

Excess Churn in Integrated Labor Markets

Bernt Bratsberg, Oddbjørn Raaum, and Knut Røed*

The Ragnar Frisch Centre for Economic Research

Abstract

The 2004 and 2007 enlargements of the EU Single Market gave western European firms a new source of labor consisting of foreign workers willing to work for pay below that of native workers. As a job in one of Europe's high-income countries also entails coverage in a more generous welfare and social insurance system, the migrant reservation wage may lie below the opportunity cost of their labor. This represents an externality: Employers and migrant workers can pass some of the remuneration cost onto the welfare state, and have an incentive to agree on a lower wage the higher is the expected payoff from future welfare state transfers. Once employment is obtained – and welfare state entitlements secured – the reservation wage of migrant labor is likely to rise. The firm will in turn have an incentive to replace existing migrant employees with new migrant workers willing to accept lower pay. This paper studies empirically the turnover of employees in Norwegian private-sector firms, and shows how turnover relates to the firm's share of migrant labor. We identify what we label *excess churn* as labor reallocation within firms that involves the simultaneous flow from employment to unemployment insurance and hiring of similar replacement workers. We find that there is more excess churn in firms with a higher fraction of migrant workers from the new EU countries.

JEL codes: F22, D62, E24

Keywords: Churning, Integrated labor markets, Social dumping, EU enlargement

* We acknowledge funding from NORFACE (project “Globalization, Institutions and the Welfare State”) the Norwegian Research Council (project “European Strains”) and the Ministry of Labor and Social Affairs (“Effects of Labor Migration”). Data made available by Statistics Norway have been essential for this research.

1. Introduction

When firms hire workers, they expand employment or replace departing workers. Churn is the hires and separations that offset each other within a firm. In undistorted labor markets, churn is a productive process, whereby employers and employees separate when the value of an alternative option exceeds the value of the current match net of reallocation costs (Lazear and Spletzer, 2012). When labor markets with different patterns of productivity merge, workers are allowed to flow more easily toward their best potential use (Kahanec et al., 2014; see also Clemens, 2011; Kennan, 2012). In an optimal currency design area, factor mobility is generally important (Mundell, 1961; McKinnon, 1963), and when productivity differentials and business cycles are not completely aligned across countries, worker mobility can greatly enhance social efficiency (Lundborg, 2006; Basso et al., 2018).

The enlargements of the EU Single Market in 2004 and 2007 are typically hailed as offering new opportunities for better job matches, where Western European firms gained a new source of labor at low cost, while workers from Eastern and Central Europe could raise their productivity and wages. Thus, labor market integration represents a powerful source for improved allocative efficiency. At the same time, there is widespread political concern about “social dumping” where foreign workers are paid considerably less than comparable domestic labor, thereby putting a downward pressure on native low-skill wages and employment opportunities. The impact on native wages and employment vary across skill groups (Dustmann et al., 2016), and the rich are more likely to benefit than the poor, both from the changes in relative labor supply and from the lower prices of goods and services. It is far from obvious then, why access to cheap productive labor should represent a challenge to social efficiency.

This paper focuses on a source of potential inefficiency in integrated labor markets arising from incentives among firms and workers to engage in job matches that are short lived and followed by workers’ transition to unemployment insurance. In a simple theoretical model, we illustrate how firms can gain from substituting an incumbent foreign worker with an identical new worker when reservation wages are sufficiently low at the time of hiring, but rising over time as the worker becomes

eligible for generous social insurance. We show that such a mechanism may be important in integrated national labor markets where, not only wages, but also welfare state generosity differs across countries. Here, migrants from countries with lower wages and less generous social insurance typically have low reservation wages in the rich and generous market at the time of hiring. When employment also grants access to welfare transfers and social insurance entitlements, migrants may be willing to accept a low wage for a short period to qualify for entitlements in the richer welfare state. As a job in one of Europe's high-income countries also entails membership in the country's welfare and social insurance systems, the migrants' reservation wage may be below the opportunity cost of their labor (net of migration costs). Once eligibility is obtained, the reservation wage rises. This gives incentives for migrants as well as firms in rich and generous markets to form contracts where workers are laid off when they achieve full social security entitlements. At the same time, the firm hires similar workers without welfare entitlements.

This "throwaway labor market" reflects an externality in the matching of employers and migrant workers. Employers have incentives to offer a wage that is lower the higher is the migrant's expected payoff from the welfare state. Once employment is obtained – and thus welfare state entitlements secured in the host country – the reservation wage of employed migrant workers rise. The firm will then have an incentive to lay off migrant workers entitled to unemployment benefits and replace them with new migrants willing to accept a lower wage. We label this process *excess churn*.

When laid-off workers are eligible for unemployment benefits, the host country's taxpayers will suffer losses from excess churn of migrant labor. This effect may be strengthened by the progressive nature of many unemployment insurance systems, which typically offer particularly high replacement ratios to low-wage workers. Moreover, since an immigrant's reservation wage is likely to be lower the higher is the expected future payoff from the welfare state, *ceteris paribus*, firms also have a perverse incentive to recruit foreign workers with a high expected future income flow from social insurance.

We study empirically the churn of workers in Norwegian private-sector firms and document how churn interacts with the firms' share of migrant labor. In particular, we measure *excess churn* as the labor reallocation within firms that simultaneously involves the exit of workers to insured unemployment and replacement hirings of similar workers. We find that there is more excess churn in firms with a larger fraction of the workforce made up by migrant workers from the new EU countries. This pattern is even more pronounced if we treat different firms owned by the same person(s) as a single ownership cluster, suggesting that some of the concurrent hiring and firing processes take place through upscaling in one firm while downscaling in another, possibly to circumvent employment protection legislation. We add evidence on the wage structure of firms with excess churn and find that the entry wages of workers substituting for recently laid-off workers are significantly lower than those of the workers they replace. Finally, the wage premium of laid-off workers tends to be particularly large for migrants from the new EU member states.

Our paper relates to the literature on how social insurance design may influence the size and composition of migrant flows. More generous welfare support programs, including unemployment benefits and publicly provided services, is, *ceteris paribus*, relatively more attractive for persons who consider themselves likely to become dependent on such programs than for persons who consider themselves likely to end up on the paying side. US evidence suggests that welfare benefit generosity affects the location choices of immigrants across states (Borjas 1999, McKinnish 2005). The size and skill composition of migrant flows to and within Europe respond to differences in the host countries' welfare state generosity, but the effects of generosity appear to be small when compared to the effects of labor demand conditions (De Giorgi and Pellizzari 2009, Razin and Wahba 2014). The mechanism we describe shares features with what may arise for illegal migrants. For example, Devillaniva et al (2018) identify positive employment effects of the 2002 Italian amnesty program. Although wages are not observed, a plausible mechanism would be that immigrants lower their reservation wage to get a job which grant them legal status as residents of Italy.

2. A theory of excess churn contracts

Our source of inefficient job creation and excess churn in an integrated (European) labor market relies on transferability of social security entitlements across countries. Taking a job in a new and richer country not only entails a new wage, but also a higher level of benefits and public service entitlements. Thus, a third party (i.e. the host country's taxpayers) tops up the wage offer to a migrant provided by an employer in the host country. As we discuss below, this will give a prospective migrant incentives to accept a (very) low wage, potentially even below the pay associated with continued employment in the home country. However, after becoming eligible to the host country's benefits and transfers, the immigrant's reservation wage rises. In some circumstances, it will be beneficial for the employer-employee pair to separate. If they terminate the contract, the foreign employee collects UI benefits and the employer hires a new immigrant. This is what we call *excess churn*. When both benefits and services provided by the public sector vary considerably across countries, this excess churn and its related migration, involve a potentially important externality.

To discuss the conditions under which excess churn and inefficient migrant job creation arise, we present a simple two-country model. Workers and firms live for two periods. All migrants are equal, holding the option of a job in the home country with a payoff w_H , which reflects the value of work in the home country adjusted for location preferences. We ignore the choice between domestic and foreign labor. The firm decides whether to hire the same migrant for both periods (avoid turnover costs) or to have one-period contracts (with low pay) with different migrant employees. In the first period a worker from a low-income country (the origin/home country) must pay a migration cost m if she/he migrates to a high-income country (the host country) to take a job with the wage w_1 . Through this job, the migrant becomes eligible for residency, transfers and services from the host country's welfare state with the value A . This includes social insurances, child allowances, as well as subsidized public

services like child care, health care, or education.¹ In the second period, the migrant continues to receive A , except in case of remigration. In addition the worker either receives the wage w_2 (with continued work) or an unemployment benefit B (if the job is terminated), where the latter also incorporates the value of leisure in the host country.

In the first period, the firm must pay a training cost T . The size of the training cost may be viewed as a measure for how easy it is to substitute a migrant worker for a native worker, and it is likely to vary considerably across different types of jobs, depending, for example, on language requirements.

The wage contract

For simplicity we assume that the firms in the host country hold all of the market power, such that migrants are paid their reservation wage. The two-period reservation wage for prospective migrants is then

$$(1) \quad w_1 + w_2 = 2(w_H - A) + m.$$

Without churn, the firm hires a worker for two periods at a total compensation that covers her reservation wage. The worker receives a wage in period 2 which provides incentive to stay with the firm. As the immigrant has become eligible for unemployment benefits at this stage, the *immigrant worker participation constraint* is simply

$$w_2 \geq B$$

We assume that the immigrant cannot commit to work in period 2 with a wage below B .² Then, the offered wage in period 1 follows by inserting $w_2 = B$ in (1);

¹ For simplicity, we assume that there are no such transfers/services in the origin country, but the important assumption is that transfers are larger in the host country.

² With commitment, a contract with a common wage of in both periods equal to $w_1 = w_2 = w_H - A + 0.5m$ would be optimal.

$$(2) \quad w_1 = 2(w_H - A) + m - B$$

Note that an increase in unemployment benefits for which the migrant is entitled to in period 2 totally crowd out entry wages. The same holds for transfers and services from the host country public sector.

From the firm's perspective, to keep the worker in period 2, it must be cheaper to pay the wage equal to B instead of hiring a new migrant at w_1 and train her at a cost T . Thus, the firm's *no-churning constraint* is then

$$w_1 + T \geq B$$

By inserting for w_1 from (2), a non-churning contract is then incentive compatible if

$$(3) \quad T > 2(B - (w_H - A)) - m = T^*$$

Thus, when training costs exceed this threshold, T^* , both parties gain from staying together and the no-churn contract is viable. The properties of the threshold are straightforward and intuitive. T^* increases in social insurance generosity (B, A) and is lowered by higher home wage (w_H) and migration costs (m).

The optimal choice of contract can also be derived by comparing profits, subject to the participation constraints. When the firm chooses to hire a migrant for two periods, the total profit over the two periods for a job with productivity e is

$$(4) \quad \pi^{no\ churn} = 2e - T - w_1 - w_2 = 2(e - w_H + A) - T - m$$

where the latter equality follows from the reservation wage in equation (2). With churning, the two period profit is simply productivity minus wage, training and migration costs, multiplied by two. By inserting the wage from the migrant worker participation constraint in equation (2), the profit with churn reads

$$(5) \quad \pi^{churn} = 2(e - m - T - 2(w_H - A)) + B$$

Note that the social insurance generosity affects profits differently in the two regimes. For no-churn contracts, a higher B will raise the wage in period 2, but this raise will completely crowd out the wage paid in the first period leaving total wage bill and profits unchanged. With churning, however, the firm gains from the drop in entry wages due to a higher B (as they do not pay the higher wage in period 2). When the migrant leaves the firm after one period, her income is covered by the social insurance

system. It follows directly by comparing profits under the two types of contracts that no-churning is preferred by the firm if and only if $T > T^*$, as in equation (3).

Churning contracts will only exist if $T^* > 0$, i.e.

$$T^* > 0 \Leftrightarrow B + A > w_H + 0.5m,$$

which states that $(B+A)$ must exceed a certain strictly positive value (compared to w_H). If countries are very similar in terms of productivity and social insurance institutions, the wage of the home country, adjusted for location preferences and public services and transfers, is likely to exceed the benefits provided by the potential host country. Moreover, migration costs can be prohibitive and reduce the potential for churning contracts.

Jobs and efficiency

A potential job is characterized by a combination of productivity and training costs; (e, T) . Conditional on contract type, we can define the critical zero-profit productivity levels. From (4) and (5), it follows directly that these critical levels are

$$(7) \quad \varepsilon^{no\ churn} = 0.5(T + m) + (w_H - A)$$

and

$$(8) \quad \varepsilon^{churn} = T + m + 2(w_H - A) - B$$

The different (e, T) regions can be illustrated as in Figure 1. Note that the threshold T^* is independent of e . For T below the threshold, the critical productivity curve has a slope of unity as training costs must be paid in each period. As T approach zero, the productivity must cover the reservation wage, subsidized by B .

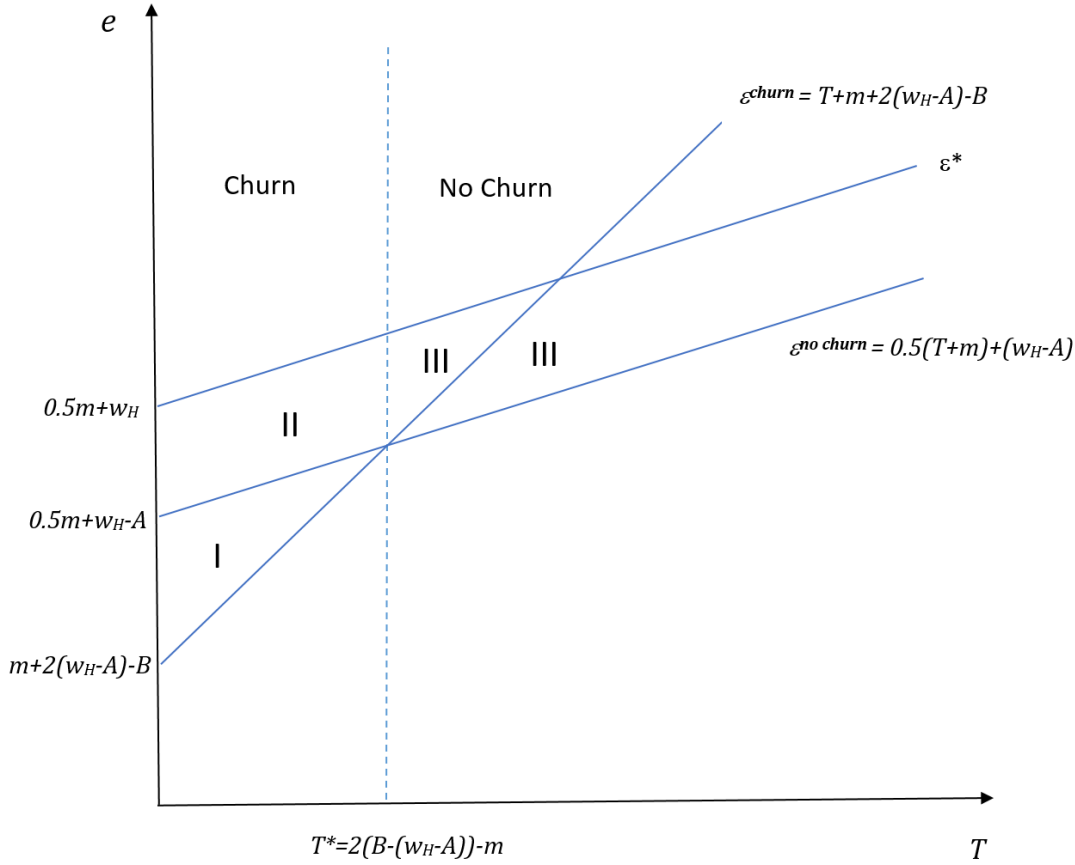


Figure 1. Churning and efficiency across jobs by productivity and training cost

In the no-churn region ($T > T^*$), training costs are implicitly shared between two periods, i.e. the slope of critical productivity curve is just a half. For $T = T^*$, the critical productivity levels of the two regimes coincide and is equal to B . All jobs with positive profits are given by combinations of e and T above the kinked line defined by the minimum of the two critical productivity levels.

From a global (i.e. two country) perspective, a job match is *efficient* if and only if the net productivity gain from moving workers to the generous social insurance country ($2^*(e - w_H)$) exceeds the costs in terms of migration and training ($m + T$). That is iff

$$e \geq w_H + 0.5(m + T) = \varepsilon^*$$

The job creation efficiency of the two regimes can then be evaluated by comparing the minimum efficient productivity, ε^* , with the market productivity thresholds under the two alternative contracts. It follows directly that under no-churn

$$\varepsilon^{no\ churn} - \varepsilon^* = -A,$$

and for churn contracts

$$\varepsilon^{churn} - \varepsilon^* = 0.5(T + m) + (w_H - A) - (A + B) \leq -A$$

Both zero-profit productivity thresholds are below the efficient threshold in the (e, T) space in Figure 1, illustrating that inefficient migrant jobs will exist under both types of contracts. The (generous) welfare state of the host country implicitly subsidizes low productivity job matches involving workers recruited abroad.

Without churn, jobs are subsidized with A . All the combinations of e and T in the III-region of Figure 1 will be inefficient jobs that are profitable to domestic employers at the reservation wages of migrant workers. The productivity gap is even larger for jobs that are churned, partly because the unemployment benefits enable the firms to attract workers to a larger number of inefficient jobs. Churn represents an additional waste of resources since training and migration costs are incurred in both periods. In Figure 1, the regions I and II contain inefficient jobs that are churned because firms face low training costs and gain from replacing a migrant worker after one period.

Minimum wage legislation appears to be a relevant policy to avoid subsidizing inefficient jobs and excess churning. If an employer must pay a minimum wage (ω) in each period, profits under the two types of contracts are

$$\pi^{no\ churn} = 2e - T - \omega - B, \quad \omega \leq B$$

and

$$\pi^{churn} = 2(e - \omega - T)$$

The training cost threshold with minimum wage (T^{**}) follows from equal profits;

$$T^{**} = B - \omega$$

When the minimum wage is set independent of the reservation wage of the migrant, neither A , nor w_H , or m affect whether jobs are churned or not. With a binding minimum wage, higher unemployment benefit will raise the incentives for churning since the employers who keeps their worker has to raise wage. As the threshold *without minimum wage* legislation can be written

$$T^{**} = B - w_1,$$

it follows directly that $T^{**} < T^*$, when the minimum wage is binding. Thus, a binding minimum wage will reduce the potential for churning.

The introduction of a minimum wage will not only alter the turning threshold, but also the number of profitable jobs for any given level of training costs. Even if a minimum wage raises efficiency by limiting excess churning and the number of profitable but ineffective jobs, it will also make effective non-churning jobs unprofitable.

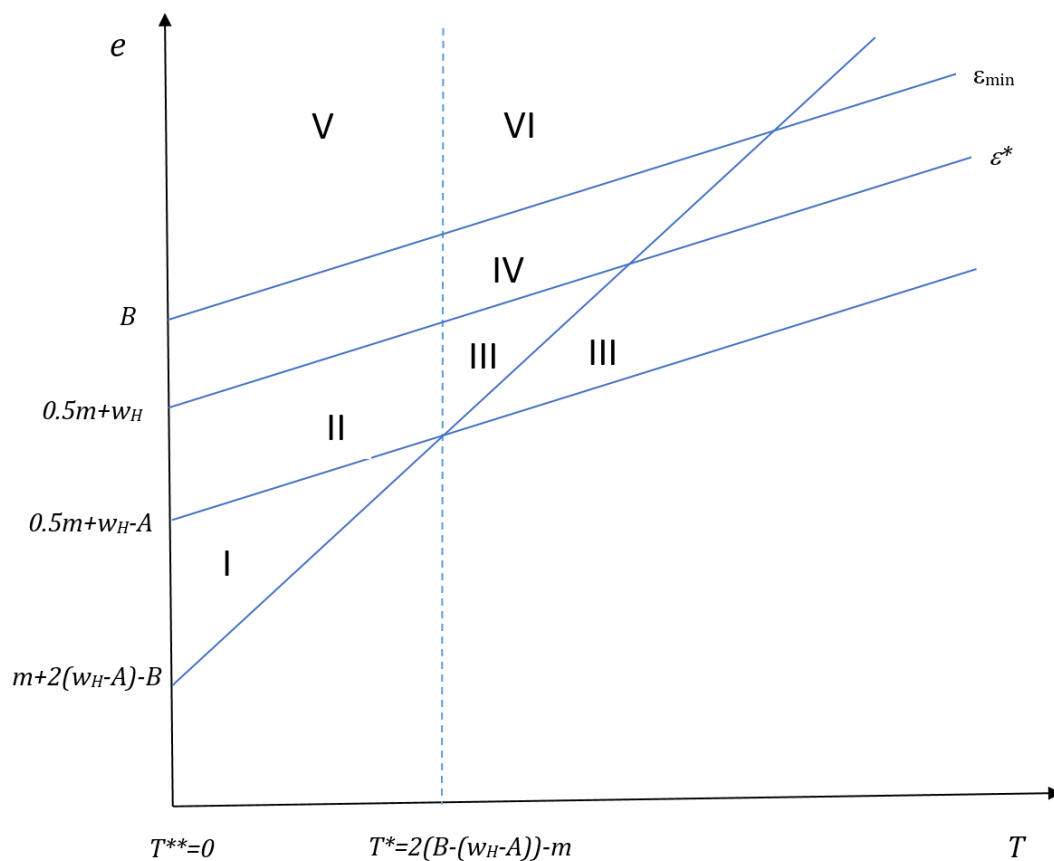


Figure 2. Profitable and efficient jobs under minimum wage equal to B (no churning)

To discuss this tradeoff, assume that the minimum wage is set to avoid excess churning. i.e. $T^{**}=0$;

$$\omega = B > w_H + 0.5m$$

reflecting a generous welfare state in the host country and supported by the evidence in the empirical sections below. The corresponding zero-profit curve in Figure 2, called ε_{\min} , has a constant of B and a slope of one half as training costs are shared between the two periods. Profitable jobs are in the V and VI regions. The minimum wage will destroy all churning jobs and turn all profitable jobs in the V-region into permanent jobs. Moreover, all (globally) inefficient jobs in regions I-III do also disappear due the minimum wage. However, efficient jobs in region IV disappear because the minimum wage raise the payoff of foreign workers above their reservation wage.³ The net effect on migration of introducing a minimum wage is unambiguously negative, but it is indeterminate whether the drop in efficient or inefficient migration dominate. The underlying distribution of (e, T) jobs will be decisive.

Throughout this section, we have for simplicity specified the utility of unemployment in terms of a fixed parameter B . In practice, most unemployment insurance systems provide a compensation level which is linked to pre-unemployment labor earnings. The utility of unemployment in the second period could then be specified as

$$B = \alpha w_1 + b$$

where both α and b are positive. Although the model becomes considerably more complicated, the central predictions remain unchanged. In the absence of a minimum wage, the wage in the first period now reads

$$w_1 = \frac{1}{1+\alpha} (2(w_1 - A) + m - b)$$

and the training cost threshold can be written

³ Note that region IV is empty if $\omega = B = w_H + 0.5m$.

$$T^* = \frac{2b}{1+\alpha} - \frac{1-\alpha}{1+\alpha}m - 2(w_H - A) \left(\frac{2}{1+\alpha} - 1 \right)$$

which is equal to the expression above for $\alpha=0$. T^* is increasing in both b and α .

In terms of empirical patterns, the model outlined in this section provides a number of predictions: (i) host country jobs with very low country-specific qualification requirements (e.g., language skills) are subjected to considerable immigration as well as excess churn; (ii) jobs with medium qualification requirements are subjected to immigration, but largely without churn; (iii) jobs with high country-specific qualification requirements are subjected to little immigration; and (iv) recent immigrants are paid low wages, relative to natives and former immigrants. In practice, many rich countries have enacted regulations designed to offset the externalities highlighted in this model, e.g., in the form of minimum wages and employment protection legislation. We return to the possible roles that such policies can play after having presented our empirical analysis.

3. Institutional setting: The European labor market and immigration to Norway

Although Norway has stayed outside the European Union, the participation in the European Economic Area (*EEA*) ensures that the EU principle of free movement of labor applies. The EU enlargements in 2004 and 2007 have been the source of rapid change in the composition of the workforce. As illustrated in Figure 3, the share of new EU migrants in private-sector employment grew from less than 1 percent in 2005 to close to 10 percent in 2016.

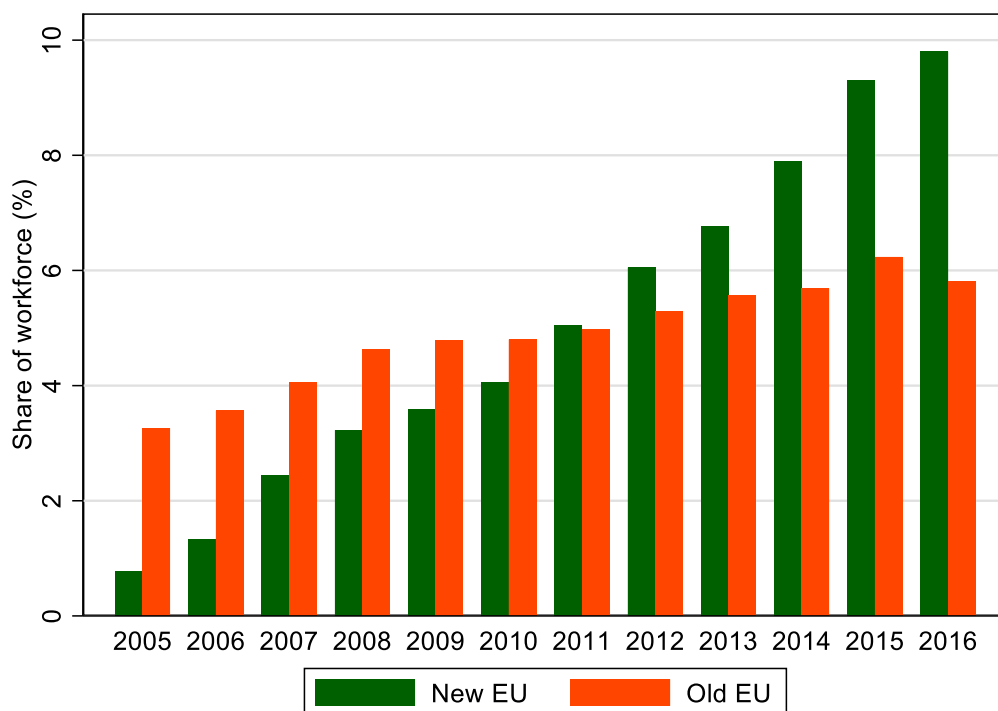


Figure 3. New and old EU migrant shares of private-sector workforce, 2005-2016.

Note: Migrant shares pertain to private-sector workforce as of Dec 31th. Workforce is restricted to wage earners at least 20 years of age not enrolled in education.

The EU principle of free movement of labor entails not only that employment can be sought anywhere in Europe, but also that a number of social insurance and family allowance entitlements are automatically transferred to the country of current or most recent employment. In the case of Norway, this implies, for example, that when a person from another EEA country obtains employment, the worker immediately becomes covered by the Norwegian unemployment insurance (UI) program, provided that their employment history *would have* ensured eligibility had the same employment history been accumulated in Norway. In the calculation of entitlements in the UI system, earnings from the home country are converted to Norwegian wages (hours worked at home are multiplied by the typical Norwegian wage for similar work). In the absence of a home-country employment history, UI

entitlement in Norway will in any case be achieved once earnings in Norway during a previous calendar year exceed a relatively low threshold.⁴

Migration to a job in Norway also entails immediate eligibility to various family allowances. For families with children, this implies that a job in Norway may be attractive even if the offered wage is extremely low. For example, the Norwegian cash-for-care subsidy for a one-year old child now amounts to NOK 6,000 per month, corresponding to around 80 percent of the average wage in Poland. According to European law, these transfers are also exportable, implying that they can be claimed and used by family members remaining in the home country. To illustrate the potential role of UI benefits for migration decisions and churn incentives, Table 1 displays the average earnings and benefit levels actually obtained for various immigrant groups in Norway, as well as some illustrative corresponding numbers for non-migrants. We distinguish between the new Eastern European EU countries that joined through the EU enlargements in 2004 and 2007 (New EU), and the Western European countries that were already in the union (Old EU). A first point to note is that for immigrants from the Old EU countries, the monthly earnings obtained in Norway are somewhat higher than average earnings obtained in their home countries, but that the differences are moderate. And for those who become unemployed in Norway, the resultant level of UI benefits is considerably below average pay in their home country. For workers from the new EU countries in Eastern Europe, the picture is very different. Their wage in Norway is roughly five times that in the home country; and even Norwegian UI benefits typically exceed the average wage in the home country by an order of magnitude.

⁴ The threshold is 1.5 times the base amount of the social security system (about €15 000) and corresponds to approximately 25 % of average full-time/full-year earnings in Norway.

Table 1. Unemployment benefits and average earnings at home and in Norway, immigrants from new and old EU member states, 2010.

	(I)	(II)	(III)	(IV)	(V)	(VI)
	<u>At home</u>		<u>In Norway</u>			
	Monthly UI benefits	Monthly wage income if employed	Monthly UI benefits among claimants	Monthly pay, wage earners	Monthly earnings	Number of observations (col V)
New EU			1 709	3 390	3 191	27 780
Latvia	411	684	1 698	3 512	3 266	757
Lithuania	188	561	1 580	3 210	3 111	3 792
Poland	223	860	1 715	3 379	3 160	19 796
Romania	144	453	1 937	3 660	3 497	1 158
Old EU			2 007	5 086	4 549	15 383
Denmark	2 188	4 208	2 064	5 748	5 203	1 070
Germany	1 249	3 478	1 962	4 368	4 048	4 945
Netherlands	2 826	3 768	1 640	5 393	4 474	931
Sweden	1 546	3 220	2 111	4 736	4 412	4 707
Norway	2 947	4 909	1 899	4 934	4 616	1 302 245

Note: Source of entries in columns (I) and (II) is OECD iLibrary, OECD Social and Welfare Statistics, benefits are for single worker with no children. Benefits and wages are converted to Euros using average exchange rates for 2010. Entries in columns (III)-(VI) are authors' calculations based on the register data used in the empirical analyses below. The migrant sample consists of private-sector workers age 20 plus, not enrolled in education and who immigrated between 2005 and 2008; native sample is reweighted to match the age distribution of the migrant sample.

Even though immigrants from the New EU tend to have much higher earnings in Norway than at home, their earnings are on average well below earnings of natives and migrants from the Old EU. This may to some extent be explained by differences in human capital characteristics. Yet, it may also reflect the lower reservation wage of New EU migrants, as given their much poorer earnings alternatives back home. Note, however, that the wages offered in Norway are likely to exceed many workers' reservation wage levels for the reason that there are industry-

specific minimum wages negotiated by the associations of employers and employees. And these minimum wages have typically been explicitly motivated by the high rates of labor migrant employment in the industries in question.

With such large differences in unemployment benefits across source countries, we might expect to see different patterns of UI benefit claims across migrant groups. To study this, we follow Bratsberg et al. (2014) and examine the patterns of unemployment incidence among labor migrants from the New and the Old EU who entered Norway following the 2004 enlargement of the union. Figure 3 shows the monthly rate of unemployment insurance (UI) claims for European labor immigrants to Norway who arrived after May 1, 2004 and who remained present in the country at the end of each calendar year. It is evident that migrants from the new EU countries have been consistently overrepresented among UI benefit claimants since the financial crisis of 2008, both relative to immigrants from the Old EU and relative to natives. And considering Figures 1 and 2 together, it is clear that high and rising unemployment among *previous* labor migrants have coincided with high inflows of *new* labor migrants.

The Norwegian UI system is designed to protect workers from *involuntary* job loss; hence it is in principle not possible to quit a job voluntarily in order to claim UI benefits. Most UI claims are therefore triggered by layoffs or by the termination of temporary contracts. Employment protection legislation implies that layoffs must be justified, either as resulting from some form of individual misconduct or from the need for downsizing. At the same time, the use of temporary contracts is regulated, and only allowed for tasks that are genuinely temporary of nature. Taken together, these institutional features suggest that the scope for excess churn is very limited, and even forbidden, insofar as it entails the simultaneous firing and hiring of workers to what is essentially the same job. There are, however, numerous ways to circumvent these regulations, and the control mechanisms are not always effective. Also, by organizing a single economic activity into multiple firms, it is possible to downsize in one firm while upsizing in another. Hence, when we turn to the empirical analysis of churn, it becomes essential to identify firms that belong to the same owners.

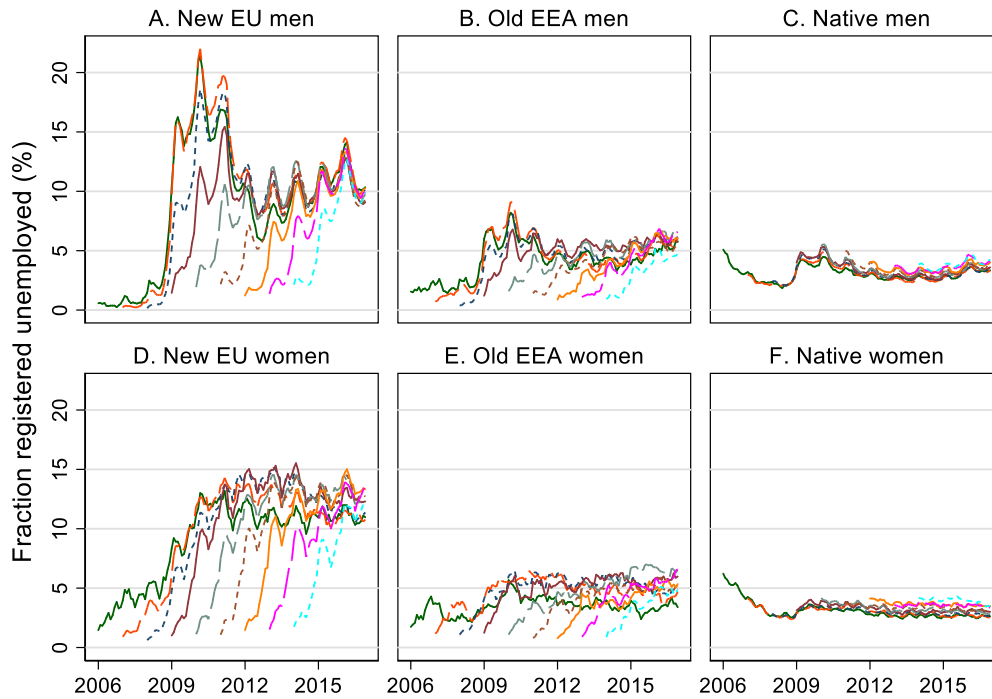


Figure 4. Monthly registered unemployment rates (as % of population), Jan 2007- Dec 2015, 28th of each month, by gender, source region, and year of immigration.

Note: Immigrant samples restricted to those age 18-47 at entry and in the country Dec 31st each calendar year. Native curves are for successive cohorts age 30 the first year depicted.

4. Churning

In this section, we examine empirically workers flows in and out of private sector firms in Norway, with particular focus on whether immigrants from the new EU countries are more likely to work for employers with high rates of excess churn. Our analysis is based on complete administrative register data for the 2006-2016 period, combining information about employment spells, worker characteristics, firms, and ownership structures. Before we describe data in more detail, we explain how we define our key churn measures.

Churn measures

Let H_t and S_t denote number of hirings and separations during a year t , at the firm level. H_t is (new) workers not employed by the end of $t-1$, and S_t denotes (previous) workers no longer employed in the business by the end of period t . The standard measure of churn (C_t) is the smaller of the two⁵;

$$C_t = \min[H_t, S_t]$$

When $H_t > S_t$ the business expands and the churn equals the part of H_t to replace workers who left (S_t). Even contracting businesses commonly hire and when $0 < H_t < S_t$, churn is given by the replacement hiring (H_t).

Workers who separate go to a new job, enter unemployment or leave the labor force. We focus particularly on separations followed by an unemployment spell (hereafter S_t^{UI}) since these are likely to be layoffs or involuntary from the perspective of the employee. In most businesses, we expect to see few hirings when $S_t^{UI} > 0$, because worker replacement is costly due to hiring and firing costs (i.e. recruitment and training expenditures). In most developed countries, labor regulations limit opportunities for firms to have contemporary layoffs and hiring of workers with similar qualifications. However, as discussed in the theory section, since migrants are willing to work for low pay at entry and regulations are hard to enforce, we might observe that firms hire workers and lay off workers for unemployment at the same time. We define this excess (or “throwaway”) churn as

$$C_t^{excess} = \min[H_t, S_t^{UI}] \leq C_t$$

,since $S_t \geq S_t^{UI} \geq 0$. Excess churn is always lower than the standard churn rate simply because not all separations are layoffs. We may find excess churn in expanding ($H_t > S_t$), contracting ($H_t < S_t$) and stable firms.

When an owner controls more than one firm, he/she can effectively churn by reducing staff in one unit and scale up in another. Production can be divided into

⁵ In some studies, churn is called excess turnover.

firms that *appear* to be independent. In a cluster of G firms, we have an aggregated churn defined as

$$C_t = \min[H_t, S_t] \geq \sum_{g=1}^G \alpha_g \min[H_{gt}, S_{gt}]$$

where α_g is the (initial) employment share of firm g . The aggregated churn captures reallocation of similar labor across units. By looking at each firm in isolation, the (weighted) churn is always lower than the churn calculated for the whole cluster. Considering each firm independently, churn will be zero when some units are expanding while others are contracting without replacement. To illustrate, assume that the owner runs two firms. By expanding through hiring in one firm and contracting through firing in the other, there is no churn at the firm (g) level. Taken together, however, the owner churns by reallocating labor from one firm to the other.⁶ Thus, when activities are split into different firms, empirical measures of single entities will not capture the churn that actually takes place by reallocation across firms.

A similar aggregation issue arises when firms employ different skill groups (ignoring ownership clusters for the moment), although this will tend to increase our measure of churning. Technological change or demand shocks may give rise to a new optimal skill mix. Even for constant employment, hiring and firing due to skill mix change will appear as churn at the firm level.⁷ To illustrate, if a firm hires two skilled workers and lay off two unskilled workers, $C_t = 2$. The group-based churn rates, however, are both zero. Unlike for the typical US study, our data allow us to check the extent to which ignoring reallocation across skill groups actually contributes to upward biased measures of churn and, more importantly, has implications for our coefficients of interest.

⁶ The same logic applies to industry level data as these will include include churn due to expansion in some, and contraction in other firms.

⁷ As noted by Lazear and Spletzer (2012), churn can also be defined at the skill (or job) level.

Empirical measures and descriptive statistics

Our employer-employee data cover the total private sector firms at an annual basis from 2006 to 2016 and include a rich set of firm and worker characteristics.

Firm and ownership structures

For each firm, we have IDs of owners and chief executives, industry affiliation and some basic characteristics. Table 2 provides an overview of firm data used in this paper. A “firm” is synonymous with a “company”, and may thus consist of several production plants or establishments. In total, we have 239,180 firm-year observations. A rather unique feature of our data is that we are able to identify the ultimate owners and chief executives of all firms in Norway, facilitating analyses of ownership clusters. We define an ownership cluster (OC) as two or more firms which belong to the same majority owner (or a group of owners). Majority is defined as controlling more than one third of both firms. To be an OC in our data, the firms operate at the same year, in the same of geographical region and belong to the same industry. By this definition, we end up with 187,416 OC-year observations, or a reduction in number of employers by about 20 percent. About 16 percent of OCs are multifirms and more than one third of all firms belong to an multifirm OC. Hence, the phenomenon that owners organize their economic activity in multiple firms may be of empirical importance. While we are primarily interested in OCs consisting of firms with similar business activities, potentially facilitating excess churn, it is of course possible that OCs reflect a purpose of diversification; i.e., that some owners wish to invest in companies that are subjected to different (possibly opposite) business cycle fluctuation patterns. The data indicate, however, that most OCs consist of firms that are similar, in the sense that they belong to the same industry. For example, for the clusters consisting of exactly two firms, these firms are in the same industry in approximately 70 percent of the cases (statistic not reported in the table).⁸

⁸ Had firms been matched randomly, this number would have been 19 percent.

Worker characteristics.

For workers, we use data on origin country, gender, age, education, wages and earnings, and all UI claims made during each year. identity of all employees at the start and end of each year.

Hirings, separations and churning.

Job flows are measured at annual basis. Separations are the workers employed at the end of year t-1 who are not working for the same employer (firm or OC) by the end of year t. Likewise, hirings are persons working for employer by the end of year t, who did not twelve months earlier. In Table 2, we report the churn rates, measured relative to the number of employees in t-1. The overall annual churn rates vary around 10 to 12 percent of initial employment, depending on whether we study individual firms or OCs and whether we weight the numbers by initial firm size or not.

The excess churn is based on separations with transitions into unemployment. Administrative employer-employee data do rarely contain information on why workers and employers separate. Therefore, we combine employment spell information with data for unemployment spells. If the worker who separate, actually turn up in the unemployment register during the same year (after being separated), we count it as a part of S_t^{UI} . Thus, excess churning may reflect that the number of workers who go into unemployment is larger og smaller than the number of hirings.

Table 2 reveals that the rates of excess churn vary between 1.2 and 1.5 percent. In the majority of firms and OCs the annual rate of excess churn is actually zero; i.e., they do not simultaneously hire new workers and fire existing workers who then end up receiving unemployment benefits. This suggests that only a small fraction of the workforce experience excess churn. However, in some firms and OCs, excess churn occurs at a rather considerable scale, as reflected in the 90th percentile numbers between 4 and 5 percent of workers reported in Table 2.

Table 2. Firms, ownership clusters, and churn rates. Private sector, 2006-2015.

	<u>Firms</u>		<u>Ownership clusters</u>	
	(1)	(2)	(3)	(4)
Fraction of firms in cluster				
Single firm	0.797	0.656	0.797	0.837
2	0.104	0.178	0.104	0.114
3	0.033	0.065	0.033	0.028
4+	0.067	0.101	0.067	0.022
Churn				
Mean	0.1191	0.0983	0.1239	0.1071
Median	0.0925	0.0588	0.0966	0.0833
P90	0.2500	0.2619	0.2543	0.2500
Excess Churn				
Mean	0.0138	0.0120	0.0144	0.0137
Median	0.0038	0	0.0052	0
P90	0.0391	0.0454	0.0396	0.0556
Weighted by firm/ cluster workforce				
	Yes	No	Yes	No
Observations	239,180		187,416	

There also appears to have been a moderate rise in excess churn, particularly since 2009; see Figure 3. While Norway experienced an economic boom in 2006-2008, the financial crisis was responsible for a considerable slowdown in 2009, followed by a moderate recovery in the years after and then a new moderate slowdown from 2013. Hence, what comes out of Figure 3 appears to be that the overall churn rate is pro-cyclical while the excess churn rate is counter-cyclical. In addition, there appears to have been an upward shift in excess churn after 2008. This is

consistent with an increasing number of migrants holding short spells jobs that are followed by unemployment as suggested by our theoretical model.

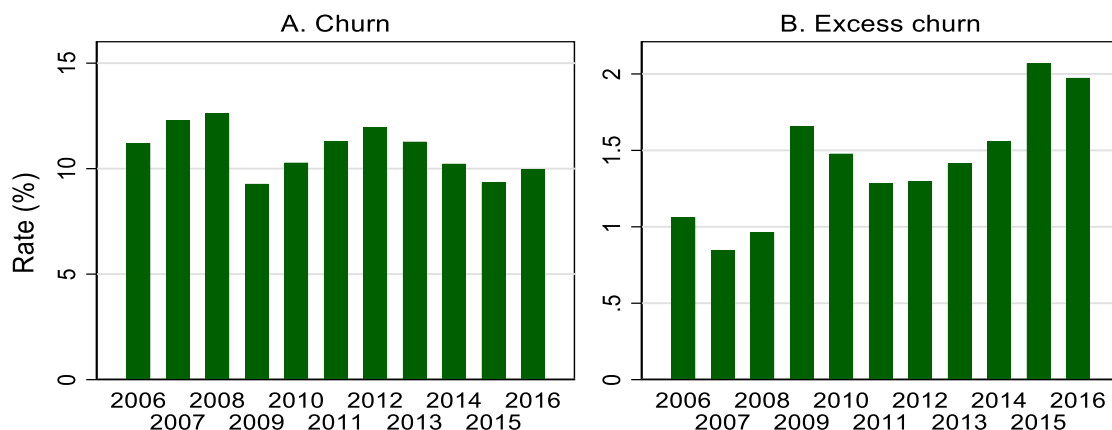


Figure 5. Churn rates 2006-2016

Note: Figure shows fraction of jobs Dec 31st prior year that are churned during year

5. Churn and labor migrant work force

While the average rates in Figure 3 are suggestive evidence of migration as a driver of excess churning, we now look into the pattern of churning across employers. In particular, we build on a regression analysis where we quantify any systematic association between the use of foreign labor and the degree of excess churn. Based on the theoretical reasoning and the description of institutional characteristics of the European labor market in the previous sections, our key hypothesis is that employers with a high share of immigrant workers – particularly from the new EU countries – also practice more excess churn. In light of our theoretical discussion, we also expect that the degree of excess churn is negatively correlated with the level of training costs.⁹

⁹ Ideally, we would like to distinguish skills that are particularly relevant for migrants like (Norwegian) language skills, but such no such information is available at the firm level.

Our regressions are not to be interpreted within a treatment effect framework. We do not claim that a higher share of migrant labor *causally* leads to more excess churn. Both outcomes are chosen simultaneously by the firm. The exercise is rather to present empirical patterns of worker turnover consistent with a model where foreign workers and domestic employers engage in contracts that involve excess churn.

We start out by regressing the annual employer churn rates (by firm or ownership structure), on the fractions of initial employees that are migrants from new and old EU countries. In all regressions, we control for initial firm size, calendar year and share of low skill employees. In addition, we control either for industry (88), firm or OC fixed effects. In the baseline version of the model, the regressions thus take the form

$$y_{jt} = \alpha N_{jt-1} + \beta_1 \text{NewEU}_{jt-1} + \beta_2 \text{OldEU}_{jt-1} + \gamma \text{LowSkilled}_{jt} + \text{fixedeffects} + \varepsilon_{jt}$$

where the outcome y_{jt} is either churn or excess churn in year t at level j (firm or OC) as defined above, in both cases divided by the appropriate (level j) number of employees at the end of year $t-1$ (N_{jt-1}). The variables *NewEU* and *OldEU* are the *shares* of employees from new and old EU member countries by the end of year $t-1$.

Tables 3 and 4 contain the main results from this exercise, with overall and excess churn used as the dependent variables, respectively. There is more (ordinary) churn in firms with high shares of labor migrants, particularly from the old EU countries (Table 3). Immigrants are more likely to work in industries with high turnover. However, when we account time-invariant characteristic of firms and OCs, firms with many migrant workers tend to have lower churning. This association is particularly strong for migrants from the new EU countries where the overall churn rate is lower, the higher is the fraction of workers from the new EU countries (in the initial workforce). This likely reflects fewer attractive options in the Norwegian labor market for new EU migrants, and therefore fewer job shifts due to better alternatives when compared to native workers (Barth et al, 2012).

Table 3. Churn and the labor migrant workforce

	<u>In firms</u>		<u>In ownership clusters</u>	
	(1)	(2)	(3)	(4)
New EU share	0.037*** (0.009)	-0.099*** (0.013)	0.037*** (0.009)	-0.074*** (0.014)
Old EU share	0.115*** (0.015)	-0.045* (0.024)	0.119*** (0.013)	-0.009 (0.034)
Share low skill	-0.015*** (0.005)	-0.025** (0.013)	-0.012** (0.005)	0.004 (0.015)
Sample mean	0.116	0.116	0.121	0.121
Observations	293 296	293 296	229 877	229 877
Fixed effects	Industry (88)	Firm (57 826)	Industry (88)	Ownership (62 682)

*/**/** Significant at 10/5/1 level. Standard errors, clustered within firms or ownership clusters, are reported in parentheses. Regressions also control for firm size and year of observation. Regressions are weighted by firm/ownership workforce.

Moving on to the excess churn in Table 4, we find empirical patterns that are very different from those of ordinary churn. For firms, there is a significantly positive association between excess churn and the worker share of migrants from the new EU countries. When employer is defined as OC, the coefficient on the new EU share is even stronger.¹⁰ The estimates are very similar across and within OCs. A higher fraction of migrants from the new EU countries in the firm goes hand in hand with a higher rate of worker churn involving subsequent UI claims. For the old EU, we find no

¹⁰ We add to the regression an indicator for whether the OC consists of more than one firm and also interactions between this variable and the initial fractions of old and new EU employees. The regression results presented in Appendix, Table A1, show that multi-firm OCs have both higher overall and higher excess churn than single firm OCs.

indication that excess churn is related to share of workers from countries that were members of the EU before 2004.

Table 4. Excess churn and the labor migrant workforce

	<u>In firms</u>		<u>In ownership clusters</u>	
	(1)	(2)	(3)	(4)
New EU share	0.017*** (0.002)	0.014*** (0.004)	0.017*** (0.002)	0.019*** (0.005)
Old EU share	-0.000 (0.004)	-0.007* (0.004)	-0.001 (0.003)	-0.008 (0.005)
Share low skill	0.012*** (0.001)	0.007*** (0.002)	0.013*** (0.001)	0.012*** (0.003)
Sample mean	0.016	0.016	0.016	0.016
Observations	293 296	293 296	229 877	229 877
Fixed effects	Industry (88)	Firm (57 826)	Industry (88)	Ownership (62 682)

*/**/*** Significant at 10/5/1 level. Standard errors, clustered within firms or ownership clusters, are reported in parentheses. Regressions control for firm size and year of observation. Regressions are weighted by firm/ownership workforce.

As discussed above a measure of excess churn based on the whole employer workforce tend to exaggerate the churn if there a change in the skill mix. To see whether this may drive our results, we now redefined churn such that it only captures simultaneous hiring and firing within a given skill group, and compute OC level churn by weighting the two skill groups' churn by their respective fractions of initial employees.

Table 5. Churn and excess churn weighted across skill groups

	<u>Churn</u>		<u>Excess churn</u>	
	(1)	(2)	(3)	(4)
New EU share	0.022*** (0.009)	-0.086*** (0.013)	0.014*** (0.002)	0.016*** (0.005)
Old EU share	0.105*** (0.013)	-0.014 (0.033)	-0.001 (0.003)	-0.009* (0.005)
Share low skill	-0.010** (0.005)	0.004 (0.014)	0.013*** (0.001)	0.013*** (0.003)
Sample mean	0.114	0.114	0.015	0.015
Observations	229 872	229 872	229 872	229 872
Fixed effects	Industry (88)	Ownership (62 680)	Industry (88)	Ownership (62 680)

*/**/*** Significant at 10/5/1 level. Standard errors, clustered within ownership clusters, are reported in parentheses. Regressions control for firm size and year of observation. Regressions are weighted by firm/ownership workforce.

First, we see from Table 5 that the skill-weighted churn measures are slightly lower compared to those based on the whole workforce, but the differences are minor. For example, the average excess churn across OCs drops from 1.6 to 1.5 per cent. Second, and more importantly, the positive correlation between the New EU share and the excess churn is just marginally lower.

Moreover, when we study excess churn by skill level as in Table 6, it is lowest for high skilled workers, consistent with higher turnover costs compared to the low skilled. The association between the fraction of new EU immigrant employees and excess churn is, however, the same across skill groups and comparable to that based on the whole workforce. Therefore, we conclude that changes in the skill mix is not a driver of excess churn and its association with migrant labor.

Table 6. Churn and excess churn among low and high education workers

	<u>Churn</u>		<u>Excess churn</u>	
	Low education (1)	High education (2)	Low education (3)	High education (4)
New EU share	-0.072*** (0.015)	-0.045*** (0.012)	0.017*** (0.004)	0.018*** (0.004)
Old EU share	-0.009 (0.025)	0.018 (0.032)	-0.008* (0.004)	-0.004 (0.005)
Share low skill	-0.047*** (0.014)	0.076*** (0.018)	0.008*** (0.003)	0.005* (0.003)
Sample mean	0.114	0.114	0.018	0.010
Observations	228 297	206 194	228 297	206 194
Fixed effects	Ownership (62 296)	Ownership (57 691)	Ownership (62 296)	Ownership (57 691)

*/**/*** Significant at 10/5/1 level. Standard errors, clustered within ownership clusters, are reported in parentheses. Regressions control for firm size and year of observation. Regressions are weighted by firm/ownership workforce.

Our theory highlights that the incentive to churn is hampered by training cost. In particular, excess churn will be lower when it is costly for the firm to substitute an experienced worker with a new employee. Information on training costs are not available in administrative pay roll records, but we predict training cost for the main group of employees from the 2012 Norwegian Worker Employer Survey.

Since we have just one observation of (predicted) training cost per employer, the firm (or OC) fixed effects model is not identified. The results based on more restrictive specifications are presented in Table 7. Even if the associations with migrant shares are upward biased, it provides suggestive evidence on the role of training costs. Both types of churning are significantly lower in OCs with high training costs. High training costs is associated with a reduction in excess churn of about -0.007 which is close to 50% of the mean. The association between the share of new EU

migrants and excess churn drops slightly when we include training cost but remain positive and significant.

Table 7. Training costs and churn

	<u>Churn</u>			<u>Excess churn</u>		
	(1)	(1)	(2)	(3)	(3)	(4)
New EU share	0.069*** (0.008)	0.051*** (0.007)	0.047*** (0.011)	0.024*** (0.002)	0.022*** (0.002)	0.023*** (0.003)
Old EU share	0.185*** (0.011)	0.166*** (0.011)	0.214*** (0.019)	0.014*** (0.002)	0.012*** (0.002)	0.010*** (0.003)
Share low skill	0.053** (0.007)	0.012** (0.006)	0.011** (0.006)	0.022*** (0.001)	0.017*** (0.001)	0.017*** (0.001)
High training costs		-0.064*** (0.004)	-0.058*** (0.004)		-0.007*** (0.001)	-0.007*** (0.001)
High costs			0.017 (0.012)			-0.003 (0.004)
*new EU share						
High costs			-0.124*** (0.021)			0.005 (0.004)
*old EU share						
Sample mean	0.114	0.114	0.114	0.015	0.015	0.015

*/**/*** Significant at 10/5/1 level. Standard errors, clustered within ownership clusters, are reported in parentheses. Dependent variable is weighted across low and high-skill workers. Regressions have 229 872 observations and control for 1-digit industry, firm size, and year of observation. Regressions are weighted by firm/ownership workforce.

6. Wage differentials among churned immigrant employees

Our theoretical setup predicts that replacement hires involved in the process of excess churn are paid low wages compared to the (now unemployed) workers they replace, particularly if they are labor immigrants. To examine this empirically, we next focus exclusively on employees who are involved in excess churn within ownership clusters; i.e. we compare the last observed wages received by the laid off workers with the first observed wages received by the new workers in the same ownership clusters. We estimate wage equations, separately for different demographic groups (natives, old EU, new EU) and by gender;

$$w_i = \ln W_i = \mu + \delta NEWHIRE_i + \xi_i$$

Where w_i is the log monthly wage of worker i , and $NEWHIRE=1$ is an indicator for a recently hired workers. Since the new workers' wages are measured at a later stage than for the previous workers (now unemployed for which $NEWHIRE=0$), the previous workers' wages are inflated using the general wage growth during the period in question.

As noted above, our measure of excess churn not only incorporates the socially inefficient process of simultaneously hiring and firing similar workers in order to exploit differences in reservations wages generated by social insurance institutions, it is also likely to incorporate elements of efficient skill composition restructuring and the dissolution of poor matches. In general, we may expect persons who become unemployed to be negatively selected in terms of productivity and thus to have had lower wages, *ceteris paribus*. Hence, what we are primarily looking for in this exercise is whether there is a particularly large wage differential between incoming and outgoing workers for immigrants from Eastern Europe.

The regressions results are presented in Table 8. They show indeed that when we control for individual human capital characteristics (age and education), there is for men a considerably larger negative wage differential between new hires and laid off workers for new EU immigrants (column 2). Even for migrants for old EU countries new hires are less paid than those who leave and later receive UI benefits. For female migrants, there is no wage difference between the two groups. Native

women who are hired have higher wage, however, compared to those who leave for UI.

Table 8. Wage differentials between new hires and last year workers now on UI within ownership clusters

	<u>Men</u>		<u>Women</u>	
	Without human capital controls (1)	With human capital controls (2)	Without human capital controls (3)	With human capital controls (4)
New EU	-0.067*** (0.013)	-0.063*** (0.013)	-0.025 (0.032)	-0.010 (0.033)
Observations	257 880		95 397	
Fixed effects	51 821		31 824	
Old EU	-0.084*** (0.022)	-0.040* (0.020)	0.022 (0.043)	0.067 (0.042)
Observations	246 221		121 785	
Fixed effects	74 817		45 543	
Natives	0.004 (0.005)	-0.014** (0.005)	0.048*** (0.008)	0.053*** (0.007)
Observations	5 552 952		2 953 342	
Fixed effects	258 242		224 809	

*/**/*** Significant at 10/5/1 level.

Note: Samples restricted to private-sector wage earners age 20+ and not in education. Standard errors, clustered within ownerships, are reported in parentheses. All regressions include an indicator variable for new hire or UI recipient on last year's workforce. Columns 2 and 4 also control for age and its square and educational attainment.

7. Policy implications

Our empirical evidence shows that firms and ownership clusters with many immigrant employees from the new EU countries are more likely to simultaneously hire and fire similar workers. We have labeled this phenomenon excess churn, as the resultant reallocation of labor is beyond what is needed for replacement of workers leaving the firm for better job matches. Wages paid newly hired workers are lower than the wages of workers who separated from the firm and collect unemployment benefits. These findings points to firms and/or workers taking advantage of the differences in welfare

state insurance institutions across countries to form job matches that entail a surplus for the employer-employee pair, yet are inefficient from a social point of view.

Efficient labor migration requires that the jobs accepted in a host country are sufficiently productive to compensate for opportunity and training costs. When welfare state entitlements are larger in the host country (i.e. $A > 0$) there may be immigration for productivity levels below these thresholds. The difference in the value of welfare state entitlements drives a wedge between private (for the employer-employee pair) and social efficiency. Moreover, it is clear that if there is heterogeneity in the value of welfare state entitlements A – e.g., because there are different risks of future disability or health care costs – firms have incentives to recruit the workers with the highest A 's, as they can be offered the lowest wages. This may represent a source of adverse selection, as seen from a fiscal point of view, as matches between native firms and immigrant workers will yield a higher worker-firm surplus the higher is the worker's expected payoff from the welfare state.

In the European context of an integrated labor market, welfare state differences between countries may thus lead to *too much*, as well as to *fiscally adversely selected* (from the host country's point of view) labor migration. The migrants' shift in entitlement from a poor to a rich welfare state may in this context be viewed as an externality. In addition, the accrual of unemployment insurance entitlements in the host country may lead to excess churn.

Our findings may perhaps be used as arguments for a less liberal migration regime in Europe. There is now an ongoing policy debate in several countries about reestablishing elements of the previously existing migration barriers; either by regulating the migration flows directly or by making eligibility of economic transfers from a particular country conditional on past social security contributions to that same country. However, although such measures may reduce the levels of excess migration and churning, they may also stifle the welfare-enhancing labor mobility within Europe.

One obvious policy alternative is to scale down on the overall generosity of welfare state institutions in the rich (old) EU countries, such that the externalities discussed in this paper become less important. Thriftier social insurance would improve work incentives for natives as well as immigrants, and reduce migration

distortions generated by cross-country differences in social insurance systems. Such a policy might trigger a “race to the bottom”, however, as it seeks to ensure that a country’s own welfare state provisions are not too generous relative to those in other countries. And generous welfare state programs are in place for a reason. They reflect voter preferences for a low-risk society with sound insurance arrangements in case of sickness, disability, or involuntary unemployment. More generally, lower generosity will be against the interest of a majority that favors a relatively egalitarian society with little poverty. A strategy aimed at downscaling the welfare state motivated by the aim of facilitating efficient migration flows may also inspire more conflicts between immigrants and natives.

Since the operational channels of the efficiency problems identified in this paper are that firms set entry wages too low and replace existing workers too quickly, an alternative strategy is to mitigate the impact of the welfare state generated distortions by introducing yet another distortion, namely by enacting stricter employment protection regulations and/or minimum wages. A natural choice for a minimum wage is to set it such that it prevents excess churning. However, although this will eliminate excess churning as well as socially inefficient migration, it is also likely to eliminate some truly efficient migration. The latter will be the case if the minimum wage is set higher than the immigrants’ opportunity cost adjusted for migration costs. Hence, there is a tradeoff involved in the determination of a minimum wage.

8. Conclusions

It has been argued that the pre-enlargement fears of free labor mobility already have been proved unjustified. Kahanec (2013), for example, argues that “no significant detrimental effects on the receiving countries’ labor markets have been documented, nor has there been any discernible welfare shopping.” He concludes that “the free movement of labor in an enlarged EU can with little doubt be considered a success story of EU integration and enlargement.” Even if free movement of labor represents a huge potential for improved allocative efficiency and also an important source for social cohesion in Europe, we will argue that the story is a bit more complicated in the case of the most recent EU enlargements.

The theory and empirical evidence presented in this paper point to sources of inefficiencies that deserve to be addressed in the context of European labor market integration. Based on Norwegian register data, we have shown that labor migrants from eastern European countries quickly have become overrepresented in the unemployment insurance program. To some extent, this is driven by what we have labeled *excess churn*, i.e., the phenomenon that firms let existing workers go for unemployment, while at the same time recruiting new and similar workers at lower wages. Our findings indicate that this phenomenon is considerably more prevalent in firms with many eastern European workers than in firms dominated by native workers.

From a theoretical perspective, we show that the matching of firms and workers in integrated national labor markets are easily distorted by differences in the countries’ welfare state institutions. If the landing of a job in a high-income country also entails immediate membership in a more generous welfare state, the migrant worker not only receives his/her remuneration from the new employer, but can also expect compensation from the host country’s taxpayers. In practice, the social insurance generosity wedge between countries functions as a wage subsidy targeted at immigrant workers from low-income countries and gives the firm an incentive to offer – and the worker an incentive to accept – a low entry wage. As a result, migration may become inefficiently high, since labor migration will be generated by jobs for which labor productivity in the host country falls well below its opportunity cost.

Open borders between countries with similar levels of economic developments and welfare state ambitions are likely to unambiguously enhance living conditions of all citizens. However, the fact that social insurance benefits in some of Europe's high-income countries by far exceed typical wages in most accession countries may distort migration flows, create low-productivity jobs, and weaken labor migrants' incentives to remain in productive employment over the long haul. These distortions not only affect the distribution of economic resources across countries, but also imply that socially inefficient (from a European perspective) migration decisions are made. Given that the source of the inefficiencies described in this paper is the difference in welfare state entitlements across countries, the obvious policy response would be to harmonize these institutions. However, from a rich country citizen's point of view, this could appear as a race to the bottom, implying a sub-optimal provision of social insurance. In practice, policy makers thus have to strike a balance between different legitimate aims and concerns. We have argued that the imposition of minimum wages can be an alternative/supplementary strategy to discourage socially inefficient migration, and thus offset the distortions generated by differences in welfare state institutions. However, as minimum wages may also prevent socially beneficial migration from taking place, as well as distort the national labor market, there are some tradeoffs involved in the usage of this policy tool as well.

References

- Basso, G., D'Amuri, F. and Peri, G. (2018). *Immigrants, labor market dynamics and adjustment to shocks in the Euro area*, NBER Working Paper No. 25091. Cambridge, MA: National Bureau of Economic Research.
- Barth, E., B. Bratsberg, and O.Raaum (2012), Immigrant wage profiles within and between establishments, *Labour Economics*, 19(4), 541-566.
- Borjas, G. J. (1999). Immigration and welfare magnets, *Journal of Labor Economics*, 17(4), 607-637.
- Bratsberg, B., Raaum, O., and Røed, K. (2014). Immigrants, Labour Market Performance and Social Insurance, *The Economic Journal* 124 (November): F644-683.
- Clemens, M.A. (2011). Economics and Emigration: Trillion-Dollar Bills on the Sidewalk? *Journal of Economic Perspectives* 25(3), 83-106.
- Devillaniva, C., Fasani, F. and T.Frattini (2018). Employment of Undocumented Immigrants and the Prospects of Legal Status: Evidence from an Amnesty Program, *Industrial and Labor Relations Review*, Vol 71 (4), 853-881.
- De Giorgi, G. and Pellizzari, M. (2009). Welfare migration in Europe, *Labour Economics*, 16(4), 353-363.
- Dustmann, C., Schönberg, U. and J. Stuhler (2016). The impact of immigration: Why do studies reach such different results? *Journal of Economic Perspectives*, 2016, 30 (4), 31-56.
- Kahanec, M. (2013) Labor Mobility in an Enlarged European Union. In: A. F. Constant, K. F. Zimmermann (eds.), *International Handbook on the Economics of Migration*, Edward Elgar 2013, Cheltenham, UK, and Northampton, pp. 137-152.
- Kennan, J. (2012) Open Borders. *Review of Economic Dynamics* 16(2), L1-L13.
- Lazear, E. P. and Spletzer, J. R. (2012) Hiring, Churn, and the Business Cycle. *American Economic Review*, 102(3), 575-79.
- Lundborg, P. (2006). EU enlargement, migration and labour market institutions, *Zeitschrift für ArbeitsmarktForschung*, 39(1), 24-34.
- McKinnon, R.I. (1963). Optimal currency areas, *American Economic Review*, 53(4), 717-725.
- Mundell, R. A. (1961). A theory of optimum currency areas, *American Economic Review*, 51(4), 657-665.

Razin, A. and Wahba, J. (2014). Welfare magnet hypothesis, fiscal burden and immigration skill selectivity, *Scandinavian Journal of Economics*, 117(2), 369-402.

Appendix

Table A1. Multi-firm ownership clusters and churn

	<u>Churn</u>		<u>Excess churn</u>	
	(1)	(2)	(3)	(4)
New EU share	-0.087*** (0.013)	-0.087*** (0.015)	0.015*** (0.005)	0.014*** (0.005)
Old EU share	-0.016 (0.033)	0.007 (0.029)	-0.009* (0.005)	-0.010* (0.005)
Share low skill	0.002 (0.015)	0.003 (0.014)	0.012*** (0.003)	0.012*** (0.003)
Multi-firm cluster	0.027*** (0.009)	0.033*** (0.009)	0.003*** (0.001)	0.003*** (0.001)
Multi firm*new EU share		0.002 (0.023)		0.004 (0.007)
Multi firm*old EU share		-0.108 (0.069)		0.003 (0.008)
Sample mean	0.114	0.114	0.015	0.015

*/**/*** Significant at 10/5/1 level. Standard errors, clustered within ownership clusters, are reported in parentheses. Regressions have 229 872 observations and control for 62 680 ownership fixed effects, firm size, and year of observation. Regressions are weighted by firm/ownership workforce.