at the city level. Section 4 presents the empirical strategy along with a discussion of the instrument. Section 5 offers the empirical results. Section 6 concludes.

2. German and European Immigration in Switzerland

This needs to be written

figure 1

Table Skill

Inflation rates 1991 to 2000: Germany (2.2), Austria (2.2), Switzerland (1.9), Spain (3.7), Itlay (3.4), Portugal (4.2), Turkey (77.3) and Republic of Serbia (55.2) 1994-2000

2.2 Demand and Cost Channels

3. Price and Immigration Data

This study uses micro price data collected for the Swiss CPI. The data set ranges from May 1993 to December 2007. Although the CPI is published on a monthly basis, there is a variety of goods and services that are monitored only quarterly or even less regularly. Until recently, only unprocessed food, some non-alcoholic beverages, heating oil, and fuels were collected monthly. Therefore, we aggregate the CPI data to the quarterly frequency by using only the last month of each quarter. Products, which are collected less than quarterly are dropped from the sample.

The CPI is structured into over 1000 survey positions. A survey position is the lowest level at which we can identify goods and services in our data set. Although the Federal Statistical Office (FSO) added or discarded some survey positions over time, the overall number stayed roughly constant. For each

of these survey positions, various price series are collected at different outlets. The survey positions allow us to categorize the price series into greater detail, for example according to various sectors such as (un-)processed food, industrial products, services and energy; or according to other characteristics like durable, semi-durable and non-durable goods.

Usually, a price series is not observed over the whole sample. If a product is no longer available, the price collector seeks a close substitute. If this substitute is of the same quality, the price series are linked directly. Otherwise, the FSO tries to estimate the change in quality. In the latter case, we often know the price of the substitute in the previous period. Finally, if no substitute is available, the price series ends and the FSO starts to collect the prices of a new product. Let us call a good or service in a particular outlet at a certain quality and quantity an individual product. Our investigation uses only such individual products. Price changes from replacement of products that are not linked directly are ignored in the analysis.

After May 2000, the FSO started to collect end-of-season-sales prices. Before, if a product was available at a discount, the price collector had to ask the manager what the price would have been, if it was not on sale. Therefore, it is not possible to identify sales prices in this period. Afterwards, our data

set contains a sales indicator provided by the FSO. A price change, which is labelled as a sales price, can occur for other reasons, however.

For some categories we do not have micro data, because the quality is difficult to measure and therefore estimated price indices are constructed or because the FSO uses external data sources. These categories are public transport, pharmaceuticals, hospital services, medical services, postal services, telecommunication, and rents. These price series are also ignored in our analysis.

The FSO surveys some prices centrally, either by questionnaires (phone, fax and E-Mail) or via price lists (partly over the Internet), at about 1000 outlets. However, administered prices such as health services or public transport are not included in the surveys and are thus excluded from our analysis. Further, the FSO collects prices centrally at some large retail chains, for which prices are expected to be the same in the entire country. For all regionally collected prices, we have the postal code of the respective outlet. The number of regions was higher before December 2005 (16), and before May 2000 (24). A large share of the price series ends in these periods, because the sample was restructured to fit the lower number of regions. As shown in Figure 2, this also reduced the total number of surveyed prices consider-

ably. Instead, the number of outlets as well as the total number of communes stayed roughly constant. This change in data collection reduced the regional variation of the sample. Looking at how this affected the distribution across commune types reveals that the share of outlets in large cities has diminished and the share of agglomeration cities has increased. The shares of outlets in other cities and rural areas stayed roughly constant, however. The number of price observations in large cities is generally very high. Before 2000, our sample contains 76% of all observations collected in large cities. After 2000, this share increased to 81%. At the same time, the number of products surveyed in large cities increased from 52% to 69%. This points to less regional variation of price-setting after the revision in 2000.

Our data set contains an indicator for store size: large, medium-sized and small outlets. Large outlets belong to large retail chains, which are active across the whole country. Price-setting policies are therefore more or less uniform across regions. Differences in pricing policies are often justified by differences in transportation costs, or because the goods (fresh food, for example) are produced locally. Medium-sized outlets are active only in regional markets and we would therefore expect larger differences in pricing policies across these firms. Finally, small outlets provide goods and services in local

markets and mostly have only one single selling point.

The postal code allows us to match the price data with various other sources. From the Federal Office for Migration (FOM) we obtained data on the number of foreigners by groups of their origin for each commune in Switzerland. From 1997 - 2001, the data was collected three times per year (April, August and December). We construct quarterly data by a linear interpolation where we take the December value as given. After 2002, the data is available in quarterly frequency. In addition, we obtained the number of unemployed people for each commune from the State Secretariat for Economic Affairs (SECO) on a monthly basis. Consistent with our aggregation method for the price data, we use the last month of the quarter as the quarterly observation. Additionally, we obtained data on the total resident population and on spatial characteristics for each commune from the FSO. The population data, which is only available at annual frequency, is disaggregated by a linear interpolation.

The data characteristics led us to split the sample into two parts. Due to the major CPI revision, a natural end point for the first sample is May 2000. The regional variation pre 2000 maybe somewhat higher, but we have to estimate quarterly data for the number of foreigners. Moreover, since service

prices are often collected less than quarterly, this category is somewhat underrepresented. Neither sample is clearly superior, and each has its relative merits. We therefore concentrate on the latter period and use the previous sample mainly for robustness checks.

4. Econometric Specification and Instrument Strategy

The econometric model estimates the the effect of immigrants to natives of a Swiss city on prices of goods sold in the same city. The following specification adapted from Lach (2007) and Frattini (2008) defines the nominal price of good j ($j = 1,\cdots, 1080$), sold by store type i ($i =$ local, regional, national) in city c ($c = 1, \cdots, 138$) for the quarterly sample from 2001:Q1 to 2005:Q4 for t is

$$logp_{jict} = \mu_j + \mu_t + \mu_c + \delta(I_{ct}/N_{ct}) + \beta log(I_{ct} + N_{ct}) + \lambda X_{ct} + u_{jict}, \qquad (1)$$

where I_{ct} and N_{ct} are the number of immigrants and natives in city, c, in quarter t, $\mu's$ are fixed effects, X_{ct} are additional city specific factors (i.e., such the unemployment rate), and u_{jict} is a shock to price in month t. Total population in city, c, for month, t, equals $I_{ct} + N_{ct}$.

Following Lach (2007) and Frattini (2008), equation (1) is estimated in

first differences to remove city fixed effects. Equation (2) becomes

$$\Delta logp_{jict} = \mu_j + \mu_t + \Delta\delta(I_{ct}/N_{ct}) + \Delta\beta log(I_{ct} + N_{ct}) + \Delta\lambda X_{ct} + \Delta u_{jict}. \quad (2)$$

Equation (2) is estimated separately for different price and immigration groups.

OLS estimation of equation (2) is complicated because the sorting of immigrants among cities is not random. Numerous studies show that immigrants settle in cities with an established immigrant community. Immigrant settlement may be due to immigrant networks that facilitate the social and economic integration. Further, immigrants tend to settle in areas that are experiencing positive economic shocks.

We correct the endogeneity bias in two ways. First, as in Lach (2007) we use eight indicator variables from the SECO that capture, demographic, industrial, altitude, language, religious, and residential characteristics at the city level. These indicator variables should capture the immigration patterns of the highly skilled, which tend to rely less strongly on network patterns of immigrants of similar origin. We would expect that the regional variables should be strongly correlated with the change in the German immigrant-to-native ratio, $\Delta(I^G/N)_{ct}$.

The second method uses an instrument variable based on settlement pat-

terns of previous immigrants. Following Card (2001), we construct a variable which gives the predicted inflow of immigrants in each region in each quarter. The intuition is to exploit the location choices of past immigrants from each area of origin to predict the settlement decisions of immigrants from the same country. The instrument variable predicts immigrant inflows filtering local contemporary demand factors.

This instrument strategy was previously used by Cortes (2008) and Frattini (2008). In the first step, immigrants are divided into 10 European countries of origin plus an additional other category and calculate ΔI_{it}, the number of immigrants from each country, i, that entered Switzerland in quarter t.[1] Next, the fraction of immigrants from country, i, in city, c, is defined as $\bar{\lambda}_{ci} = \bar{I}_{ci}/\bar{I}_i$ for the quarterly average for the years from 1997 to 2000. The predicted number of new immigrants from country i in quarter t is $\lambda_{ci}\Delta I_{it}$. By summing over i a measure of the predicted total immigrant inflow into city c at time t is obtained that is free of local demand shocks. A final step normalizes the instrument by the number of natives in the city two years

[1]The countries of origin are Austria, France, Germany, Italy, Netherlands, Serbia, Portugal, Serbia, Spain, Turkey, United Kingdom, and others

before at $t-8$:

$$SP_{ct} = \sum_{i=1}^{11} \frac{\bar{\lambda}_{ci} \Delta I_{it}}{N_{ct-8}}. \tag{3}$$

We follow Frattini (2008) by calling our instrument the supply push instrument.

Table 1 presents the first-stage regressions that show the change in the immigrant-to-native ratio on our supply push instrument, SP_{ct}, with the city-based indicators. The OLS regressions with time effects are from 2001:Q1 to 2005:Q4. We consider only cities that have a population greater than 6000, leaving us a total of 1854 observations. Regressions are shown for three different immigrant-to-native ratios: total immigrants to natives, $\Delta(I/N)_{ct}$, German immigrants to natives, $\Delta(I^G/N)_{ct}$, and SEE immigrants, $\Delta(I^{SEE}/N)_{ct}$.

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In each of the regressions for $\Delta(I/N)_{ct}$, the instrument has a coefficient of 0.26 and is significant at the 5% level. Column (1) shows the regression of $\Delta(I/N)_{ct}$ just with SP_{ct} has an adjusted R^2 of only 0.03. This low value reflects the difficult task of trying to predict the quarterly immigrant flow for 138 cities. Previous studies used a lower frequency data for a fewer number of cities or regions.[2] Column 2 shows the regression results do not

[2]It is possible to raise the adjusted R^2 to 0.23 for the 9 largest Swiss cities (i.e., cities

change when eight regional indicators are added. This result also holds when $\Delta ln(pop)_{ct}$ and $\Delta(unemployment/pop)_{ct}$ are included in the specification. The regressions with the individual variables are shown in columns (3) and (4) and jointly in column (5).

In a similar manner, the regression results are shown for German and SEE immigrant-to-native ratios. The results for the two immigrant groups differs substantially. Past immigration flows are able immigrant patterns for the SEE immigrants. The results for SEE flows are similar to the results for the aggregate immigration-to-native ratios. Instead the cost push instrument is unable to explain the German immigrant flow. The instrument is insignificant for the five specifications. The city indicators however capture the new immigration flows from Germany.

In the next section, we present IV regressions using the specifications from column (5). Following Cortes (2008), the instrument will identify the causal effect of immigration intensity on prices if the three conditions hold. First, the unobserved factors determining that more immigrants decide to locate between two cities in 2000 are not correlated with changes in relative

with a population greater than 50000. Cortes (2008) examines 25 U.S. cities over 10 years, whereas Frattini uses 11 U.K. regions with annual data.

economic opportunities of the two cities in the sample. Second, the total flow of immigrants in a quarter is exogenous to shocks to cities within a specific region. Third, the only channel through which immigrant distribution in 2000 affects recent changes in prices is its effect on the actual distribution of immigrants across cities.

5. Empirical Results

All regressions presented in this section include time and product effects. Unless noted, all regressions include $\Delta ln(pop)_{ct}$ and $\Delta(unemployed/pop)_{ct}$. The empirical focus is on whether $\Delta(I/N)_{ct}$ differs from the population. The empirical results are presented as follows.

First, we show muted price effects for $\Delta(I/N)_{ct}$ at the city level. Next, we present evidence that explains the small price effects for $\Delta(I/N)_{ct}$ through the offsetting behavior between $\Delta(I^G/N)_{ct}$ and $\Delta(I^{SEE}/N)_{ct}$. More specifically, the price response is stronger for $\Delta(I^G/N)_{ct}$ than for $\Delta(I^{SEE}/N)_{ct}$ however not the immigration flows. Last, we document the strongest empirical evidence of a price effect through immigrant flows for clothing. We argue that the price response for $\Delta(I^G/N)_{ct}$ in this sector is consistent with the demand channel. The Appendix presents further tests for low-skilled

services. The results show that the price effect through immigration flows is not driven by low-skilled migrant labor.

5.1 Immigrant-price impact for total immigration flows

We begin with Table 2 that documents the immigrant-price impact for $\Delta(I/N)_{ct}$ at the store-product and the city level. The evidence shows that the impact effect is small at best and is not a significant explanatory factor for the low inflation observed in Switzerland between 2001 and 2005. This result is confirmed by the low R^2 values that are below 0.01 for all regressions.

At the store product level the OLS and the 2SLS coefficient estimates for $\Delta(I/N)_{ct}$ lie far apart from each other. The OLS estimate is -0.024 for the restricted specification without $\Delta ln(pop)_{ct}$, and $\Delta(unemployed/pop)_{ct}$ and -0.025 for the full specification. Both estimates are significant at the 5% critical level. Instead, the 2SLS coefficient estimates for $\Delta(I/N)_{ct}$ are twenty times larger. Again, the estimates of -0.5 are not sensitive to the specification that includes $\Delta ln(pop)_{ct}$, and $\Delta(unemployed/pop)_{ct}$.

At the city level the estimates are closer to each other but they are statistically insignificant. Weighted and unweighted estimates are presented. The weighted estimates are based on the number of price observations. Except for the restricted 2SLS estimates, both the weighted and the unweighted es-

timates range between -0.04 and -0.06. If we assume a quarterly estimate of -0.05, this estimate for $\Delta(I/N)_{ct}$ says that the average annual increase in the immigration-to-native flow of 0.22% is only able to explain 6.7% of the average CPI inflation rate of 0.8% between 2001 and 2005.

To determine the breadth of the price impact of immigration flows, we next regress equation (2) for the major groups and sectors. Table 3 provides coefficient estimates for $\Delta(I/N)_{ct}$ from OLS and 2SLS regressions with $\Delta ln(pop)_{ct}$, and $\Delta(unemployed/pop)_{ct}$. The four major groups are non durables, durables, semi-durables, and services. The 12 sectors are restricted in their choice in that we consider only those with at least 5000 observations.

The estimates in Table 3 reveal that the impact of immigration flows on store and product prices is not broad based across sectors. The majority of the estimated coefficients for $\Delta(I/N)_{ct}$ are negative, however significance is isolated to a handful of cases. A further disappointing feature is that the OLS and 2SLS estimates lie far apart from each other. An exception is clothing. Both regressions are highly significant at conventional significance levels.

5.2 German versus SEE immigrants

Next, we consider whether the muted price effects for $\Delta(I/N)_{ct}$ at the store product level is offset by the behavior between the German immigrant group,

$\Delta(I^G/N)_{ct}$, and the SEE immigrant group, $\Delta(I^{SEE}/N)_{ct}$. A first consideration is to examine geographical differences. Table 4 shows the immigrant-price effect for the German and French speaking areas in Switzerland.[3]

Two results emerge from Table 4. First, the negative immigrant-price effect with $\Delta(I^G/N)_{ct}$ and $\Delta(I^{SEE}/N)_{ct}$ is stronger in the German-speaking area than in the French-speaking area. The OLS estimate for $\Delta(I^G/N)_{ct}$ is positive and significant in the French-speaking area: consistent with the view that Germans settled primarily in the German-speaking area. For $\Delta(I^{SEE}/N)_{ct}$, the coefficient estimates are negative but insignificant for the French-speaking area. A second result for the German-speaking area is that the negative price impact through $\Delta(I^G/N)_{ct}$ is considerably larger than for $\Delta(I^{SEE}/N)_{ct}$. Despite these two results for the German-speaking area, the low R^2s suggest that conditioning on major language areas does not capture well price changes through immigration flows.

Next, we consider the role of sales on $\Delta(I^G/N)_{ct}$ and $\Delta(I^{SEE}/N)_{ct}$. OLS and 2SLS regressions without sales, with sales only, and sales at least 10%

[3]We do not consider separately the Italian speaking area. With 45734 observations (i.e., 5.6% of the CPI observations for our sample versus 8.0% of the population), the small size is unable to explain potential offsetting effects between different immigrant groups.

are presented in Table 5. Sales are defined in two ways. First, a sale at the product city level follows the FSO definition. The second definition of sale greater than 10% is the FSO definition plus whether $P_{cjt-1} \geq P_{cjt+1}$ and $\Delta ln(P_{cjt}) * 100 > 10\%$. This narrower definition says that a product's price must be observed at least for three successive quarters. The advantage of this definition is that it distinguishes sales to attract new customers from sales to liquidate products (i.e., seasonality or inferior quality). We assume that the FSO definition of sales encompasses both types of sales, whereas FSO sale and greater than 10% captures only sales to attract new customers.

The evidence in Table 5 again shows that $\Delta(I^G/N)_{ct}$ responds stronger than $\Delta(I^{SEE}/N)_{ct}$ for each sales category. The OLS regression for $\Delta(I^G/N)_{ct}$ says that a 1% quarterly increase in German immigrants reduces Swiss prices not on sale by 1.6%. The magnitude increases to 10% or greater when the good is on sale. The results says that immigrant cities matter for sales. More sales occur in cities where Germans settle. A further important result is that the German price effect with sales is mitigated by a positive price response of $\Delta(I^{SEE}/N)_{ct}$. Measured by their R^2s in the OLS regressions, the immigrant-to-native ratio is able to explain price movements better that condition on sales than on linguistic regions. In most OLS regressions with sales, the R^2s

range between 0.2 and 0.3.

Next, we consider whether single, regional, and nation-wide stores influence the coefficient estimate for the change in the German immigrant-to-native ratio. We rerun the regressions for $\Delta(I/N)_{ct}$, $\Delta(I^G/N)_{ct}$, and $\Delta(I^{SEE}/N)_{ct}$ but now condition on store-type and whether there are more than 50 stores or less in a city. With this grouping we want to determine whether the German immigrant-price impact is sensitive to big city competition.

The OLS and 2SLS regressions grouped by store-type are presented in Table 6. The results show that German immigrants influence prices negatively across all store-types, especially in smaller communities with less than or equal to 50 stores. The OLS regressions show that a 1% increase in $\Delta(I^G/N)_{ct}$ leads to a fall in prices of about 2%. Instead for larger communities with stores more than 50 stores the price effect through $\Delta(I^G/N)_{ct}$ becomes impersonal. In large cities, the price effect for single stores disappears and is strongest for nation-wide stores with a price impact in the order of 4%.

The decomposition of store-type for $\Delta(I^{SEE}/N)_{ct}$ is less pronounced than for $\Delta(I^G/N)_{ct}$. Significant coefficients for $\Delta(I^{SEE}/N)_{ct}$ are found only for

regional stores. City size does not appear to matter. We attribute language differences as a contributing factor for the insignificant results with $\Delta(I^{SEE}/N)_{ct}$ for single stores.

5.3 The special case of clothing

The results from Table 4 showed that the immigrant-price effect was primarily concentrated in one sector, clothing. In this subsection, we repeat the analysis for store-type and sales for the clothing sector to show that the impact through German immigration is driven by the demand channel. Table 7 shows the regression coefficient for the change in the immigrant-to-native ratio for total immigrants, German immigrants, and SEE immigrants for all stores, single stores, regional stores, and nation-wide stores for the clothing sector. The regressions in Table 7 show two results. First, the impact of $\Delta(I^G/N)_{ct}$ is always larger than $\Delta(I^{SEE}/N)_{ct}$ independent of store type. Second, the impact for $\Delta(I^G/N)_{ct}$ is strongest for nation-wide stores as opposed to regional stores for $\Delta(I^{SEE}/N)_{ct}$. The fact that the pricing strategy of local stores is not influenced by immigrants is not inconsistent when we next look at how sales are determined.

Table 8 presents the regression results for $\Delta(I/N)_{ct}$, $\Delta(I^G/N)_{ct}$, and $\Delta(I^{SEE}/N)_{ct}$ for prices without sales, prices with sales, sales attracting new

costumers (i.e., sales such that there are at least three successive observations). The results show that the largest price impact also occur with $\Delta(I^G/N)_{ct}$ irrespective of a sale. Under no sale, a 1% increase in $\Delta(I^G/N)_{ct}$ results in a 9 to 18% fall in prices for clothing. Instead when a sale occurs the estimate ranges between 14 and 31%. Surprising at the time of sales for $\Delta(I^{SEE}/N)_{ct}$ the estimates are positive.

The strong German response is primarily explained by end of season sales. When we look in to columns of where a sale occurs and the product is in observed in three successive quarters the estimates is positive. While Swiss shopkeepers are not geared towards attracting German customers, however Germans immigrants are responding different from the rest of the population.

6. Concluding Remarks

This paper presents new evidence on the impact of European immigration on CPI prices for a high immigrant country. Our empirical results for Switzerland are not driven by a shock episode and are thus generalizable for other European countries that have experienced a steady flow of immigrants from neighboring countries. Evidence at the city level shows that the immigrant-to-native ratio reduced the price growth of goods and services only around

-0.05% independent of Switzerland's population size. The magnitude of this coefficient estimate for the change in the immigrant-to-native ratio is at least twice as small compared to similar studies by Lach (2007) and Frattini (2008). Moreover, because of the smaller immigration flow, the estimate explains less than 7% of the CPI inflation rate between 2001 and 2005. We find that sales and end-of-season bargains particularly in one sector, clothing, is responsible for the aggregate price result.

The price impact at the city level is partially muted in two ways. First by the offsetting behavior between different immigrant groups. We find German immigrants respond stronger to sales than the more numerous immigrant group from Italy, Portugal, Serbia, Spain, and Turkey. We interpret the sales result to be consistent with the view that Germans are more price elastic than the Swiss. The aggregate price impact driven by German immigrants is also dampened in that Germans settle primarily in the German-speaking area of Switzerland. This regional effect is further downward biased in that the number of observed prices at the store and product level in the German speaking area are under-represented by 11% in the national monthly CPI survey.

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Appendix

Two robustness checks are offered to support the view of price sensitive Germans. The first exercise is a general control for how the immigrant groups respond to select Swiss goods purchased most likely only by Swiss.[4] This select group of Swiss goods includes hard cheeses, Rachlette grill machines, ski and hockey equipment. Under the null hypothesis, we would expect that there is no significant and negative relationship between the change in prices of "Swiss" goods and the $\Delta(I/N)_{ct}$, $\Delta(I^G/N)_{ct}$, and $\Delta(I^{SEE}/N)_{ct}$.

Table A1 shows the price effect for Swiss goods for all Swiss regions, for the German-, and the French-speaking areas. All estimates are at the product and city level. The results show no systematic negative price effect linked with $\Delta(I/N)_{ct}$, $\Delta(I^G/N)_{ct}$, and $\Delta(I^{SEE}/N)_{ct}$. Half of the OLS and 2SLS regressions estimate a positive relationship. We interpret this evidence as a weak preliminary test of our price sample.

The second control examines whether low-skilled wages can explain the price effect. The exercise examines the price of services in the CPI basket that are linked to a low-skill wage component. We divide services into four groups: low skill labor (i.e., class 1 to 4), class 1 low-skill (no apprenticeship needed: house cleaning, services for winter sport articles), class 2 low skill (three-year apprenticeship: services for bikes, plumbing, and painting), and class 3 low skill (four-year apprenticeship: carpentry, electrician, and auto-mechanic). A negative relationship between the change in prices for services and $\Delta(I^{SEE}/N)_{ct}$ is consistent with the supply channel. This hypothesis says that a large share of SEE immigrants are low-skilled and that their wages are responsible for the fall in prices for services.

Table A2 presents OLS and 2SLS regressions for prices of low-skilled services on $\Delta(I/N)_{ct}$, $\Delta(I^G/N)_{ct}$, and $\Delta(I^{SEE}/N)_{ct}$. The results for services show no evidence of a supply channel. First, the coefficients for $\Delta(I/N)_{ct}$, $\Delta(I^G/N)_{ct}$, and $\Delta(I^{SEE}/N)_{ct}$ are not significant. Further, there is no clear evidence that the impact effect is stronger for $\Delta(I^{SEE}/N)_{ct}$ than for $\Delta(I^G/N)_{ct}$. Last, the price impact effect for class 1 skills (no apprenticeship) does not appear to be stronger than for class 3 skills (four-year apprenticeship).

A second manner in which immigrants can influence prices through the supply channel is through a reduction in distribution costs. As in the as for domestic services, foreigners may work for lower wages as transporters of imported goods such as clothes. To test for the Burnstein et al. (2003) ef-

[4]The opposite exercise of selecting products that only foreign immigrants purchase and not Swiss is more difficult. The close affinity of Germans to Swiss, the heterogenous immigrant groups, and Switzerland's history of adapting to foreign cultures does not make such an exercise feasible.

fect, we first match the number of registered transport companies per city for the year 2006 with immigrant-to-native ratio. In Table 3A panel A, we show that the number of transport companies per city divided by city population is positively and significantly correlated with the $(I/N)_{c2006}$, $(I^G/N)_{c2006}$, and $(I^{SEE}/N)_{c2006}$ in an OLS regression with $(unemployment/pop)_{c2006}$. This says that transport firms are more likely to be located in cities with a high immigrant-to-population ratio. Next, we consider lady's clothes with $\Delta(I/N)_{ct}$, $\Delta(I^G/N)_{ct}$, and $\Delta(I^{SEE}/N)_{ct}$. Anderson and Wincoop (2004) show in their Table 6 that lady's clothes have the highest distribution costs: a result that is valid across leading industrial countries. In Table A3 panel B, we show despite a negative and significant immigrant-price effect for clothes in Table 7, this result is not valid for lady's clothes. The correlation is negative and significant for the OLS regressions but not for the 2SLS regressions. With this evidence we argue that the regression evidence in Table 7 is not explained by the supply channel.

Table A1: The Immigrant effect for "Swiss" products

	Switzerland (all)		German speaking area only		French speaking area only	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Change in (total) immigrants to native ratio	0.563*	-0.857	0.376	-1.314	-0.866	-0.560
	(0.151)	(0.443)	(0.260)	(1.826)	(0.546)	(1.492)
R-square	0.102	0.010	0.044	0.028	0.045	0.023
Change in German immigrants to native ratio	0.390	-6.981	0.057	-9.771	1.870	48.269
	(0.812)	(3.648)	(1.191)	(5.640)	(7.519)	(35.503)
R-square	0.033	0.016	0.045	0.025	0.044	0.017
Change in SEE immigrants to native ratio	-0.029	-1.036	0.382	2.108	-1.571	0.598
	(0.046)	(0.548)	(0.399)	(3.703)	(0.854)	(2.071)
R-square	0.033	0.012	0.045	0.028	0.045	0.012
Number of observations	7791	7323	4728	4444	2461	2317

Notes: OLS regression is from 2001:Q1 to 2005:Q4. All regressions include time and product dummies, the change in ln(pop), and the change in the unemployment to population ratio. Swiss products are Swiss hard cheeses, Rachlette grill machines, ski and hockey equipement and cloths. Standard errors are given in brackets. OLS standard errors are robust. * denotes significance at the 5% critical level. See Table 1 column (5) for the specification of the instrument.

Table A2: The immigration effect on prices with low-skilled labor

	low-skilled labor (all)		class 1 low-skilled		class 2 low skilled		class 3 low skilled	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
change in (total) immigrant to native ratio	0.032	-0.254	0.334*	-0.666	0.034	-0.242*	-0.022	0.113
	(0.023)	(0.148)	(0.067)	(1.409)	(0.025)	(0.118)	(0.017)	(0.454)
R-square	0.022	0.008	0.078	0.055	0.025	0.008	0.085	0.077
Number of Observations	17344	16322	1105	1034	11187	10534	4474	4208
change in German immigrant to native ratio	0.453	0.470	2.481	0.317	0.534	1.418	0.176	-1.641
	(0.312)	(0.685)	(2.326)	(4.107)	(0.369)	(0.756)	(0.382)	(0.952)
R-square	0.0218	0.017	0.076	0.075	0.025	0.018	0.085	0.074
Number of Observations	17344	16322	1105	1034	11187	10534	4474	4208
change in SEE immigrant to native ratio	0.046	-0.279	0.485*	-0.609	0.046	-0.333	-0.034	0.423
	(0.031)	(0.175)	(0.086)	(1.806)	(0.032)	(0.148)	(0.022)	(0.458)
R-square	0.022	0.010	0.079	0.061	0.025	0.007	0.085	0.064
Number of Observations	17344	16322	1105	1034	11187	10534	4474	4208

Notes: Sample is from 2001:Q1 to 2005:Q4. All regressions have time and product dummies. OLS standard errors are robust to heteroskedasticity. See Table 1 column (5) for the specification of the instrument. * denotes significantly different from zero at the 5% critical level. German immigrants are immigrants from Germany and Austria. South and Eastern European (SEE) immigrants are from Italy, Portugal, Serbia, Spain, and Turkey. Class 1 skills (i.e., no apprenticeship needed) are house cleaning and services for winter sport articles. Class 2 skills (i.e., three years of appenticeship) include services for bikes, hairstyling, plumbing, painting. Class 3 skills (i.e., four years of apprenticeship) are carpentry, electrician, and automechanic.

Table A3: The immigration-price effect and distribution costs

	all immigrants		Germans		SEE	
	OLS		OLS		OLS	
A: Number of transport companies / pop at the city level						
constant	-6.607*		-7.652*		-7.560*	
	(0.4041)		(0.193)		(0.137)	
immigrant to pop ratio	4.189*		4.067*		3.198*	
	(1.881)		(2.825)		(1.032)	
unemployment to pop	-33.496*		-9.175		-40.655	
	(12.800)		(10.741)		(12.672)	
R-square	0.038		0.018		0.083	
Number of Observations	138		138		138	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
B: Price of lady's clothes at the store product level						
change in immigrant to native ratio	-0.121	-0.8776	-11.190*	-11.773	-0.690*	-0.156
	(0.215)	(1.014)	(3.751)	(7.523)	(0.269)	(1.232)
R-square	0.097	0.121	0.122	0.123	0.121	0.129
Number of Observations	4198	3950	4198	3950	4198	3950

Notes: All regressions in B have the change in ln(pop) and change in the unemployment to population ratio. The regressions include time and product dummies. Standard errors are given in brackets. OLS standard errors are robust. * denotes significance at the 5% significance level.

Figure 1a: Immigrants-to-native ratios (levels)

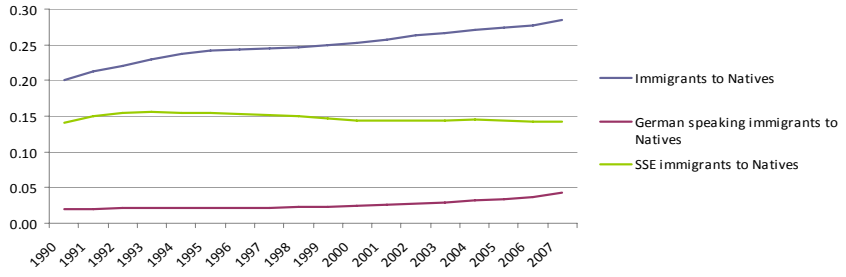
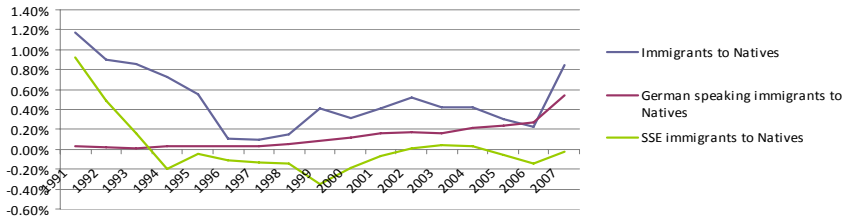


Figure 1b: Immigrant-to-native ratio (yearly change)



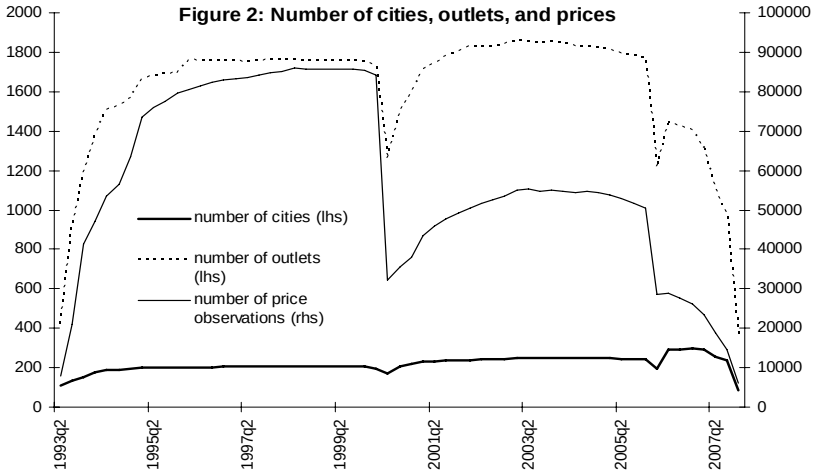


Figure 2: Number of cities, outlets, and prices
2000
1800
1600
1400
1200
1000
800
600
400
200
0
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
number of cities (lhs)
number of outlets (lhs)
number of price observations (rhs)
1993q2
1995q2
1997q2
1999q2
2001q2
2003q2
2005q2
2007q2

Table 1: Education of Swiss and Immigrants

	2003	2004	2005	2006	2007	2008
High School Certificate	707	676	667	680	675	678
Swiss	439	415	405	410	408	412
Immigrants	268	261	261	270	267	266
Geramny	2	2	3	3	3	3
France	4	3	3	3	4	4
Italy	65	61	57	54	52	50
Austria	(1)	(1)	(1)	(1)	(1)	(1)
Spain and Greece	22	20	18	18	15	13
Portugal	58	56	64	70	73	75
Serbia	73	72	70	71	70	71
Rest	43	45	45	51	51	50
Appenticeship	2229	2197	2190	2198	2204	2188
Swiss	1876	1843	1840	1852	1850	1815
Immigrants	353	354	350	346	354	373
Geramny	30	32	33	36	38	45
France	17	18	16	16	16	17
Italy	90	88	86	83	84	84
Austria	11	11	11	11	10	10
Spain and Greece	27	26	26	25	23	23
Portugal	26	28	28	28	31	35
Serbia	84	83	81	79	82	86
Rest	69	69	68	68	70	74
University Degree	1027	1086	1118	1173	1243	1362
Swiss	833	883	899	939	988	1075
Immigrants	194	203	218	234	255	288
Geramny	46	50	57	64	74	92
France	19	20	21	23	25	29
Italy	24	24	25	26	26	30
Austria	8	8	8	8	9	9
Spain and Greece	8	8	9	10	11	11
Portugal	3	4	4	5	6	7
Serbia	11	11	10	10	10	10
Rest	76	78	85	88	93	100
Total	3963	3959	3974	4051	4122	4229
Swiss	3149	3142	3144	3201	3246	3302
Immigrants	814	817	830	850	876	927
Geramny	78	84	93	103	115	139
France	39	40	41	43	45	49
Italy	178	173	168	163	162	164
Austria	20	20	20	20	20	20
Spain and Greece	57	54	53	52	50	48
Portugal	86	88	96	103	110	117
Serbia	168	166	161	159	161	167
Rest	187	192	198	207	213	223

Notes: source Swiss Federal Statistics Office. Sake Survey

Table 1: First Stage Regression:
Change in Immigrant to Native Ratio on the Supply Push Instrument and Regional Indicators

	(1)	(2)	(3)	(4)	(5)
Supply push (all immigrants)	0.265*	0.271*	0.265*	0.272*	0.265*
	(0.125)	(0.123)	(0.121)	(0.123)	(0.121)
change in log(Pop)	no	no	yes	no	yes
change in employment rate	no	no	no	yes	yes
regional indicators	no	yes	yes	yes	yes
time effects	yes	yes	yes	yes	yes
Adjusted R-square	0.034	0.047	0.051	0.047	0.051
F-test for excluded instruments	4.46*	2.16	1.99	2.44*	2.25
Supply push (Germans)	0.002	0.001	0.000	0.001	0.003
	(0.022)	(0.021)	(0.021)	(0.021)	(0.021)
change in log(Pop)	no	no	yes	no	yes
change in employment rate	no	no	no	yes	yes
regional indicators	no	yes	yes	yes	yes
time effects	yes	yes	yes	yes	yes
Adjusted R-square	0.013	0.070	0.073	0.080	0.084
F-test for excluded instruments	0.01	14.23*	13.19*	13.67*	12.80*
Supply push (SEE)	0.213*	0.224	0.221*	0.224*	0.221*
	(0.092)	(0.091)	(0.090)	(0.091)	(0.090)
change in log(Pop)	no	no	yes	no	yes
change in employment rate	no	no	no	yes	yes
regional indicators	no	yes	yes	yes	yes
time effects	yes	yes	yes	yes	yes
Adjusted R-square	0.030	0.047	0.049	0.046	0.048
F-test for excluded instruments	5.39*	3.50*	3.31*	3.38*	3.22*

Notes; OLS regression is from 2001:Q1 to 2006:Q4. The instrument supply (all immigrants) push covers 138 cities and 10 European immigrant countries for a total of 1854 observations. Germans are immigrants from Germany and Austria. South Eastern European (SEE) immigrants from Italy, Portugal, Serbia, Spain, and Turkey Regional idicators are eight demographic variables. Robust standard errors are given in brackets. * dentes significance at the 5% level.

Table 2: Aggregate Immigration Effects on Prices (Equation 2)

	store-product level		city level			
			unweighted		weighted	
Linear regression						
change in immigrants to native ratio	-0.024*	-0.025*	-0.038	-0.039	-0.038	-0.038
	(0.011)	(0.011)	(0.141)	(0.141)	(0.136)	(0.136)
change ln(pop)	no	yes	no	yes	no	yes
change in unemployment to pop ratio	no	yes	no	yes	no	yes
P-value of F test for zero coefficients	< 0.001	< 0.001	0.7853	0.2371	0.7813	0.0836
R square	0.009	0.009	0.001	0.003	0.001	0.003
Number of Observations	814032	814032	1962	1962	1962	1962
Instrumental variables (2SLS) regression						
change in immigrants to native ratio	-0.518*	-0.527*	-0.327	-0.06	-0.385	-0.061
	(0.100)	(0.108)	(1.575)	(1.533)	(1.506)	(1.465)
change ln(pop)	no	yes	no	yes	no	yes
change in unemployment to pop ratio	no	yes	no	yes	no	yes
P-value of F test for zero coefficients	< 0.001	< 0.001	0.815	0.4578	1	1
P-value of instruments in first stage regressior	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
R square.	0.005	0.005	0.002	0.002	0.014	0.021
Number of Observations	766325	766325	1854	1854	1854	1854

Notes: OLS regression is from 2001:Q1 to 2006:Q4. All regressions have time and product dummies. OLS standard errors are robust to heteroskedasticity. See Table 1 as to how the instrument is defined. * denotes significantly different from zero at the 5% significance level.

Table 3: Immigration Effects on Prices by Major Groups and Sectors with at least 5000 Observations

	OLS est.	Std error	2SLS est.	Std error	NOB
Non durables (all)	0.009	0.018	-0.169	0.165	424971
food	0.020	0.028	-0.241	0.227	278428
alcohol	**-0.221**	0.105	-0.541	0.385	32967
housing	**0.336**	0.071	-1.040	1.310	8816
furnishings	-0.035	0.020	-0.333	0.514	18764
recreation	-0.023	0.025	-0.247	0.206	34124
miscellaneous	-0.020	0.012	0.050	0.215	46080
Durables (all)	0.017	0.009	-0.169	0.099	74843
furnishings	-0.030	0.016	-0.154	0.178	24857
transport (cars)	0.000	0.015	-0.238	0.123	16545
recreation	0.045	0.015	-0.283	0.151	28278
Semi-Durables all	**-0.096**	0.023	**-0.926**	0.225	158336
clothing	**-0.129**	0.046	**-2.386**	0.367	78777
furnishings	-0.033	0.023	-0.141	0.171	24958
transport (car parts)	-0.043	0.027	-0.335	0.348	21700
recreation	-0.019	0.017	-0.287	0.230	27823
Services all	-0.067	0.030	-0.011	0.187	155882
restaurant	**-0.115**	0.050	-0.291	0.187	63211
housing (cleaning)	**-0.289**	0.110	0.139	0.302	6108
health	0.002	0.004	**0.187**	0.092	5181
clothing	**-0.037**	0.016	-0.032	0.293	9514
recreation	0.014	0.074	0.008	0.339	33933
miscellaneous	-0.054	0.051	0.046	0.991	31536

Notes: OLS regression is from 2001:Q1 to 2006:Q4. All regressions have time and product dummies. OLS standard errors are robust to heteroskedasticity. See Table 1 as to how the instrument is defined. * denotes significantly different from zero at the 5% significance level.

Table 4: The Immigrant effect for different Swiss regions

	Switzerland (all)		German speaking area only		French speaking area only	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Change in (total) immigrants to native ratio	-0.024*	-0.534*	-0.230*	0.369	-0.154*	-0.343
	(0.011)	(0.100)	(0.062)	(0.264)	(0.064)	(0.203)
R-square	0.009	0.005	0.010	0.007	0.009	0.006
Change in German immigrants to native ratio	-1.629*	-1.303*	-2.707*	-1.485*	2.521*	-0.184
	(0.178)	(0.430)	(0.251)	(0.588)	(0.752)	(3.856)
R-square	0.009	0.007	0.010	0.008	0.009	0.006
Change in SEE immigrants to native ratio	-0.020	-0.406*	-0.322*	2.501*	-0.052	-0.019
	(0.014)	(0.119)	(0.097)	(0.433)	(0.113)	(0.263)
R-square	0.009	0.006	0.010	0.005	0.009	0.006
Number of observations	814032	766325	518651	488232	250647	236018

Notes: OLS regression is from 2001:Q1 to 2005:Q4. All regressions have time and product dummies. OLS standard errors are robust to heteroskedasticity. See Table 1 column (5) as to how the instrument is defined. * denotes significantly different from zero at the 5% significance level. German immigrants are immigrants from Germany and Austria. South and Eastern European (SEE) immigrants are from Italy, Portugal, Serbia, Spain, and Turkey.

Table 5: The immigration effect on prices with sales

	without sales		with sales only		Sale > 10% only	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
change in (total) immigrant to native ratio	-0.038*	-1.473*	0.121	6.438*	-0.0515	14.977*
	(0.010)	(0.092)	(0.074)	(0.746)	0.22244	(2.713)
R-square	0.038	0.001	0.238	0.020	0.3859	0.000
change in German immigrant to native ratio	-1.585*	-4.325*	-10.612*	-17.065*	-12.403*	-14.336*
	(0.168)	(0.383)	(1.403)	(3.236)	(2.718)	(5.346)
R-square	0.038	0.004	0.239	0.066	0.388	0.016
change in SEE immigrant to native ratio	-0.026*	-1.050	0.181	6.943*	0.064	14.876*
	(0.013)	(0.108)	(0.096)	(0.856)	(0.314)	(2.908)
R-square	0.038	0.002	0.238	0.026	0.387	0.001
Number of Observations	771731	727180	42301	39145	9606	8739

Notes: OLS regression is from 2001:Q1 to 2005:Q4. All regressions have time and product dummies. OLS standard errors are robust to heteroskedasticity. See Table 1 column (5) as to how the instrument is defined. * denotes significantly different from zero at the 5% significance level. German immigrants are immigrants from Germany and Austria. South and Eastern European (SEE) immigrants are from Italy, Portugal, Serbia, Spain, and Turkey.

Table 6: The immigration effect on prices with store type

	all stores		# stores ≤ 50		# stores > 50	
single/family stores	OLS	2SLS	OLS	2SLS	OLS	2SLS
change in (total) immigrant to native ratio	-0.011	-0.090	-0.367*	-0.619*	-0.0015	-0.0714
	(0.011)	(0.083)	(0.104)	(0.275)	(0.011)	(0.081)
R-square	0.008	0.004	0.022	0.011	0.009	0.005
change in German immigrant to native ratio	-0.642*	-0.412	-2.733*	-2.787*	0.392	0.180
	(0.219)	(0.458)	(0.538)	(1.255)	(0.207)	(0.478)
R-square	0.0081	0.0043	0.0223	0.0117	0.0089	0.005
change in SEE immigrant to native ratio	-0.006	-0.107	-0.469*	-0.695	0.001	-0.085
	(0.014)	(0.100)	(0.154)	(0.382)	(0.014)	(0.095)
R-square	0.008	0.003	0.021	0.010	0.009	0.005
Number of Observations	416271	391665	40127	37801	376144	353864
regional stores	OLS	2SLS	OLS	2SLS	OLS	2SLS
change in (total) immigrant to native ratio	-0.203*	-2.112*	-0.364*	0.048	-0.145*	-2.433*
	(0.045)	(0.468)	(0.079)	(1.163)	(0.050)	(0.4605)
R-square	0.012	0.005	0.012	0.004	0.013	0.001
change in German immigrant to native ratio	-3.208*	0.326	-2.126*	-7.568	-4.090*	0.535
	(0.463)	(1.1611)	(0.691)	(5.489)	(0.646)	(1.153)
R-square	0.012	0.007	0.012	0.003	0.014	0.008
change in SEE immigrant to native ratio	-0.212*	-1.090*	-0.367*	2.519	-0.160*	-1.815*
	(0.050)	(0.530)	(0.090)	(1.423)	(0.055)	(0.576)
R-square	0.012	0.007	0.012	0.001	0.013	0.007
Number of Observations	166735	157072	34202	33224	132533	123848
national stores	OLS	2SLS	OLS	2SLS	OLS	2SLS
change in immigrant to native ratio	-0.046	-0.2835	-0.152	-0.067	-0.005	-2.114*
	(0.035)	(0.256)	(0.079)	(0.284)	(0.038)	(0.290)
R-square	0.014	0.011	0.021	0.009	0.017	0.008
change in German immigrant to native ratio	-4.114*	-4.177*	-1.519*	-6.700*	-3.894*	-4.736*
	(0.437)	(1.040)	(0.611)	(2.712)	(0.564)	(1.026)
R-square	0.015	0.012	0.021	0.009	0.017	0.015
change in SEE immigrant to native ratio	-0.013	0.277	-0.207	0.037	0.003	-1.848*
	(0.047)	(0.310)	(0.118)	(0.365)	(0.050)	(0.363)
R-square	0.014	0.011	0.021	0.009	0.017	0.010
Number of Observations	231026	217588	41872	39445	189154	178143

Notes: OLS regression is from 2001:Q1 to 2005:Q4. All regressions have time and product dummies. OLS standard errors are robust to heteroskedasticity. See Table 1 column (5) as to how the instrument is defined. * denotes significantly different from zero at the 5% significance level. German immigrants are immigrants from Germany and Austria. South and Eastern European (SEE) immigrants are from Italy, Portugal, Serbia, Spain, and Turkey.

Table 7: The immigration effect on clothes prices with store type

	all		Germans		SEE	
Clothes						
change in immigrant to native ratio	-0.129*	-2.386*	-7.539*	-5.092*	-0.178*	-1.841*
	(0.046)	(0.367)	(0.901)	(2.201)	(0.059)	(0.442)
R-square	0.145	0.128	0.145	0.142	0.145	0.137
Number of Observations	78777	73834	78777	73834	78777	73834
single/family store	OLS	2SLS	OLS	2SLS	OLS	2SLS
change in immigrant to native ratio	-0.014	-0.171	1.233	-0.657	-0.028	-0.166
	(0.046)	(0.260)	(0.965)	(2.375)	(0.059)	(0.322)
R-square	0.104	0.100	0.104	0.100	0.104	0.099
Number of Observations	41158	38523	41158	38523	41158	38523
regional stores	OLS	2SLS	OLS	2SLS	OLS	2SLS
change in immigrant to native ratio	2.941*	-6.130*	-22.346*	-15.410*	-6.611*	-6.584*
	(0.500)	(1.438)	(3.035)	(5.108)	(1.051)	(2.330)
R-square	0.157	0.149	0.158	0.154	0.157	0.151
Number of Observations	17318	16234	17318	16234	17318	16234
national stores	OLS	2SLS	OLS	2SLS	OLS	2SLS
change in immigrant to native ratio	-5.488*	-11.123*	-28.396*	-28.997*	-1.976	-0.060
	(1.259)	(2.566)	(1.951)	6.035	(2.473)	(2.938)
R-square	0.229	0.230	0.234	0.231	0.228	0.228
Number of Observations	20301	19077	20301	19077	20301	19077

Notes: All regressions have the change in ln(pop) and change in the unemployment to population ratio. The regressions include time and product dummies. Standard errors are given in brackets. OLS standard errors are robust. * denotes significance at the 5% significance level.

Table 8: The immigration effect on clothes prices with sales

	without sales		with sales only		sale > 0% only	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
change in (total) immigrant to native ratio	-0.238*	-6.634*	0.178	7.974*	0.208	8.888
	(0.051)	(0.346)	(0.810)	(1.071)	(1.502)	(2.885)
R-square	0.128	0.024	0.315	0.103	0.193	0.064
change in German immigrant to native ratio	-9.930*	-18.250*	-14.458*	-31.397*	10.265	5.248
	(0.888)	(1.947)	(2.564)	(5.519)	(6.400)	(9.272)
R-square	0.130	0.083	0.239	0.252	0.193	0.068
change in SEE immigrant to native ratio	-0.190*	-5.446*	0.180	8.466*	4.258	12.706*
	(0.064)	(0.401)	(0.010)	(1.233)	(2.559)	(3.989)
R-square	0.128	0.040	0.327	0.179	0.171	0.070
Number of Observations	64272	60748	14505	13086	3810	3299

Notes: OLS regression is from 2001:Q1 to 2005:Q4. All regressions have time and product dummies. OLS standard errors are robust to heteroskedasticity. See Table 1 column (5) as to how the instrument is defined. * denotes significantly different from zero at the 5% significance level. German immigrants are immigrants from Germany and Austria. South and Eastern European (SEE) immigrants are from Italy, Portugal, Serbia, Spain, and Turkey.