The determinants of out-migration from Switzerland

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Abstract

This study empirically investigates the determinants of migrant outflows from Switzerland by country of origin over the period 1991-2008. The return migration is considered as part of an optimal life-cycle residential location choice. In addition to costs and benefits of return migration we also consider non-pecuniary factors or personal unexpected events that affect the initial migration decision. We find that the real per capita GDP in the source country, relative prices, the real per capita GDP and policy variables in Switzerland, inequality, political instability, military expenditures and common language explain a substantial part of the return migration from Switzerland. We find results that are consistent with the self-selection in the spirit of Borjas and Bratsberg (1996) for Africa, Latin America and the rest of Europe, but not for Asia, the main Europe, and North America and Oceania.

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1 Introduction

The main foundation of Swiss migration policy is economic interests, such as labour market needs, responses to business cycles and concerns about the native labour force. It is based on the one hand on the free movement of labour with countries of the EU-27 and EFTA-3[1] and on the other hand on the rotation principle with third countries. For the latter group, work permits are temporary. Admissions are granted by the local migration office, and the permits are renewed by the local migration office if certain labour market requirements are fulfilled, including for some nationalities that no Swiss worker is available for that job.

A large proportion of migrants in Switzerland return sooner or later to their home country. According to the Swiss Statistical Office during the period 1980-2008, 2.8 million people immigrated to Switzerland, and 1.8 foreigners emigrated, resulting in an increase in the stock of migrants in Switzerland from 0.9 million in 1980 to 1.7 million in 2008. This indicates that not only determinants of inflows but also outflows should be investigated in order to understand the labour market impact of immigrants who stay in Switzerland better. So far, research for Switzerland has focused to understanding the determinants of inflows.

In contrast, fewer characteristics are known about return migration. Knowing its determinants allows understanding the type of immigrants left in Switzerland. After all, Borjas and Bratsberg (1996) argue that outmigration is selective. This non-randomness of return migration will have important consequences for the economic assimilation of immigrants as well as for their labour market effects on natives. Understanding return migration eventually helps to revise the Swiss immigration policy to best meet the needs of Swiss labour markets.

The research on the determinants of return migration[2] has so far considered:

- the improvements in absolute income and employment opportunities in the source countries encourages return migration (Hicks, 1932; Sjaastad, 1962; and Harris and Todaro, 1970).
- Location-specific preferences such particular consumption goods (Hill, 1987; Djajic

[1]The agreement of free movement of persons that Switzerland concluded with many countries in Europe has abolished most of the requirements for immigration, except for the ability to live on its own earnings.

[2]Return migration describes a situation where migrants return to their country of origin after a period of time. Remigration, emigration, outmigration and return migration are all different to some degree, but used as the same in this paper. The available statistics distinguish between nationality rather than destination country. Even though we do not know whether these out-migrants are returning to their country of origin, it is plausible to assume that there is no systematic bias in the correlation between country of origin and country of destination (see also Jasso and Rosensweig (1982) and Borjas and Bratsberg (1996)).

and Milbourne, 1988; and Raffelhüschen 1992).

- Relative deprivation and risk spreading, which are the main motivations to migrate also are also reasons for return migration (Stark, 1992).
- Decreasing or easing migration costs encourage return migration (Carrington et al., 1996).
- Erroneous information about the host country (Borjas and Bratsberg, 1996).
- Selection from a specific income or education distribution (Borjas and Bratsberg, 1996).
- A high purchasing power of the host country currency in the migrant's home economy (Djajic, 1989; Dustmann, 1997; and Dustmann and Weiss, 2007).
- Human capital accumulated in the host country brings high returns in the home country (Roed and Stark, 1998).
- Credit market rationing in the home country which motivates migration to start with, brings high returns on the savings of the return migrants (Mensrad, 2004).
- A higher rate of return on self-employment activities in the home country (Dustmann and Kirchkamp, 2002; and Djajic, 2008).
- Personal and demographic factors, and family structure (Dustmann, 1996 & 2003a; and Djajic, 2008)
- Optimal duration decision depends on how quickly expectations are fullfilled (Dustmann, 2003b).
- Remittances could be an important reason to return (Constant and Massey, 2003).

This study tries to incorporate the main economic, political and social determinants of emigration. Therefore, to our knowledge this is the first study that analyses the determinants of return migration from several dimensions. First of all, we have a unique data set that covers yearly return migration to all countries over the 1991-2008 period from Switzerland. A country which interestingly has a very high share of immigrants - 22.4% of its population. The report by Sheldon and Cueni (2011) focuses on migration including return migration from Switzerland to European Countries only and on the data on income, unemployment and the free movement of persons agreement. Secondly, our study considers return migration as part of an optimal life-cycle residential location choice. Therefore, it considers pecuniary costs and benefits such as physical capital accumulation and the cost of migration. Third, our study also accounts for the fact that some immigrants revise their

initial migration decision with time spent in the host country. Therefore, for example unexpected life events such as divorces might matter for immigrants. Fourth, we investigate whether out-migrants from Switzerland are positively or negatively selected in the spirit of Borjas and Bratsberg (1996), because the skill distribution of the remaining immigrants is is important for designing effective immigration policy. Given that Swiss income inequality lies between the typically more equal European countries and less equal US and developing countries, the selection of migrants from Switzerland is interesting. Fifth, policy variables such as the free movement of persons agreement and the former guest worker agreement might be important factors in determining return migration. Finally, estimating the determinants of return migration by region of origin might deliver different pictures due to the heterogeneity of immigrants.

Section 2 specifies the hypotheses that we will empirically test. Section 3 discusses the salient features of the migration data. Section 4 introduces the empirical model and section 5 describes the methodology. The results of the econometric study are presented and discussed in Section 6. Section 7 concludes and gives policy recommendations.

2 Hypotheses

When the decision to migrate is taken, the migrant either thinks it will be permanent or temporary. If these believes are fulfilled then the migrants stay permanently in the host country or return, however there are also many exceptions to it. In this paper, we ignore the initial intentions and focus on what determines the return migration. In addition, we assume migration is temporary or not is distributed randomly across time and countries. This assumption is required due to the fact that the intention whether migration was expected to be temporary or permanent influences the responsiveness to a determinant. We further assume that all return migration is voluntarily. This assumption is partially justified when the data does not cover asylum seekers nor illegal migrants as in this paper.

Temporary migration is mainly motivated by an accumulation of physical and human capital that are valuable in the home country. By spending parts of the working life in a host country, immigrants increase their earning potential and life-times resources in the home country. The decision to return home is based on a comparison of the home country income adjusted by a gain obtained in the host country to the current income in the host country. The first hypothesis states that:

Hypothesis 1: The higher the purchasing power adjusted income in the source country, the more often immigrants return.

Temporary migrants aim to take advantage of high wages abroad and low prices at home to improve the purchasing power.

Hypothesis 2: The difference in relative prices between host and home country encourages the return migration.

In addition to the value of the expected earnings the sequence of residential choice also depends on the costs of migration, which depend among other on a common language or geographical proximity. If costs to migration are small, migrating will be easier at any time. The possibility of circular migration enhances return migration. The returns to spending parts of the working life in Switzerland must be sufficiently greater than the expected costs of migration and remigration.

Hypothesis 3: Low costs of migration - such as a common language and geographical proximity - results in high return migration.

Personal unexpected events in the host country or unplanned incidents can lead individuals to revise the initial migration decision. A planned permanent migration can then become temporary.

Hypothesis 4: Some individuals revise their planned permanent migration decisions due to non-pecuniary factors such as divorce and thereby increase the return migration rate.

Switzerland has a free movement of persons agreement with the EU-27 and EFTA-3 countries. With these bilateral contracts it is easier for these migrants to revise their decisions. After all, they can rather easily come back to Switzerland. Furthermore, the goal of this policy is to overcome labour shortages. The changing demand for certain occupation increases circular migration. For these two arguments we expect migrants who benefit from such a liberal Swiss immigration policy to return more often.

Hypothesis 5: The return migration is higher to countries with which Switzerland has a liberal immigration policy.

The source country's political structure should have an important effect on return migration.

Hypothesis 6: Political instability in the source countries deters return migration.

The last hypothesis describes the selection process for return migration. This is an important part of our study as non-randomness of the return migration gives guidance to the type of migrants who remain in Switzerland. The key to the Roy (1951) and Borjas and Bratsberg (1996) models is whether inequality (i.e. the Gini coefficient) in the source country is smaller or greater than in the host country. In case one where inequality in the source country is lower than in Switzerland, e.g. the Scandinavian countries, the original immigrant flows are positively selected. This means they are composed of workers with above average skills. The intuition is that above average skilled person often earn above average and substantial equality dampens the level of the high wages. In this case, an increase in inequality in the source country will give an incentive to return, because the migrant pool has above average skills, and the returns to their skills are now higher in the source country.

However, in case two where inequality in the source country is greater than in comparison to Switzerland - like the Latin American Countries, then immigrants are negatively selected. It means that they are composed of workers with below average skills, because the people at the lower end of the income distribution expect to have better living conditions in a more equal country. In this case, an increase in inequality will reduce return flows, because the returns to their low skills are now even lower in the source country. The immigrant stock in this case consists of below-average skills and immigrants have even less incentives to return to the home country with greater earnings dispersion. Only the most skilled group in this self-selected sample might find it optimal to return. Most of the lowest skilled workers will prefer to stay in the host country.

In case one where inequality in the source country is lower than in Switzerland, that country is on the left from Switzerland on an x-axis representing the Gini coefficient. If inequality increases a shift to the right on the Gini-axis occurs. We expect return migration for that country to increase, because an increase in high wages create incentives for high skilled migrants to return home. This increasing flows of returns are reflected in a higher value of return migrants on the vertical axis. Thus, we expect a positive correlation between the Gini coefficient and the number of return migration. In contrast, in case two where inequality is higher than in Switzerland to begin with an increase in inequality in the source country will lead to smaller return flows. The immigrants from these relative unequal countries have below average skills and their incentive to return deteriorates when the country gets even more unequal. Thus, for countries with a Gini coefficient above the one from Switzerland, we expect that an increase in the Gini coefficient leads to smaller numbers of returning migrants. This prediction is specified with a quadratic form, where the coefficient of the first-order term is expected to be positive and coefficient of the second

term is expected to be negative, in a Cartesian system with inequality on the x-axis and number of return migrants on the y-axis.

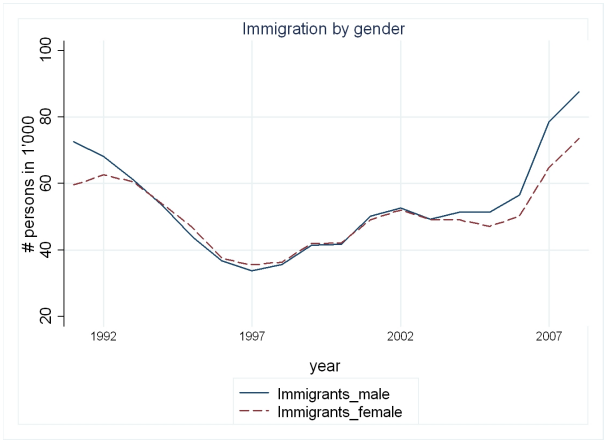
Hypothesis 7: In line with the self selection model of Borjas and Bratsberg (1996) we expect the relationship between return migration and inequality to follow an inverse U-shape.

Empirical results of a quadratic specification can deliver four possibilities. We will interpret these cases in the light of the theoretical model:

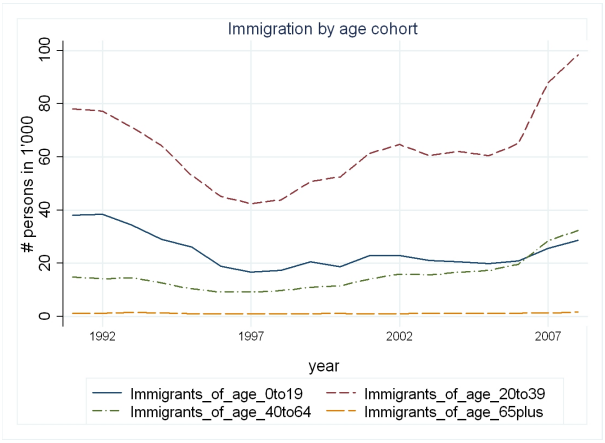
- Case 1: When the coefficient on Gini is positive and the coefficient on Gini squared is negative; then our empirical results are consistent with the theoretical predictions above suggesting that there is both positive and negative selection.
- Case 2: When the coefficient on Gini is positive and the coefficient on Gini squared is also positive; the prediction of Borjas and Bratsberg (1996) is confirmed only for migrants from relative unequal countries.
- Case 3: When the coefficient on Gini is negative and the coefficient on Gini squared is also negative; the prediction of Borjas and Bratsberg (1996) is confirmed only for migrants from relative equal countries.
- Case 4: When the coefficient on Gini is negative and the coefficient on Gini squared is positive, *the prediction of Borjas and Bratsberg (1996) is not confirmed.*

If our empirical results are not consistent with the theoretical predictions it is also possible that the Gini coefficient captures other effects than just the skill price as suggested in the Borjas and Bratsberg (1996) model.

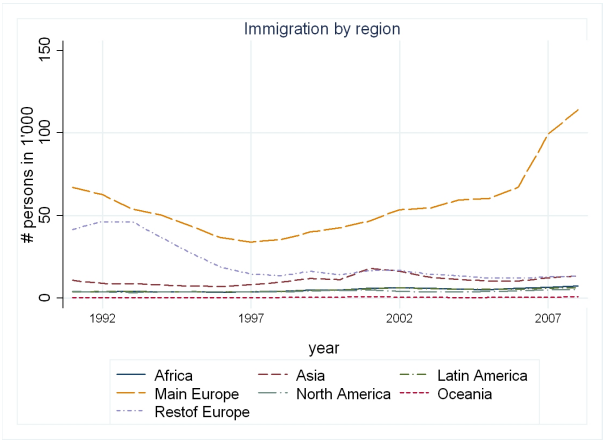
In addition to the effect on the share of migrants to return, these selection effects also influence the distribution of the remaining immigrants. Return migration amplifies the type of migrant that remain in the host country. Following Borjas and Bratsberg (1996) migrants from countries that are more equal than Switzerland are highly skilled. If they learn that inequality in their home country increases it is the relatively lower skilled out of these high skilled migrants that have a higher incentive to return home. Put differently, the highest skilled migrants gain most by staying in the host country, because the returns to skills are still higher in the host country for them. As a result, the least skilled immigrants out of this sample will return. Analogously, migrants from countries that are less equal than Switzerland are low skilled. If they learn that inequality in their home country increases it is the relatively higher skilled out of these low skilled migrants that have a higher incentive to return home.



(a) By Gender



(b) By Age



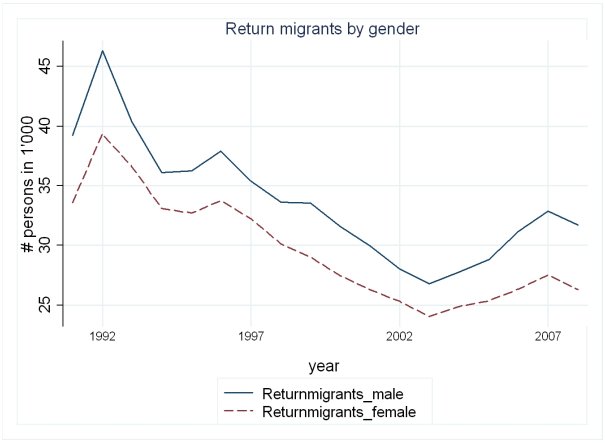
(c) By Region

Figure 1: *Composition of Immigration*

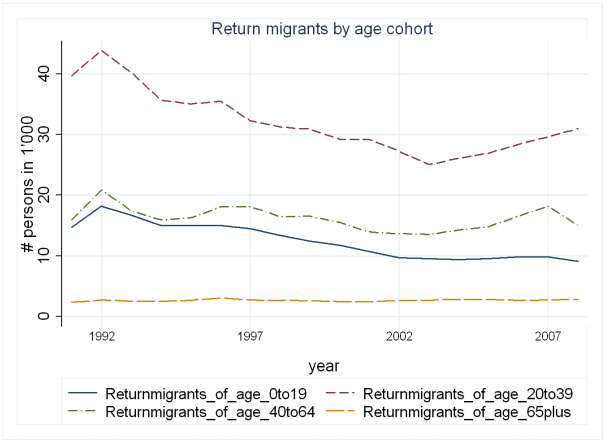
3 The salient features of the migration data

The data is gathered from the Swiss Federal Office of Statistics on the number of immigrants, stocks and return migrants by nationality in Switzerland. In this section we describe the main stylized facts of this data.

Figure 1a shows that immigrants by gender follow each other very closely during the first period until 2003, but then immigration by males increase; suggesting that immigration during the initial period was rather a family migration and after 2003 a more pronounced labour migration was added. According to Figure 1b immigrants aged 20-39 have the largest share; following by immigrants aged 40-64 and aged 0-19. The largest group of immigrants is from the Main Europe (mainly Germany, France, Italy, Spain, Portugal, and Austria), the rest of Europe as well as Asia (Figure 1c).



(a) By Gender



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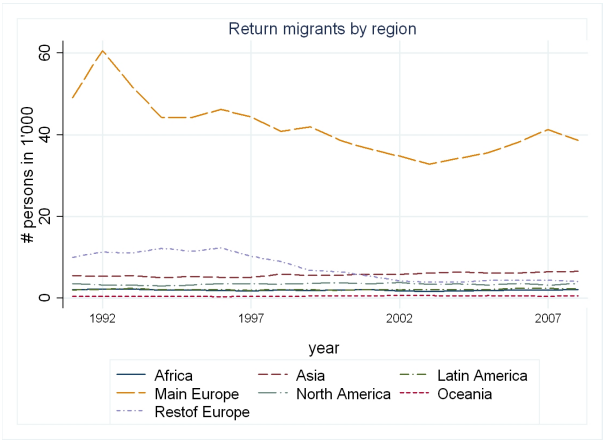

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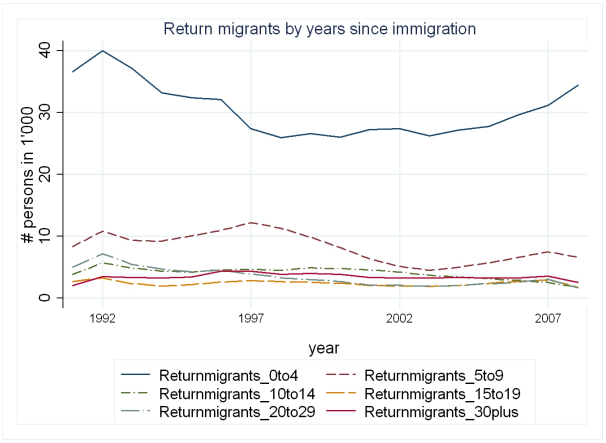
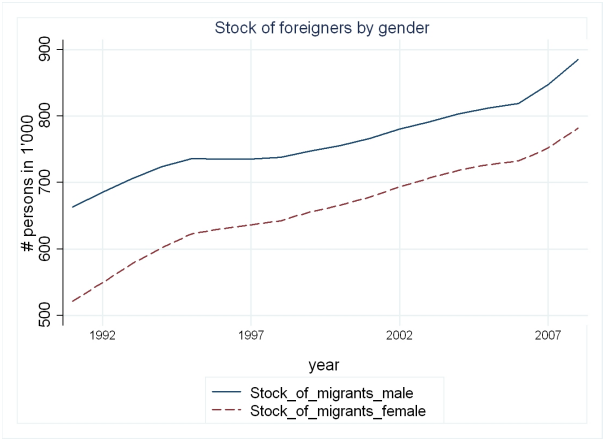


(d) By Duration

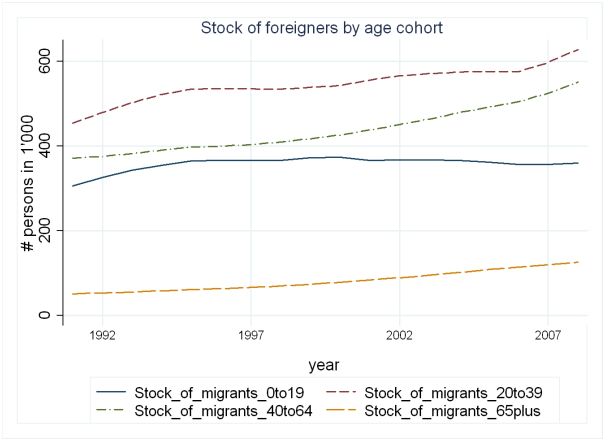
Figure 2: *Composition of Emigration*

The outflows of migrants by gender show the stable pattern over the period; males return more often than females, see Figure 2a. Figure 2b shows that outflows are dominated by migrants aged 20-39. This suggests that majority of migrants come to Switzerland for education or in order to upgrade their skills, therefore accumulate human capital and increase return to their skills when they return home. In addition, the high share of working age population (aged 40-64) among return migrants indicates that the initial migration motive is also to accumulate physical capital due to the high purchasing power of host country currency in home country. The share of return of migrants aged 0-19 suggests that immigration and emigration are a family decision. However, the constant pattern of return migration among aged 65+ suggests that a considerable share migrants in Switzerland prefer to spend the rest of their lives in Switzerland rather than in their home country. This might be related to the high quality of Swiss health care. The largest group of emigrants are

from the Main Europe, followed by the rest of Europe and Asia with considerable distance (Figure 2c). The Figure suggests that outflow of European migrants is substantial. This is consistent with the immigrant flows by regions. The majority of migrants return to their home country in their first five years. This suggests that migrants fulfilling their plans in a short period of time, Figure (2).



(a) By Gender



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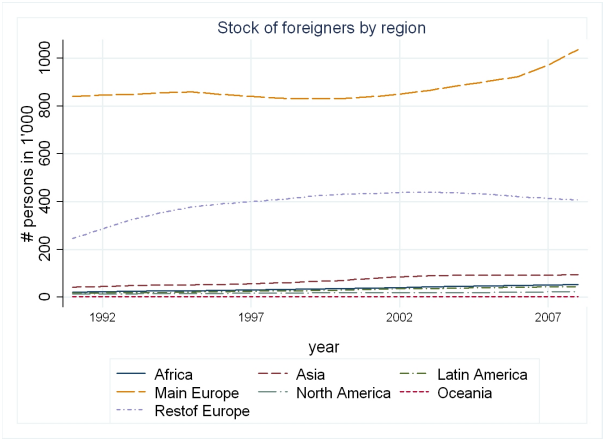

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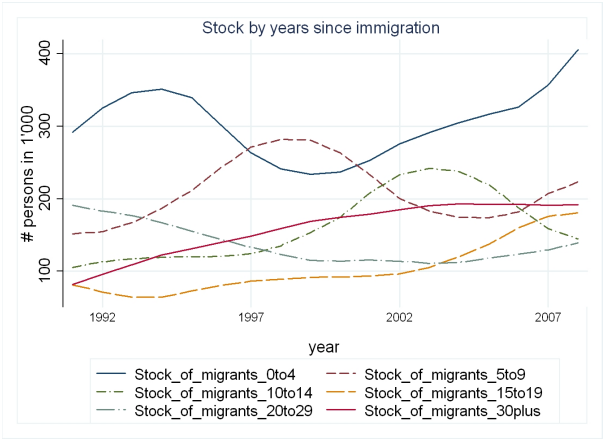
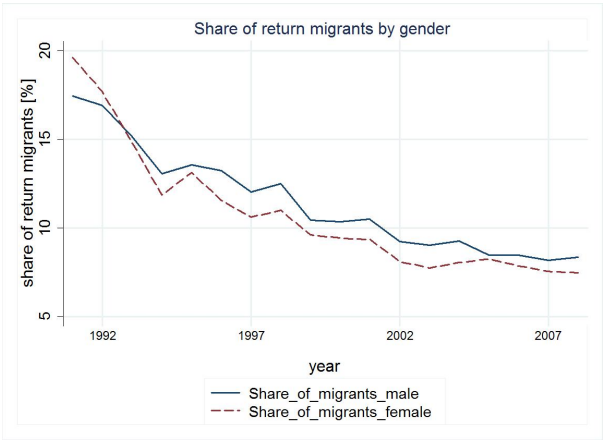


(d) By Duration

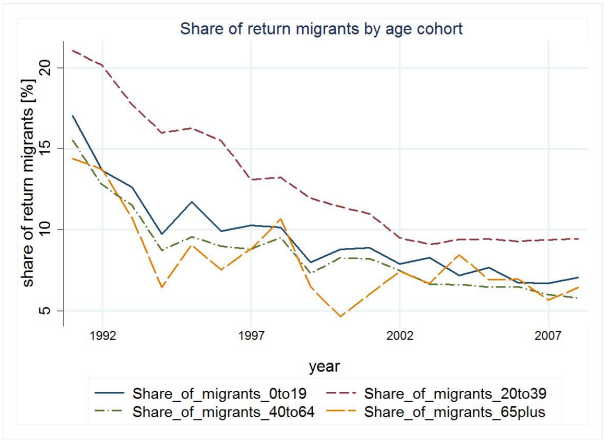
Figure 3: *Composition of Stocks of migrants*

According to Figure 3 the majority of the stocks of migrants are males, are aged between 20-39 and 40-64, are mainly from the Main Europe, the rest of Europe and Asia and have been in Switzerland 0-4 years or 5-9 years. However, there is also an increasing trend that migrants who have been in Switzerland for 15-19 years are also returning.

The Figures on outflows as a ratio to stocks of the respective foreign population show rather different patterns compared to inflows, outflows and stocks in terms of regions (figure 4c). This can be explained by relatively low outflows out of large stocks of European



(a) By Gender



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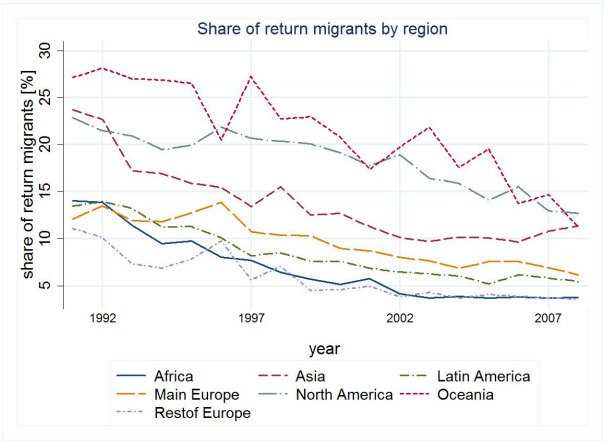
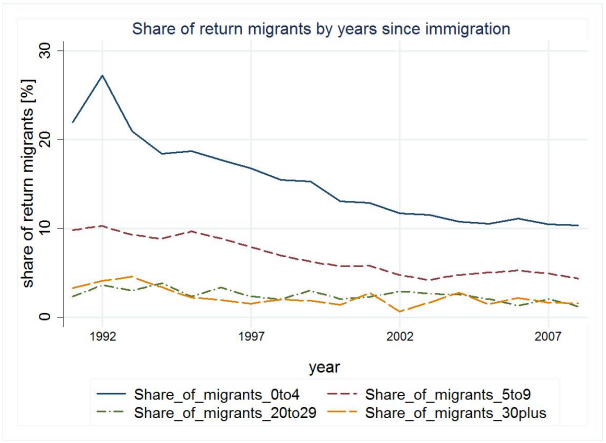


(c) By Region



(d) By Duration

Figure 4: *Composition of Share of return migrants*

migrants.[3] Therefore, the largest shares of outflows out of their respective stocks belong to migrants from Oceania, North America and Asia, even though these shares are decreasing over the years. However, the shares of outflows with respect to stocks for migrants from the Main Europe and the rest of Europe are rather stable. The gender shows similar patterns to inflows, outflows, and stocks, (Figure 4a). The majority of share of return migrants are aged 20-39, (Figure 4b). This suggests that human capital accumulation, upgrading skills

[3]Many countries that have a small population are far away from Europe or are political very stable have only a limited numbers of people living in Switzerland. For example including a small pacific Island might add relatively more noise to the explanation of the return share as this one or even none emigrant might chose to return by coincidence. Therefore we calculated the mean number of immigrants over the last 18 years and dropped 63 countries from the sample whose number was below 20. We chose the mean number of immigrants and not foreigners living in Switzerland in order to avoid to cut the sample based on part of the dependent variable.

and training are the main initial motive to migrate. This is also supported by the data on the length of stay. The majority of migrants that returned stayed between 0 to 10 years, suggesting the initial migration motive for those who eventually return was to accumulate physical and human capital, (Figure 4d).

Continent	Africa	Asia	Latin America	Main Europe	North America	Oceania	Rest of Europe
Age							
0-19	6.32	12.38	9.87	8.60	20.23	25.32	8.72
20-39	9.29	17.14	10.57	14.19	23.62	24.66	10.31
40-64	8.50	11.18	8.42	6.74	13.43	14.53	11.89
65+	8.95	9.21	11.03	4.19	6.18	5.93	10.82
Duration							
0-4	10.54	20.03	12.05	17.94	27.75	28.69	8.12
5-9	5.46	10.10	6.11	7.74	11.55	14.30	7.50
10-14	3.65	2.71	4.98	3.93	5.05	5.06	5.31
15-19	2.86	2.44	3.14	2.71	3.49	3.63	3.66
20-29	2.36	2.80	2.56	2.48	2.61	3.10	5.20
30+	1.70	2.43	2.34	2.14	2.02	1.43	7.85
Gender							
Female	8.04	13.76	9.88	10.09	19.64	23.28	7.62
Male	8.28	15.40	9.55	10.84	17.62	19.66	10.38

Table 1: *Dependent variable: return migrants as a% of immigration stock by Continent (mean of countries) and Age, Duration of stay and Gender.*

The return migrants as a share of their stocks in Switzerland show considerable differences by regions and age as shown in Table 1. For Africa and rest of Europe, return migration takes place in all age groups. While the return migration for ages 65+ is relatively high for the migrants from Latin America and Rest of Europe, the majority of return migration as a share of stocks for Asia, Latin America, Main Europe, North America, and Oceania takes place between ages 20-39, suggesting the human capital accumulation motive. In addition, the high return migration for ages 40-65 for the Rest of Europe suggests the physical capital accumulation and the high return migration for ages 0-19 for Asia, Main Europe, North America and Oceania suggests family migration.

The majority of return migration takes place during the first five years, migrants from Asia are more likely to stay during their first ten years and migrants from the rest of the Europe decide to return after spending relatively long period of time. The duration might reflect the assimilation effect; the longer the migrant is abroad, the lower is the probability that he will return. On the other hand, if the main migration motivation is to accumulate financial assets in a short-period of time then the migrants usually stick to this initial plan. The gender of return migrants is relatively balanced in Africa, Latin America and the Main Europe.

These interesting salient features of the data suggest modelling return migration from Switzerland.

4 Empirical Model

We model the explanatory factors for return migration as follows:

$$\begin{aligned} ln\frac{rm_{jt}}{s_{jt}} &= \alpha_0 + \alpha_1 lnGDP_{jt} + \alpha_2 lnGDP_{it} + \alpha_3 \frac{1}{Price}_{ijt} + \alpha_4 U_{jt} \\ &+ \alpha_5 divorce_{jit} + \alpha_6 gini_{jt} + \alpha_7 gini_{jt}^2 \\ &+ \alpha_8 instability_{jt} + \alpha_9 military_{jt}^2 + \alpha_{10} dist_{jt} + \alpha_{11} dist_{jt}^2 \\ &+ \alpha_{12} language_j + \alpha_{13} guestworker_j + \alpha_{14} policy_{ijt} \\ &+ \alpha_{15} continent_j + \alpha_{16} year_t + \epsilon_{jt} \end{aligned} \tag{1}$$

We assume that the dependent and independent variables are iid random vector with finite second-order moments, and the α_k for k=1,..,17 are unknown parameters.

The left-hand-side variable in equation (1) denotes the log[4] of migrant outflows from Switzerland i by nationality j, expressed as a share of their population living in Switzerland.[5]

The first explanatory variables are macroeconomic indicators. The income variables are in logs rendering them an interpretation as elasticities. Immigrants return to rich countries rather than to poor countries; $\alpha_1 > 0$, the high income in the host country discourages return migration; $\alpha_2 < 0$ and the high unemployment rates in the source countries deter return migration; $\alpha_4 < 0$. Moreover, we consider the effect of the purchasing power of the host country currency in the source country $\frac{1}{p}$, where $p = \frac{P_j}{P_i}$ is price of consumption in the home country (P_j) relative to the price in Switzerland (P_i). A high purchasing power of the host country currency in the migrant's home country increases return migration; $\alpha_3 > 0$.

The divorce rates for immigrants reflect an unexpected event. Given that marriage is a main reason for moving to Switzerland, a divorce can be expected to be a considerable explanatory factor for return migration as the initial reason to move became obsolete; $\alpha_5 > 0$. However, divorced females return decision might differ from divorced males return decision.

The Roy model suggests and it is also empirically confirmed in Borjas and Bratsberg (1996) that the relationship between the return migration and the rate of return to skills, hereby inequality should have an inverse-U shape; $\alpha_6 > 0$ and $\alpha_7 < 0$.

[4]The log-log model is also preferred in Lundborg (1991), Faini and Venturini (1995) and Pederson et al. (2008). The dependent variable is the return migration rate and is bounded at zero. Therefore, a transformation by taking natural logs is possible.

[5]Borjas and Bratsberg (1996) applied the same notation.

The political instability which is represented by a constructed political instability variable and the military expenditures in the source countries should deter return migration; $\alpha_8 < 0$ and $\alpha_9 < 0$. The square of the military expenditure is used, as military expenditure signal conflicts only after a certain threshold.

Migration and emigration costs rise with distance, $\alpha_{10} < 0$, but decrease with its square according to the distance decay theory; $\alpha_{11} > 0$. The knowledge of the languages spoken in Switzerland decreases emigration costs and reduces the need for investment in location specific capital and therefore eases immigration as well as emigration; $\alpha_{12} > 0$. Immigrants from countries with former guest-worker are less likely to return $\alpha_{13} < 0$, because they have settled and benefit from established networks of co-patriots. The Swiss immigration policy that relaxes the restriction on movements increases return migration; $\alpha_{14} > 0$.

5 Methodology

This study aims at testing hypotheses about many determinants of return migration. However, we exclude variables with many missing observations such as unemployment rates, because their inclusion would considerably reduce the sample size. Furthermore, we only take one variable out of a group of variables that are highly correlated such as GDP and relative GDP or border and free movement of labour.[6]

We first run pooled OLS regressions to test the impact on return migration from the variables described in equation (1). Thereby, we include dummies for every region to account for some degree of heterogeneity. It might well be the case that country specific factors have an impact on the determinants of return migration. Consequently, we also apply a Fixed Effect regression, which uses individual intercepts for all countries.[7] Time constant country effects are neutralised, also for unobservable characteristics such as culture. As the average country-to-country variation is removed from the analysis, Fixed Effects model investigate whether changes in migration rates between each pair of countries are associated with changes in migration determinants in both countries. The focus of FE lies on the dynamics and ignores whether a certain destination country attracts more immigrants than other, for example because of its high level of GDP per capita.

The Fixed Effect estimator is preferred to a pooled OLS estimator as the F-test suggests

[6]Gambia's divorce rate for women ranging from 0.38 to 1 seems to be an outlier and was dropped. For 49 observations the inverse prices were above 20 ranging until 9800 indicating a very high inflation, as all prices were normalized across countries in year 2000. We ceiled these values to 20.

[7]However the slopes of the explanatory variables are assumed to be the same for all countries. (For example the analysis of Brücker & Siliverstovs (2006) suggests a preference of Fixed Effects models over heterogeneous estimators in migration models.)

to reject the Null Hypothesis of equal intercepts on a 1% significance level. Nevertheless, we include both OLS and Fixed Effect regressions. On the one hand because time constant factors such as distance or common language are removed in Fixed Effect estimations (Yashiv and Levy, 2009) on the other hand OLS is more appropriate for interpreting correlations in levels. We further tested a random effect model and compared it to a fixed effect model. The corresponding Hausman χ^2 test statistics suggested on a 1% significance level that the assumption of the random effects model of no correlation between country specific effects and error terms was violated. Consequently, we do not use the random effect estimator.

Consistency of our estimators rules out feedback effect from our explanatory variable on the residuals and, therefore, shocks to our dependent variable. It is plausible to rule out such feedback, because our explanatory factors are mostly indicators from the home country, whereas the dependent variable is the share of people going out of the host country. In addition, return migration is defined as a share and not a flow, thus a current shock to the dependent variable is unlikely to affect current or future indicators in the home country. Even for the migration regime policy variable pfz it is plausible to assume that it is not driven by shares of return migration by countries, because the free movement of labour is part of other bilateral treaties and has been enacted with all countries, spanning this free movement of labour area in continental Europe. So we assume in equation (1) strict exogeneity:

$$E(\epsilon_{jt}|x_{jt}) = 0, t = 1, ..., T \tag{2}$$

Assuming strictly exogeneos regressors requires the regressors to be uncorrelated with past, contemporaneous and future values of the error terms. It rules out any form of feedback on the regressors but still allows correlation in the dependent variable.

Indeed, we next analyze stationariy of our dependent variable, even though we have yearly time intervals over fifteen years). The graphical inspection of figures of return migration by country[8] points to no overwhelming trend. But this finding does not rule out multiple or stochastic trends. The classical panel unit root test proposed by Im, Peseran and Shin (IPS) evaluates the average of country-wise Dickey-Fuller-t-statistics.[9] But it assumes that cross sections are independent, which is not plausible with country data and their regional effects. To avoid distortions we explicitly allow for cross section dependence

[8]command in Stata: *xtline dependentshare, overlay*

[9]The IPS without lags (command in Stata: *xtunitroot ips, dependentshare, lag(0)*) clearly rejects the presence of non stationarity. But when incorporating 1 or 2 lags to account for serial correlation the Null hypothesis of a unit root is not rejected. Note here that with increasing lags the power of the test vanishes

by applying a Peseran panel unit root test which deducts the cross-sectional mean[10]. In the unit root test we apply the hypothesis whether a variable is stationary just about a constant but not a trend. For all lags 0 to 3 the Peseran panel unit root rejects the unit root hypothesis. This rejection of non-stationary is consistent with the fact that our dependent variable is a relative measure calculated as a quotient and transformed into logarithms. Put this facts together we assume stationarity of the dependent variable.

Nevertheless, there is serial correlation in the dependent variable, which is further transformed into serial correlation in the residuals. Thus, we apply estimators that account for serial correlation in the residuals[11]. Furthermore, the OLS estimator applies a covariance structure that is robust to heteroscedasticity. A diagnostic test[12] indicates that this heteroscedasticity occurs even groupwise, because a nonrandom sample of countries can be assumed to be subject to common regionwise disturbances (Driscoll and Kraay (1998). Thus, we run another panel estimator with robust standard errors with cross-sectional dependence[13] (Hoechle, 2007). This panel estimator accounts for heteroscedasticity, groupwise correlation as well as a moving average process of the residuals by estimating the standard errors according to Driscoll and Kraay (1998). Accounting for these dependencies in the residuals is important in order to get reliable estimates of standard errors and thus of the indications of significance.

The results are robust whether we use a variable year or individual dummies for every year. Given that the migration trend is not linear, we apply yearly dummy variables in the regressions but do not report their results.

To sum up, we run OLS estimations. Then we further show analogous regressions with FE models accounting once assuming an AR(1) in the errors and once with a even more robust error matrix.

6 Estimation findings

Table 2 presents results for the whole sample from regressions of the return migration rates on the various socio-economic variables according to equation (1). The results suggest the following findings:

- The key explanatory variable for return migration - GDP in the source country - is significant. Return migration occurs to rich countries more often than to poor

[10]command in Stata: *pescadf dependentshare, lag(3)*
[11]command in Stata: *Newey West* for OLS and *xtregar, fe* for Panel
[12]command in Stata: *xttest3*
[13]command in Stata: *xtscc, fe lag(3)*

	Dependent Variable: Share of Return Migrants					
	Whole Sample					
	OLS-Newey West std. errors		FE-AR(1) disturbances		FE-Driscoll & Kray Estimators	
	(1)		(2)		(3)	
Variables	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
gdp ln	0.339	6.56***	0.059	0.50	0.305	1.78*
gdpswiss ln	-0.390	0.11	-0.237	2.40**	-1.557	6.98***
price inverse	0.005	0.59	0.001	0.19	0.003	1.37
divorce share female	-1.331	1.09	0.226	0.29	-1.861	2.19**
divorce share male	-0.810	0.56	2.094	2.70***	1.134	0.99
political stability	0.005	0.21	0.003	0.36	-0.022	1.56
Gini	-1.384	0.92	-2.335	1.86*	-1.649	2.27**
Gini square	26.888	2.92***	-0.213	0.03	-3.041	0.63
milex square	-0.001	1.09	0.002	1.38	0.001	0.25
pfz	0.260	1.55	0.125	1.93*	0.118	6.55***
comlang	-0.242	3.00***				
dist	283.453	4.12***				
dist square	-0.001	4.06***				
dist*pfz	-99.185	0.76				
boarder*pfz	-0.180	1.65*				
guestworker	-0.848	11.31***				
Africa	0.251	1.31				
Asia	0.258	1.47				
LatinAmerica	-0.023	0.11				
MainEurope	0.338	2.36**				
NorthAmerica	0.274	1.15				
Oceniea	2.684	4.24***				
Constant	-1.821	0.05	-0.056	0.33	11.442	3.43***
Observations	1'497		1'393		1'497	

*, **, *** indicates a significance level of 10%, 5%, 1% respectively.
dummies for individual years were included and are highly significant but not reported

Table 2: *Regression output for the whole sample*

countries, which is consistent with the theoretical model in Borjas and Bratsberg (1996).

- Similarly, the high income in Switzerland discourage return migration according to FE estimators.
- *Divorce rates* have an effect on return migration for both males and females. However, the effect is positive for men and negative for women, suggesting that the mothers to whom the children's custody are given prefer to stay in Switzerland, thinking that Switzerland provides better future for their children.
- *Distance* to Switzerland has a positive effect on return migration, contradicting the theory. An explanation for this result could be the fact that majority of return migrants are from the neighbouring European countries and distance does not play an important role in their return migration decision. Other cost variables might be more important.
- Indeed, a *common language*, which reflects lower costs of moving, also decreases return migration. This might reflect assimilation or integration effect.
- An important contributions of this study is the effect of Swiss immigration policies on return migration. We do in fact find evidence that free movement of persons agreements increase return migration to countries that have free movement of people agreements with Switzerland (in the FE models); and that return migration is lower

to countries that Switzerland had the guest workers agreements in the OLS model. This finding suggests that with the guest workers agreements majority of migrants settled in Switzerland, however, free movement of persons agreements made migration from these countries more dynamic.

The interaction terms of free movement of persons agreement with distance and with border ($distpfz$, $borderpfz$) have negative coefficients, but only $borderpfz$ is significant. The free movement of persons agreement with European countries by easing migration should actually increase return migration for migrants from these countries, but the distance has a negative coefficient, then therefore, the first interaction term $distpfz$ is negative. The second interaction term $borderpfz$ is also negative, although we expect this term to be positive, because sharing a border decreases the migration costs and increase return migration. However, the dependent variable in the equation is a ratio of return migrants by nationality to stock of migrants by nationality and given that the stocks of migrants by nationality from the European countries that Switzerland has a free movement of person agreements are large relative to the return migrants from these countries, the interaction term with border delivers a negative coefficient.

- The source country's political structure constitutes to be an important cost component. The two measures of instability in the source country *military expenditures* and *political instability* both have a negative coefficient with the Driscoll and Kray estimators, however, they are both insignificant.
- The negative coefficients on Gini and Gini squared (Case 3) in both FE estimations suggest the prediction of Borjas and Bratsberg (1996) is confirmed only for migrants from relative equal countries. However, the inconsistent results with the OLS estimation could be due to our sample which is very heterogenous relative to the Swiss Gini and might deliver different results in our separate continent regressions.

Many continent dummies are statistically significant, which indicates that return migrants are heterogeneous not only within the countries, but also between the continents. The understanding of return migration improves when considering the model for different regions separately, as country characteristics differ largely across continents. As a result we focus on the data of some continents separately and apply the same OLS and FE estimator as in regressions (1) and (2) of table 2. The results for the regressions by continents are shown in Tables 3 to 5.

Table 3 characterizes the determinants of return migration from Africa and Asia. The relative prices and Gini variables are significant for Africa. We found a positive selection

	Dependent variable: Share of return migrants							
	Africa				Asia			
	OLS		FE		OLS		FE	
	Dependent Variable: Share of Return Migrants							
	Africa				Asia			
	OLS-Newey West std. errors		FE-AR(1) disturbances		OLS-Newey West std. errors		FE-AR(1) disturbances	
	(1)		(2)		(3)		(4)	
Variables	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
gdp ln	0.109	1.26	0.036	0.12	0.585	6.82***	0.204	0.68
gdpswiss ln	1.505	0.17	-0.207	0.88	1.641	0.22	-0.321	1.49
price inverse	0.086	1.97*	0.116	1.79*	0.052	1.88*	0.001	0.02
divorce share female	-1.103	0.67	1.750	1.29	-1.315	0.62	-3.232	1.87*
divorce share male	-4.031	1.12	2.121	0.82	-5.015	3.01***	0.744	0.31
political stability	0.045	1.38	0.032	1.09	0.027	0.71	0.004	0.21
Gini	1.923	1.70*	-3.692	2.28**	-14.179	1.87*	0.698	0.18
Gini square	73.211	4.05***	0.480	0.03	86.046	2.35**	-6.102	0.30
milex square	-0.001	1.00	0.002	0.75	-0.004	1.78*	0.002	0.63
comlang	0.051	0.47						
Constant	-19.085	0.21	-0.600	1.38	-23.333	0.3	-0.272	0.68
Observations	249		228		355		328	

*, **, *** indicates a significance level of 10%, 5%, 1% respectively.
Dummies for individual years were included and are highly significant but are not reported.
OLS uses robust standard errors according to Newy West, FE uses AR(1) error term.

Table 3: *Regression output for Africa and Asia*

(Case 2) for Africa, but only in the OLS model. The purchasing power of the host country currency in the source country is found to be an important factors for the return migration to Africa. The home country income, relative price, divorce rates, military expenditures as well as Gini explain the return migration to Asian countries. However, the negative coefficient on the Gini and a positive coefficient on Gini squared suggest that the prediction of Borjas and Bratsberg (1996) is not confirmed for Asia.

	Dependent Variable: Share of Return Migrants							
	Main Europe				The Rest of Europe			
	OLS-Newey West std. errors		FE-AR(1) disturbances		OLS-Newey West std. errors		FE-AR(1) disturbances	
	(1)		(2)		(1)		(2)	
Variables	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
gdp ln	0.590	6.52***	0.090	0.29	-0.441	1.23	0.537	1.02
gdpswiss ln	-4.012	0.89	-0.322	1.05	5.226	0.43	-0.775	1.76*
price inverse	-0.012	0.81	-0.002	0.16	0.010	0.55	0.003	0.26
divorce share female	-7.487	1.77*	-0.486	0.23	34.660	3.32***	31.610	3.75***
divorce share male	2.547	1.27	0.378	0.36	6.195	1.36	9.753	3.04***
political stability	0.023	0.84	-0.003	0.19	-0.096	2.59**	-0.014	0.46
Gini	23.614	0.44	-0.671	0.02	159.283	1.92*	9.119	0.10
Gini square	-190.746	0.21	101.495	0.20	-1837.577	1.83*	-280.460	0.26
milex square	-0.012	1.08	0.002	0.93	0.002	1.00	0.001	0.33
pfz	0.466	2.60***	-0.102	1.60				
comlang	-0.388	3.47***						
dist	113.737	0.26			1301.119	0.73		
dist square	0.001	1.45			-0.001	0.10		
dist*pfz	-487.506	3.63***						
boarder*pfz	-0.111	0.96						
guestworker	-0.845	10.05***			-1.434	8.37***		
Unemployment _ILO	0.020	2.67***	0.011	1.38	-0.017	1.09		
Constant	32.769	0.70	0.141	0.65	-58.255	0.47	0.697	127.00
Observations	405		379		75		92	

*, **, *** indicate a significance level of 10%, 5%, 1% respectively
dummies for individual years were included and are highly significant but not reported.
OLS uses robust standard errors according to Newey West, FE uses an AR(1) error term.

Table 4: *Regression output for Europe*

We group the main European countries together because they are similar in terms of their macro-level characteristics and the Swiss immigration policy.[14] For the main Europe,

[14]As for the main Europe and North America respectively Oceania the unemployment data is readily available, we include them in the regressions and thereby do not loose observations, as we would by including unemployment in other continents.

migrants return to their home countries when the income in the home country increases even though unemployment is also high. This suggests that not finding a job matter, but the relative wages for the migrants from the main European countries. There is both positive and negative selection for the main Europe. However, the coefficients are not significant. In addition, the divorced females are less likely to return, perhaps they would like to benefit from the child care or school systems in Switzerland.

One of the main contributions of this study is the effect of the free movements of persons agreements on return migration. The coefficient on the free movement of persons agreements for the main Europe is positive, suggesting that migrants from the countries that Switzerland has free movement of persons agreements are more likely to return than to the other European countries that are outside of these agreements. The reason for that is, that migrants that are allowed to come back to Switzerland again can also more easily decide to return home. We conclude that free movement of persons agreements encourage return migration to countries that share this agreement. In addition, we find strong evidence that the migrants from the countries that had a guest workers agreement with Switzerland are less likely to return, suggesting an integration effect. The interaction variable (distance with the free movement of persons agreement) suggests that even though free movement of persons agreement encourages return migration, the distance also matters. Common language also discourages return migration.

For the rest of the Europe, we find that Swiss income, divorce rates, political instability and Gini matter for the return migration. The positive coefficient on the Gini and the negative coefficient on the Gini squared suggest that we have both positive and negative selection. However, the majority or almost all the countries in this group have inequality that is greater than Switzerland means that immigrants are negatively selected. Thus an increase in inequality will reduce return migration, because the returns to their lower skills are now even lower in the source country. Only the most skilled group in this sample will find it optimal to return. Most of the lowest skilled workers will prefer to stay in Switzerland.

For Latin America we find both positive and negative selection. However, the Gini is higher in the most of the Latin American countries than Swiss Gini suggesting that migrants from these countries are negatively selected. Thus, the the most skilled migrants from these countries return, whereas the least skilled migrants stay in Switzerland. In addition to inequality, income in the home country, divorce rates and military expenditures matter for the return migration to Latin America.

Table 5 shows that the coeffient on the common language for the North America and Oceania is negative as the main language in these countries is English and French is spoken

Dependent Variable: Share of Return Migrants								
	North America Oceania				Latin America			
	OLS-Newey West std. errors		FE-AR(1) disturbances		OLS-Newey West std. errors		FE-AR(1) disturbances	
	(1)		(2)		(1)		(2)	
Variables	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
gdp ln	-0.219	1.62	-0.165	0.13	0.239	3.01***	0.127	0.30
gdpswiss ln	3.594	0.60	0.495	0.44	-4.119	0.70	-0.454	1.14
price inverse	-0.600	0.62	0.672	0.49	-0.002	0.19	0.000	0.02
divorce share female	1.025	0.25	1.359	0.3	-5.426	1.36	1.094	0.43
divorce share male	-6.082	0.86	-9.916	1.38	4.168	2.28**	3.259	1.85*
political stability	0.110	2.68**	0.118	1.49	-0.003	0.12	-0.028	1.11
Gini	0.833	0.93	0.708	0.58	38.495	1.82*	14.414	0.81
Gini square	0.381	0.02	-0.501	0.02	-345.565	2.19**	-169.736	1.27
milex square	-0.008	1.27	-0.019	1.45	-0.062	4.81***	0.006	0.35
comlang	-0.193	3.48***						
Constant	-35.721	0.57	-5.088	0.91	37.846	0.62	1.259	0.84
Observations	65		61		294		276	

*, **, *** indicate a significance level of 10%, 5%, 1% respectively
dummies for individual years were included and are highly significant but not reported.
OLS uses robust standard errors according to Newey West, FE uses an AR(1) error term.

Table 5: *Regression output for America*

only in some parts of Canada. This finding suggests that migrants from the French speaking part of Canada are less likely to return. This could also be related to distance as well as to the integration.

7 Discussion and Conclusion

This study investigated the determinants of return migration from Switzerland for 131 source countries over the 1991-2008 period. Our initial data synchronization revealed that gross outflows are particularly pronounced for the group of immigrants from the EU-6 countries. The empirical results show strong impacts of economic, social and political variables on return migration. The composition of migrants by gender, age and duration spend in Switzerland differ across countries and matter for return migration.

We can summarize the main findings as follow:

- Home country income as well as Swiss income matter for return migration. In fact more than the home country unemployment rates. Immigrants return to wealthy countries.
- High purchasing power of the host country currency in the migrant‘s home country is important for Asia and Africa.
- Although both divorce rates for males and females are significant, the coefficient for men is positive, but negative for felames suggesting that perhaps women want to expose their children to Swiss education system.
- Immigration policy matters. We find that the free movement of persons agreements with the EU and EFTA countries have increased return migration into these coun-

tries. However, the guest workers agreement had an opposite effect on return migration.

- The signs of the Gini coefficients for Africa, Latin Ameica and the Rest of Europe are consistent with Borjas and Bratsberg (1996) and the Roy model, Roy (1951). Their main argument is that return migration will accentuate the type of selection characterising the immigrant population that remains in source country. We follow the Roy model and assume that if the income inequality in the origin country is lower than in Switzerland (as in some European countries), then the migrants are selected from the upper tail of the income distribution at home and end up on the upper tail of the income distribution in Switzerland. Thus immigration flows at the first place are positively selected and the return migrant flows are composed of the lower tail among these skilled immigrants. Similarly, if the income inequality at home is higher, then there is a negative selection and migrants are selected from the lower tail of the income distribution at home and end up in the lower tail of income distribution in Switzerland. Return migrants in this case are composed of the higher tail of these less skilled immigrants.

  However, the inequality in Africa, Latin America and the Rest of Europe is higher than Switzerland, therefore migrants from these countries are negatively selected. Furthermore, an increase in inequality in these countries will lead return of the relatively highly skilled out of these low skilled group. Most of the lowest skilled groups will stay. This will increase the stock of the low skilled migrants in Switzerland.

The raw data show that most of the migrants return when they are relatively young and during their working age, therefore the foremost motivation of migrants is to accumulate human and physical capital and upgrade their skills. This suggests that migration to Switzerland is very dynamic. In addition, if the return migrants benefit the source countries with their skills, knowledge and experience acquired in Switzerland, then the return migration is also beneficial for the source countries.

Our study is based on aggregated data at the country level. Similarly, Swiss immigration policy is at the country level, because it abstracts from a given country. If the majority of migrants should have high skills, the Swiss immigration policy could go one step further and consider the point system at an individual level. The persons who will be granted to immigrate according to the point system will have above average skills. Now Borjas and Bratsberg (1996) suggest that a change in inequality drives return migration in a non-random way. If inequality increases in the home country, the ones out of these skilled migrants who decide to return will be the lower tail. Consequently, those migrants who

stay are those with the highest skill. Thus, the point system would further increase the ratio of skilled persons among migrants.

In the aftermath of the financial crisis there was a debate in Switzerland about return migration. The broadly accepted believe - that many migrants would return during a recession - seemed not to be fulfilled. Our paper confirmed that return migration is not only determined by the economic conditions in Switzerland, but depends on many more factors, including the economic conditions in the source country such as income and employment opportunities. As the economic crisis hit the majority of other source countries at least as heavily as Switzerland, it is not surprising that expectations that are based mainly on a declining Swiss economy overestimate the number of returning migrants.

Economists and politicians disagree over the impact of immigrants on the host country. Economists focus on possible economic gains, whereas policy makers argue about the social and political costs. As temporary migration is often motivated by accumulation of physical and human capital, it comes closer to satisfying the focus of both the economists and policy makers by providing the demanded labour at lower political and social costs. Therefore, understanding return migration contributes substantially in designing an effective migration policy.

The research of this paper could be extended by tackling for example the following related questions. What is the impact of the financial crises on return migration in the years 2008 to 2012? How do return migration differ to countries that are developed to those that are developing? Complementing this macro-level analysis it would be insightful to analyse return migration using micro data. That would allow to focus more on whether the migrants from the European countries who leave and who stay have different characteristics in terms of their education, occupation and the sectors in which they work.

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Appendix

Table 6: *Data sources*

Data	Data source
Immigration, Emigration and Stock of Foreigners by Nationality Age, Gender and Duration of stay	Swiss Federal Office of Statistics
Number of divorces	Swiss Federal Office of Statistics
GDP	Penn World Tables version 6.3 gdp pppcaplaspeyre2005
Inflation, Population	IMF World Economic and Financial Surveys
Unemployment	International Labour Office
Military expenditure	SIPRI Military Expenditure Database: http://www.sipri.org
Distances Common language	CEPII
Political rights, Civil liberties	The Freedom House Index
Civil unrest	Banks data, Index constructed as in Jong-A-Pin (EJPE, 2009)
GINI	The UN, World Institute for Development Economic Research
Below 1$ polate	Millennium Development Goals

Table 7: *Descriptive statistics*

Variable	Description	Obs	Mean	Std. Dev.	Min	Max
$Immig_{jt}$	Number of immigrants into Switzerland per year and nationality	2340	802	2792	0	46296
s_{jt}	Number of foreigners in Switzerland per year and nationality	2340	10948	43914	0	380458
rm_{jt}	Number of foreigners leaving Switzerland per year and nationality	2340	488	1433	0	16109
$\frac{rm_{jt}}{s_{jt}}$	ln(Emigration ÷ Stock)	2278	-2.68	0.91	-6.38	1.12
$lnGDP_{jt}$	ln (GDP PPP at constant international Dollar 2005)	2250	8.72	1.19	5.72	11.29
$Price_{jt}$	Inflation, normalized to 100 in year 2000	2205	103.64	64.45	0	924.03
$\frac{1}{\frac{Price_{jt}}{Price_{it}}}$	Price swiss ÷ Price index	2203	1.73	3.13	0.11	20.00
$divorce_{ijt}$ male	#Male immigrants divorcing from a Swiss partner ÷ Stock in Switzerland by Gender	2301	0.01	0.02	0	0.19
Political stability $combined_{jt}$	Years 1991-2003: Banks data Index constructed as in Jong-A-Pin (EJPE, 2009) Years 2004-2008: Freedom House Index	2208	-0.01	1.00	-1.15	11.49
$Gini_{jt}$	Linearly polated Gini Coefficient ÷ 1000	1844	0.04	0.02	-0.13	0.24
pfz_{jt}	Indicator of Free movement of persons since 2002: for EU-15 and EFTA, Malta and Cyprus, since 2004 for EU-8 countries.	2358	0.06	0.23	0	1
$guestworker_{jt}$	Indicator of a large group of former guestworker in Switzerland	2358	0.03	0.17	0	1
$dist_{jt}$	Distance between the capital and Bern	2304	0.01	0.00	0.00	0.02
$language_j$	Same official language as in Switzerland	2304	0.20	0.40	0	1
$military^2_{jt}$	Military expenditure squared ÷ GDP * 100	1902	21.01	320.83	0	13759.29

Table 8: *Grouping of countries*

Region	Countries (ISO Code)
Africa	AGO, BDI, BEN, BFA, CIV, CMR, COD, COG, CPV, DZA, EGY, ERI, ETH, GHA, GIN, GMB, KEN, LBY, MAR, MDG, MLI, MUS, NGA, RWA, SDN, SEN, SOM, TGO, TUN, TZA, UGA, ZAF, ZWE
Asia	AFG, ARM, AZE, BGD, CHN, GEO, HKG, IDN, IND, IRN, IRQ, ISR, JOR, JPN, KAZ, KHM, KOR, KWT, LBN, LKA, MMR, MNG, MYS, NPL, PAK, PHL, PRK, SAU, SGP, SYR, THA, TWN, UZB, VNM, YEM
Latin America	ARG, BOL, BRA, CHL, COL, CRI, CUB, DOM, ECU, GTM, HND, HTI, JAM, MEX, NIC, PAN, PER, PRY, SLV, URY, VEN
Core Europe	AUT, BEL, BGR, CHE, CYP, CZE, DNK, ESP, EST, FIN, LUX, FRA, GBR, GER, GRC, HUN, LVA, NLD, NOR, POL, PRT, ROM, SVK, SVN, SWE, TSCH
North America	CAN, USA
Oceania	AUS, NZL
Rest of Europe	ALB, BIH, BLR, GUS, HRV, MDA, MKD, RUS, SRB, TUR, UKR, YUG

This list includes only countries that did not drop during the data cleaning process, e.g. because of too few immigrants into Switzerland.

Table 9: *Pairwaise correlation of the variables*

Correlation matrix	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)Dependent share	1															
(2)Gdp ln	0.32*	1														
(3)Gdp Swiss	-0.32*	0.09*	1													
(4)Price inverse	0.07*	-0.12*	-0.29*	1												
(5)Share age 0to19	0.60*	0.24*	-0.16*	0.04	1											
(6)Sharedur 0to4	0.66*	0.28*	-0.21*	-0.01	0.70*	1										
(7)Share female	0.69*	0.22*	-0.23*	0.03	0.84*	0.84*	1									
(8)Divorce share male	0.05	0.02	0.04	0.02	0.01	-0.04	-0.01	1								
(9)Gini polate	0.01	-0.16*	0.03	-0.01	0	-0.05	0	0.11*	1							
(10)Political stability	-0.02	-0.17*	-0.06	0.07*	-0.02	-0.01	0.01	0	0.09*	1						
(11)Milex square	0.08*	0.01	-0.03	0	0.41*	0.33*	0.43*	-0.03	-0.01	0	1					
(12)Pfz	-0.02	0.33*	0.24*	-0.06*	-0.05	-0.02	-0.07*	-0.11*	-0.12*	-0.19*	-0.01	1				
(13)Dist	0.18*	-0.16*	0	-0.05	0.20*	0.10*	0.2*	0.17*	0.20*	0.12*	-0.01	-0.27*	1			
(14)Comlang off	-0.12*	-0.11*	0	-0.10*	-0.17*	-0.12*	-0.15*	-0.03	-0.05	-0.03	-0.02	0.09*	-0.2*	1		
(15)Guestworker		0.15*	0	0.04	-0.10*	-0.08*	-0.11*	-0.11*	-0.02	-0.05	-0.01	0.18*	-0.19*	0.02	1	
(16)Year	-0.36*	0.10*	0.93*	-0.34*	-0.19*	-0.26*	-0.28*	0.02	0.04	-0.08*	-0.05	0.26*	0	0	0	1

* indicates a significance level of 1%.