High-Skilled Labour and Public Policy: The Bosman Ruling (revised)*

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Abstract

In December 1995, the rules legislating football transfers were turned upside-down by the Bosman transfer ruling. This ruling can be interpreted as an exogenous shock on labour markets, liberalising what had been previously an extremely segmented market. The aim of this paper is to quantify some of the effects of labour market liberalisation on natives and on migrants. We find evidence that migration seemed to have a negative impact on playing opportunities and wages for local players, as estimated using the change in the rankings of clubs Italian players play for. Our results are first explained in a theoretical model with outside options that explains how the bidding process changes after the Bosman ruling, leading to an increase in the share of the surplus that goes to the players. We then use our empirical data sets made up of over 30 years of Italian league transfer flows to see the impact of migrants on wages, which we show to be negative. We also find that mobility increased and the average quality of incoming migrants decreased. Although the analysis is done on footballers, this paper believes that the conclusions can be extended to other high-skilled labour markets such as university professors or engineers.

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Part I
Introduction

Whether you are a monetary theorist who wonders whether the Euro can be successful considering the lack of EU-labour mobility, a New Geography Economist thinking about what higher mobility implies for localisation decisions or a labour economist wanting to analyse what the impact of migration can be on the local population, labour mobility is a subject that deserves our full attention.

Analysing individual level migration is difficult for economists since very often the data is not detailed enough. As stated in Kleven, Landais and Saez: “Empirical work on the effect of taxation on international mobility appears to be virtually non-existent. The reason for this is a lack of micro data containing citizenship information along with issues about how to identify causal effects on migration.” Individual level data often lack information on migration or a full work history. In order to get insights on some of the issues regarding high-skilled labour mobility, it seems natural to turn to unorthodox sources.

One of the most sudden and unexpected shocks on labour markets of recent history was the Bosman ruling.\footnote{Jean-Marc Bosman was a Belgian football player who played for Liège in Belgium and wanted to move to Dunkirk in France once his contract expired. At that time, Dunkirk had to pay a fee to Liège, despite Bosman’s contract having expired. Since Bosman was transferring across leagues, his registration had to be sent by Liège to the French federation. However, Liège did not think that the compensation that Dunkirk was prepared to pay was sufficient. Hence, they refused to send Bosman’s registration to the FFF. Bosman decided to take his case to the courts, and won. As a result, the EU commission decided to apply European law on worker mobility to the footballer labour market.} Before the Bosman ruling, international migration of football players was very limited. A quota system had been put in place that limited foreign player mobility. In Italy, our country of interest, the number of foreigners allowed to play was governed by the famous “3+2” rule.\footnote{From the site of the EU Commission: “UEFA’s “3+2” rule permitting each national football association to limit to three the number of foreign players whom a club may field in any first division match in their national championships, plus two players who have played in the country of the relevant national association for an uninterrupted period of five years, including three years as a junior”} The Bosman ruling, which came into effect in December 1995, was a completely unexpected shock that removed these quota barriers for EU nationals. Moreover, whereas before the ruling players whose contract had expired were not allowed to move clubs without paying a fee, the new regulation allowed players to move for free once they had run down their contract. The effect of the Bosman ruling on the labour market can be reduced to a combination of two different factors: Increased mobility for foreigners, and increased bargaining power for players relative to clubs.

The market for football players contains many different properties that are extremely desirable for analysis: measurable skill heterogeneity (through objective rankings of play-
ers in newspapers, goals scored or clean sheets for instance), measurable productivity (in club budgets, rankings, or attendance), possible “superstar” effects, precise localisation. Moreover, there is extensive data on player nationality and work history, which makes a footbolling dataset perfect to analyse international labour mobility. These features mean that football datasets are more likely to answer some questions about the labour markets than other, more traditional datasets like labour force surveys, especially when we want to look at the effects of migration.

The aim of this paper is to show some of the effects that the Bosman Ruling had on the Italian labour market. Our analysis will look first at the effect the Bosman ruling had on the mobility of foreigners and Italians in Serie A and Serie B. We then present the impact of migrants on the share of local players moving to better clubs, which we consider to be a proxy for wages. We will also look at the effect the Bosman ruling had on club performance and club attendance.

**Literature Review**

The Bosman Ruling has already attracted attention from economists, however these researchers have generally preferred to look at the impact of the Bosman Ruling on sporting outcomes rather than labour outcomes. Findlay and Binder (2009) for instance look at how the Bosman Ruling has affected competitiveness within a country by looking at the difference of points between first and last, and the frequency with which teams end up at the top of the league. They also look at how national teams have fared following the arrival of foreigners into the domestic leagues. They find little evidence that national team’s performances have dipped, or that there is less competitiveness within leagues. However, their research suggests that in contests across leagues like the Champions’ League, competition may have decreased. Kesenne (2007) creates a theoretical model that compares a closed product and labour market economy with an open labour and closed product economy that explains why the Champions League is becoming less competitive. One insight is that clubs like Glasgow Rangers or Ajax, which play in small leagues, will in the long run be less competitive than clubs in bigger leagues because of the closed product markets. Closed product markets which generate bigger revenues will be able to poach the best players because of open labour markets.

Authors have also looked at the football labour market and the determinant of wages in this context. Frick (2008) looked at a panel dataset of player wages and was able to determine that wages were determined by many factors: International selection, position... Frick used the same methods, but a more complete dataset to Lucifora and

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3Often known as the “big 5”: England, Italy, Spain, Germany, France
More recently, Simmons, Bryson and Rossi (2012) analysed in detail 5 years of player wages in Italy. They find that wages for migrants are higher than those of Italian players with the same observable characteristics. They explain this by supposing that wages are a function of the player’s willingness to move; If an Italian player is still in Italy, then that could indicate a low desire to change club. In this case the club can take advantage and offer him a lower wage. Other results include higher attendance for clubs with more migrants (of around 1%) and lower rankings for clubs with more Italians. However their data is from 2001-2006, so they do not look directly at the impact of the Bosman ruling.

Another issue is the length of contracts and transfer fees. Contracts have become longer, and transfer fees higher\(^5\) in the post-Bosman era. Spontaneously, we might think that mobility increased after the Bosman ruling, and thus that the likelihood of terminating a contract is higher. However, Frick et al. (2007) have surprisingly found that post Bosman, the probability of staying in a contract is higher, i.e. that the likelihood of termination is smaller. They attribute this unusual result to a lesser likelihood of shirking post-Bosman, since contracts can be more easily ended.

Although these findings are relevant for the sport economics literature, the results found in sport labour markets should be compared to more traditional labour markets. Kahn (2000) summarises this approach thusly: “Professional sports offers a unique opportunity for labour market research. There is no research setting other than sports where we know the name, face, and life history of every production worker and supervisor in the industry. Total compensation packages and performance statistics for each individual are widely available, and we have a complete data set of worker-employer matches over the career of each production worker and supervisor in the industry. Moreover, professional sports leagues have experienced major changes in labour market rules and structure—like the advent of new leagues or rules about free agency—creating interesting natural experiments that offer opportunities for analysis.” The lack of detailed micro-data for labour markets means that using more unusual datasets where finding more detailed information is not a problem is necessary. The famous paper by Kleven, Landais and Saez (2012) is perhaps the one that best illustrates this philosophy. They look at changes in the tax rates and the response by footballers in order to estimate the effects of higher marginal tax rates on high-skilled labour. The paper was probably inspired by highly mediatised changes in marginal tax-rates for extremely high income individuals, such as the so-called

\(^4\)Lucifora and Simmons look in detail at superstar effects in Serie A and Serie B, using detailed wage data for the years 1995/1996. They find that the distribution is highly skewed towards a few very well paid “superstars”. The second most well-paid player earns only 60% of what the first earns.

\(^5\)From 1996 to 2001, the record transfer fee was broken every year, culminating in the 53 million pounds transfer fee for Zinedine Zidane. The previous record breaking transfer was Gianluigi Lentini’s transfer from Torino to Milan, for a fee of 13 million pounds.
Beckham law\textsuperscript{6}, and because the wages of footballers are so often the subject of public discussion. They find that footballers responded to the changes in tax incentives, with for instance an influx of footballers into Spain after the Beckham law was passed. They also showed that there is a correlation between football tax rates and the proportion of footballers playing at home, a relationship that gets steeper after the Bosman ruling.

In the spirit of these papers, the real object of interest this Master’s dissertation is not football but the labour market in general, and liberalisation of borders for workers in particular. How do wages for locals respond after an exogenous arrival of migrants? What is the impact on the productivity of incoming migrants? The approach of this dissertation is closer to Card (1989) for instance, in his paper on the impact of Miami migrants on the labour market in that we want to look at the impact of liberalisation shocks on local outcomes. Card finds that despite the arrival of many immigrants during the Mariel boatlift, there was little impact on wages for the preexisting labour force. Similarly, this paper could be compared to Romalis (2007) and the impact of the NAFTA on trade. In comparing Mexico-US exports and Mexico-EU exports, he aims to isolate the FTA effects of the NAFTA agreement. We share the same methodological principle as these papers: The use of an exogenous shock to analyse changes in desired outcome variables.

The literature on the effects of immigration on labour markets and other outcomes is particularly extensive. Most studies, as documented in Borjas (1996), find a small effect on wages from larger immigration, often statistically unsignificant. In more recent studies, Borjas (2002) accounts for education and work experience heterogeneity and finds a negative effect of immigration on local wages. On the other hand, Ottaviano and Peri (2012) use Borjas’ technique of estimating the impact of migrants on locals by using skill heterogeneity, but allow for complementarity between immigrants and locals. In this case, they find that wages for locals increase slightly with the arrival of migrants, while migrants already living in the US are more strongly affected, losing around 6% of wages. Card (2009) finds evidence of a wider dispersion of income revenue in high immigration cities. There is a negative impact on wages of low-skilled workers, but a positive impact on the average wage from higher immigration. Most studies try to compare cities within a country to estimate the impact of migrants on the local population. However this estimation strategy is questionable since cities that attract immigrants are likely to be different on unobservables. In this dissertation, we will also try to find some insights on the effect of immigration on wages.

Our estimation strategy for wages is extremely simple. If we suppose that club rank-

\textsuperscript{6}The Beckham Law, named for the footballer, was passed in June 2005, and made foreigners living in Spain liable only on Spanish incomes and assets, not on their worldwide holdings.
ings are correlated with wages, we assume that a player moving to a club with a higher ranking is actually increasing his wages, and similarly a player going to a lower ranked club is decreasing in wages. Then, we can look at the share of Italian players moving to a higher club to see if local players have benefited from the Bosman ruling.

**Part II**

**Theoretical framework**

Although the market for footballers can at first seem to be a very specific type of labour market, it is not that different from any other high-skilled labour market. More specifically, some characteristics of the footballer job market seem to be similar to a search and matching model with wages partly determined by workers’ outside options: There are a certain number of vacancies to be filled at a football club every period, wages depend partially on observed productivity and workers can ask for raises when another club comes in with a better offer. There are also explicit costs to job search here: Unemployed players looking for work often have agents that help them get trials in new clubs. Clubs looking to employ another team’s player have to pay scouting costs. Although modelling the Bosman ruling using a search and matching model is beyond the scope of this paper, there is no doubt that further research could be done in this direction.

The Bosman ruling had one very important direct effect on labour markets: it increased the potential job offers for all players and clubs, since they could now field contracts from clubs all over Europe. We can consider footballer contracts as being based on the ones in Malcolmson and Mcleod(1991). In these contracts, an employer-worker match creates a surplus which can then be bargained between the two parties. The surplus is determined by the value of the worker outside offer (the next best salary he can get at another firm) and the value of the employer outside offer (the wage he can pay to employ another similar worker). Obviously, for the match to be efficient, the worker’s outside option needs to be of a lower value than the employer’s outside option. Over time, these options can evolve, and when the worker’s outside option becomes higher than the employer’s, then the match is inefficient and is dissolved.

If we increase the number and quality of outside offers in this framework, we have two consequences: Firstly, if there is a bias in the way the outside options are attributed (for instance, outside options can only increase for workers), then the party that receives higher outside offers receives a higher share of the surplus. Secondly, a higher quality of outside offers and a higher frequency of new offers means that these are more likely
to bind, and also that the likelihood of both outside options being binding at the same
time i.e. an inefficient match, increases. We should be able to see the second implication
in the data: Higher separation rates should imply a higher number of player transfers.
In what follows we formalise these insights, in a similar model as that of Solow and
Krautmann(2011).

A formal model is necessary to understand the effects of the Bosman ruling on wages.
Despite the influx of players, we know that wages have risen by a tremendous amount.
We’ve seen that the Bosman ruling consisted of two main changes: A new contract rule
and the opening of borders. However, we do not know how these two factors interact.
The end of the transfer fee system for out of contract players seems to be a boon for
football players, but if they face competition from all over Europe, they may not be able
to translate the new regulations into higher wages. To understand how a large influx in
the number of migrants and a huge rise in wages can coexist it is better to turn to a
more formal setting. A model will help us to understand the changes brought upon by
the Bosman ruling, their relative size and how they interact with each other.

In order to fully understand the changes brought upon by the Bosman ruling we will,
as in Solow and Krautmann, look at comparative statics between two models: one with
a free agent and one team, and another where many teams bid for an agent.

In the first case, denote \( \text{MRP}_i \) the marginal revenue product generated by the \( i \)th
player, and his expected salary by signing for another team, \( \text{FAS}_i - F_i \) (we assume that
the team buying the player incorporates the player’s transfer fee into his wage). The
team can choose between this player or the next best alternative \( R \), who has a marginal
product \( \text{MRP}_R \), a transfer fee \( F_R \) and salary \( S_R \). The next-best alternative for the club if
the player \( i \) signs as a free agent with another team can then be represented \( \text{MRP}_R - F_R - S_R \).
The total surplus from the outside match is \( \text{FAS}_i - F_i + \text{MRP}_R - F_R - S_R \). The total
surplus generated by the player negotiating a salary with the team and staying in the
match is then \( \text{MRP}_i - S_i \) for the team and \( S_i \) for the player. The extra surplus generated
by the match is the sum of the surplus for both parties minus the sum of the surplus in
the outside match. This gives us: \( \text{MRP}_i - S_i + S_i - (\text{FAS}_i - F_i + \text{MRP}_R - S_R - F_R) =
\Delta \text{MRP} - \text{FAS}_i + F_i + S_R - F_R \). The size of the surplus is determined by the difference in
productivity between the player and the next best available option. Of course, this can
change between clubs. If we think about Italy, AC Milan may not be willing to pay a
high salary to buy a new striker considering their current striking options. In that case,
a team that doesn’t have a decent striker on its books might be able to offer a more
lucrative contract.

The answer to the optimal salary \( S^* \) can be found through Nash Bargaining. The
problem can be written as:
max_{S*}(S* - FAS_i - F_i)^\beta[(MRP_i - S*) - (MRP_R - F - S_R)]^{1-\beta}

the surplus that both players get from the match relative to their outside option, with \( \beta \) the player’s bargaining weight, and 1-\( \beta \) the club’s. Maximising leads to:

\[
\beta(S* - FAS_i - F_i)^{\beta-1}[(MRP_i - S*) - (MRP_R - F_R - S_R)]^{1-\beta} = 0
\]

Simple calculus yields:

\[
S* = \beta(MRP_i - MRP_R + S_R + F_R) + (1 - \beta)(FAS_i - F_i)
\]

Which can be rearranged to give:

\[
S* = FAS_i - F_i + \beta(MRP_i - MRP_R + S_R + F_R - FAS_i + F_i)
\]

The negotiated salary is then made up of the player’s outside option, plus a share of the outside surplus, determined by the player’s bargaining parameter \( \beta \). This is the negotiation that would occur in a world with no international moves, and with transfer fees to be paid for moving clubs.

In Solow and Krautmann, richer clubs are able to extract higher MRPs from players, through higher marginal revenues. They use this assumption in order to make it easier for richer clubs to win a bidding war in the model without having to specify a profit function. Although it might seem unrealistic, it is actually likely that bigger clubs can get a higher MRP from players because they charge higher ticket prices, or have more money riding on success. For instance, a player that can help a club get in the Champions’ League and win the national cup will have a higher impact on the club’s revenues than on a club in mid-table. If, as we believe is likely, our model and estimation strategy can be applied to other domains like Economics professorship, then other parallels are easy to make: Professors in better ranked universities will be able to produce better research, through spillover effects or a better access to resources for example. The university will also be more attractive to students and be able to increase its fees. The fact that more prestigious or richer universities can extract higher MRPs from professors leads to professors being able to earn higher salaries. The high mobility of Economics professors (in our own
department, almost all of the professors have taught outside of France) makes this a particularly relevant comparison.

Solow and Krautmann then consider a model where many teams can bid for a player. Richer clubs can propose higher wages since they can extract higher revenues from players. As a result, if there is a player for which they have no viable alternative, the richer club will always be able to outbid the smaller clubs, as shown in Figure 1, extracted from Solow and Krautmann. What is interesting is that equilibrium in the multiple club model is determined by some very interesting factors: The alternative wage that other clubs can pay, and the alternative player that the club can acquire. Moreover, in this model, the alternative salary that the largest club has to face is determined by all the alternative salaries of the previous bidders. As we show later on, this will lead to some interesting dynamics.

Figure 1: Graph representing the bidding process. Solow and Krautmann (2011)

If we compare the model to the case of the Bosman ruling, we see that in the pre-Bosman era, only a small number of international clubs could offer wages for players that were relevant since a lot of clubs were likely to have satisfied their constraint. As a result, wages were kept low, because there were few clubs bidding up the wage.

In the post Bosman era, the transfer market is liberalised, and players can move abroad. In their adaptation of Solow and Krautmann, Bryson, Simmons and Rossi use explicit costs for staying in a country or moving abroad. For simplicity, we will instead assume that players receive a share $\delta_{ij}$ of any wage if they move abroad, with the parameter $\delta_{ij}$ depending on the player’s willingness to move to the country offering the wage. In the
post Bosman world, the player receives a set of alternative wages from different countries. The outside option that the player considers is going to be the one that gives him the highest salary. He gets $FAS_i$ if the offer is within the same country, or $\delta_{ij}FAS_i$ if the highest outside offer is from another country. This $\delta_{ij}$ parameter is important because it means that if this parameter is low, clubs have to match lower values of the outside offer if it comes from abroad. Moreover, another change in the post Bosman era is that players are able to leave at the end of the contract without paying a transfer fee, so that in that case $F_1 = 0$. This effect increases the wages of players, since it raises their alternative salary.

If we compare the pre and post-Bosman situation using this model, we can get some interesting insights on how wages should move following liberalisation. Post Bosman, each club will have to compete not only with the clubs in his own country but also with the clubs in every other country. It was likely that a club in the Netherlands that had a player with a high MRP only had to pay the highest outside offer in Netherlands, which was probably not very high. Now it has to face competition from all countries in Europe. The player can either stay in his own country or decide to move abroad. However, we know that the richer clubs can extract more MRP from players and grant them higher wages. If there are significant differences in the top MRPs of clubs across leagues (for instance if the best club in the Netherlands can give a lower MRP to players than the best club in Italy), then we should expect the clubs in the bigger leagues to buy up the best players.

What will be the impact of more offers on player mobility? A worker is not kept by the club if he can get a higher offer elsewhere, or if the difference between the MRP and his wage is smaller than the difference between the best alternative’s performance and wage. Because all players are subject to the bidding process, opening up borders does not necessarily mean that the alternatives for the clubs get better, since their wages also rise. Even though our model only represents one player, the “alternative players” also face the new bidding process.

However, if opening up the borders means that firms can find better or cheaper workers, i.e. that the “offer” effect (finding players with high MRP) is higher than the “wage” effect (players using the bidding process to gainim higher wages), then the outside option for clubs also increases. In addition, the higher number of possible clubs bidding means that there is a higher likelihood that the Alternative Salary is higher than what the club can offer, for two different reasons: The increased number of clubs that can give high player MRP, and the bidding process increasing the wages. These effects, and the end of the transfer fee system for out of contract players, all lead to the surplus decreasing and outside offers being more likely to bind. When the outside offers bind for both participants, the match is inefficient and both player and club prefer to take up their outside
offer. We should therefore expect player mobility to increase.

In our model, we also want to analyse the impact of migration on the local players. If local players decide to stay in Italy, it means that their highest offer was from Italy, which in turn implies that outside offers from other countries were too small (probably because the players have a low $\delta_{ij}$). Players that have a lower willingness to move will have smaller wages because their threat points will be lower and they will be able to extract smaller shares of the surplus. Because local players will have smaller wages relative to foreign players, looking at differences in wages, even when controlling for observable factors is not the correct way to analyse the effect that migration has on the local labour market. The difference in the bidding processes will generate higher wages for migrants regardless of ability. Rather, we should notice that in this model, players that move into more successful clubs have higher wages because the clubs can extract higher MRPs from them. Before the quota system was removed, all players bar 5 in the top Italian clubs were necessarily Italians. However, these players now face competition from all the other European countries. If immigration causes Italian players to be blocked from entering the higher ranked clubs, then they will be harmed by the Bosman ruling. In our model, we could have this effect if the alternatives for richer clubs get better because of the influx of foreigners. In clubs with high MRs, Italians may struggle to get a high wage because the foreign alternatives at the club are too good. Therefore, they are forced to go to a club with a lower MR. We will show in our paper that post Bosman, the ratio of Italian players that move to a higher ranked club decreases after Bosman.

Of course this effect is mitigated if Italian players can also go abroad and benefit from higher wages there. But as we show in our data, the number of Italian players that leave Italy is actually very small.

Part III
Data

For this paper, we collected extensive data on Italian player transfer flows and stocks. Italy was chosen since the clubs there have a tradition of acquiring foreign players, and because the league was one of the most successful over the period considered. Over 30 years of transfers for the clubs currently in Serie A, Serie B or Lega Pro can be found in the dataset. This represents 33316 transactions. The data used was collected from different sources. The trade flows were collected from the reputable transfer website, transfermarkt.de. Data on the stocks of Italian players were collected from the official
Serie A website. We also acquired data for each club's ranking in a given year. Moreover, we do not have data solely on firm or club characteristics, but also on players. Players are all identified by age and nationality. The effect of the Bosman ruling was mainly through nationality of players, so nationality was a key information. Coding player nationality was particularly problematic since a lot of players have double nationality. It wasn't nationality per se that was of interest, but whether the player possessed a passport from a EU country, as this would determine whether he would count as a foreigner in a club’s quota or not. Luckily (for our purposes), Italy has very stringent rules on gaining Italian nationality through residency, so we know that most players could not gain an Italian passport that way. Transfermarkt also has data on double residency, so it was possible to check whether individuals counted or not towards Italian quotas. We assumed that players with double nationality on the transfermarkt website had the nationality prior to moving to Italy. This could be a source for bias, since a player could play in Italy, then move to Spain and gain Spanish nationality after his spell in Italy, but be counted as a Spaniard in our dataset. However, most of the players holding a double nationality in our dataset have an Italian nationality, which as mentioned above is rarely acquired during a player’s spell in Italy, so we estimate this source of bias to concern a very small number of players.

Although similar datasets have already been analysed in the data\textsuperscript{7}, nobody as far as we know, has looked at the impact of the Bosman ruling on the Italian transfer market, or tried to look at the impact of the Bosman ruling on local wages.

Part IV

Results

Mobility after the Bosman Ruling (figures 2, 3 and 4)

First of all, we looked at the impact of the Bosman Ruling on the number of foreigners entering Serie A and Serie B. As we can see in the graph below, there is a clear increase post Bosman in the total number of foreigners. However, there is also an increase in the total number of transfers after 1996. The shock seems to have affected not only foreigners (figures 3 and 4) but also Italians (figure 2), although it is not certain whether the increase in the mobility of Italians reflects the change in regulations or the underlying trend. The increase in mobility is expected from the theoretical model: Many effects are occuring,

\textsuperscript{7}(For instance, Frick(2007) has data on all Bundesliga players going back to 1960. Bryson et al(2012) have Italian data, but do not analyse the effect of the Bosman ruling)
but they lead to outside options being more likely to bind, and so the first effect of the Bosman Ruling should be to affect both Italians and foreigners’ mobility.

Our data gives us strong evidence that the Bosman ruling was the catalyst for an important mobility shock. This is not a new result, as many authors have looked at the proportion of foreigners in Serie A before and after the Bosman ruling, but graphing the time-series is necessary to prove that there was a shock. 2 figures showing an increase in the proportion of foreign players either side of 1995 are not sufficient to prove that the Bosman Ruling had an effect on the number of foreigners. It all depends on the trends. Here, the trend validates the hypothesis that the Bosman ruling had a strong effect on player mobility, and on the number of foreign players playing in Italy.

There are two other lines in our figure that represent two different policy shocks. The first one, in 2000, was the complete removal of quotas for all football players. The quota was then reinstated in 2002 for non-EU players, at the old limit of 3 players per quota\(^8\). However, these quotas are slightly flexible since clubs can “trade” quotas with each other. Although we have included these policy shocks in our graphs, they do not seem to have had a significant impact. This could be because the clubs anticipated that the changes in the rules would be quickly overturned.

A consequence of the Bosman ruling on immigration is that it should have a strong long-term effect on the number of players with EU or EFTA nationality playing in the Italian league\(^9\), while the effect on non-EU players should be non-negligible as they fill up the quotas vacated by the EU players, but should plateau in the long-term as teams reach their quota limit. At first, the data did not reflect this simple intuition until we hit upon the coding error that was causing the problem: A large part of the non-EU player sub-group actually possessed a double nationality. A lot of players we had at first coded as Brazilian or Argentinian actually held an Italian or Spanish passport. After recoding our nationalities appropriately, we found the desired effects; A difference in trends for both EU and non-EU players, but whereas the non-EU players transfers remain stable, the EU transfers continue to increase.

A second effect which is not explicitly accounted for in the figure are the two enlargements of the EU in 2004 and 2007, which should have exactly the same effect as the Bosman ruling. In order not to clutter the graphs we have not included these dates, especially since the countries concerned do not export as many players as bigger countries like France or Germany. The way we have coded the data, all the countries in the EU today are included as EU players. This might explain some of the extra increase in the EU players after 2004 and 2007, and also some of the variation in non-EU players as football

\(^8\)See: http://www.uefa.com/memberassociations/association=ita/news/newsid=28321.html
\(^9\)Since the quotas were removed for these players, but not for the non-EU players
players from new EU countries (like Adrian Mutu for instance), free up a non-EU quota.

**Mobility of players with double nationality (figure 6)**

A particular puzzle which might need some clarification is the increase in the number of players with double-nationality (figure 6). Whereas we can only find 3 or 4 in the database before 1995, their number increases to almost 30 moving club every year, which is a staggering increase for a category that shouldn’t be affected by the Bosman ruling. These are, amongst other situations, mainly players born in Argentina or Brazil but who have an Italian passport through their parents’ or grandparents’ nationality. We could consider these players as Italians or EU players for all intents and purposes, except that they perhaps have higher costs from moving than Italians.

In fact, a lot of players with double nationality finish their career in their original country, even those who have played for Italy at the national level like Mauro Camoranesi, so it seems difficult to consider these players only as Italians. The puzzle of seeing this very specific category of players increasing drastically despite no obvious effect of the Bosman Ruling could be seen as a direct effect of globalisation: Players are being recruited from further away because of falling barriers to trade. An indirect effect of the Bosman ruling could be network effects: through scouting networks, or because other Argentinian players are more likely to move, recruiting in other parts of the world becomes more efficient. There is no other reason for their increase following the end of the Bosman rule since these players would not have fallen into the quota rules beforehand.

**Impact of the Bosman ruling on the share of players moving to a better club (figure 7 & Table 1)**

One of the reasons for writing this paper was to find a novel way to try and estimate the impact of foreign players on local wages. This question has been extensively researched in the literature, with most studies finding a very limited impact of immigration. Unfortunately, we were unable to find data on player wages due to time constraints. However, the interaction of higher immigration with many different factors (GDP, wages, unemployment) makes it hard to isolate the “true” effect of immigrants on wages anyway, which could justify a different approach. Data on wages in football suffer from the same problem. Our model shows that the bargaining system for wages was completely changed with the Bosman ruling. If we were trying to look at data on footballer wages, we could see that wages rise for everyone after the Bosman ruling, and without a specific estimation strategy, conclude that the arrival of foreigners into the Italian league has increased wages.
The increase in footballer wages in the post-Bosman era is well-documented but as shown in our model it would be wrong to assign the increase in footballer wages wholly to the arrival of immigrants. Post-Bosman, players could leave a club for free at the end of their contracts, completely changing the dynamics of player negotiations. As explained in Dejonghe and Opstal(2009), European football clubs are usually not profit-maximising entities as in the US but win-maximising ones. Since clubs want to maximise productivity rather than profit, clubs can end up overpaying their top players. Just looking at the evolution of Italians’ players wages post-Bosman and seeing them increase would not lead us to conclude that the impact of migrants on wages was positive, but rather that the correlation was spurious. Moreover, looking at foreigner premiums on wages and interpreting them as foreigners gaining a larger part of the surplus and thus negatively affecting local wages would also be wrong. Our framework explains that threat points for local players might not be as credible if they have low willingnesses to move abroad, which would lead local players to have smaller wages than migrants, but because of an unobserved willingness to move parameter, not because of a displacement effect caused by migration. Therefore another method is needed to gauge the impact of a higher number of migrants on local wages.

Some papers have been able to gather data on player wages, which are published by the Gazzeta dello Sporto in Italy. However, they do not look at the effects of the Bosman ruling because of the reasons stated above. What most papers do is to look at nationality “premiums” on wages, by using a standard Mincer wage regression and using nationality or region dummies. For instance, Frick et al(2007) do this type of regression on players in the Bundesliga, and find that there is a negative wage premium for players from Eastern Europe, but no discernable premium for players from Western Europe or South America. Bryson, Simmons & Rossi estimate the same type of regression on the Italian league and use dummy variables for players who play in a team close to their birthplace. They find strong wage penalties for these players compared to EU and non-EU migrants. They go further and use Oaxaca-Blinder decompositions to estimate the wage variation that comes from observable and unobservable characteristics. They find that the unexplained component of wage variation increases the further you go up in the wage distribution, indicating possible “superstar” effects: Migrants in sport benefit from higher popularity than the local players.

This paper presents a novel way to gauge the impact of migrants on player wages. Rather than use wage data, we want to proxy wages through the ranking of clubs: We have data on the rankings of every club in Serie A and B going back to 1980, and we have the transfer flows between them. Therefore, we can see which players move to a club that is better ranked, and which players move to a club that is lower in the league
rankings. If we think that league ranking is a good proxy for wages\textsuperscript{10}, then moving down the league is equivalent to a loss in wages, and moving up to an increase. This is a view that is also supported by our model: Richer clubs can extract higher marginal products from players and pay them higher wages. If foreign players rather than local players gain access to the richer clubs, then local players are missing out on some of the gains from the Bosman ruling.

Of course this measure can be criticised: For instance, wages are not homogeneous within a club. It might be better in monetary terms to be the big fish in the little pond rather than the small fish in the big pond.\textsuperscript{11} Another critique is that clubs are inevitably affected by loss in form or other shocks that influence their rankings but not necessarily their capacity to pay wages. We might think that despite their relegation to Serie B following the Calciopoli scandal in 2006, Juventus were still able to pay wages that were higher than most Serie A clubs. However, using ranking as a proxy for wages has the advantage that it captures non-monetary aspects of wages, such as prestige or playing in European cups. Again a relevant analogy could be the market for Economics professors. Being a teacher at Harvard or Berkeley at a lower wage could hold richer rewards than being a professor at a school with less prestige but a higher endowment.

What we are interested in is the impact of migration on our proxy for the wages of the natives. We have created a variable that is equal to 1 if the arrival flow is from a better ranked team to a lower ranked team, and 2 if the arrival flow is from a lower ranked team to a higher ranked team. We then calculate the share of players that move from a better team. We have restricted our sample to Italian players that move within Serie A or Serie B. Our results are in figure 7 below. Although the data is noisy, there is a clear effect of the Bosman ruling. To see the trend better, we applied a 5 year moving average filter on the data in figure 8. The effect of the Bosman Ruling is much clearer in this picture. As a share of total transfers, less local players are moving to better ranked teams, and more are moving down to clubs lower in the league. This indicates a displacement effect: As migrants come from abroad, local players are shunted down the league to play for clubs that are not as well ranked. As a result, depending on the quality of our proxy, we can assume that local players are receiving lower wages than they would get if foreigners were unable to play in the Italian league.

A simple analysis would be to look at the mean share of players transferred to a higher club, before and after Bosman. Pre-Bosman, this average is .586, while post Bosman it has decreased to .547. However, it might be better to analyse the trends, especially since

\textsuperscript{10}And there are many reasons to think that is the case. In Soccernomics, the book by Szymanski and Kuper, they show that spending on wages and league rankings are highly correlated.

\textsuperscript{11}An example of this is the transfer of Mikel Arteta from Everton to Arsenal. Despite Arsenal finishing consistently higher than Everton, Arteta had to accept a wage cut in order to move to Arsenal.
we see that the trend post-Bosman is much steeper. Table 1 analyses the slopes of both section of the time series, Pre- and Post- Bosman. We allow a “Bosman Intercept” dummy in order to capture the different intercept between the 1980 part of the time-series and the 2012 one. After the Bosman ruling, every year leads to a 1% decrease in the proportion of local players that move to a higher ranked club. The difference between the slopes is statistically significant at the 10% level. We see that the change is gradual, not brutal. Of course, some of the Italians could be moving abroad to better clubs, but we do not have data on the rankings of foreign clubs, which would in any case be difficult to compare to the Italian ones. Moreover, few Italians actually move abroad (see Figure 9). If we were to assume that the Bosman ruling had just changed the nature of the contracts, and not the likelihood of foreign players moving abroad, then it would be probable that Italian players staying in Italy would have benefited much more from the rise in wages.

One area of further research on this topic could be to evaluate the size of the two effects of the Bosman ruling with wage data: For instance, finding the wage premium for playing in a higher ranked club and estimating the loss of income for Italians due to being shunted down the distribution. We should take into account the few Italians that have moved abroad in order to get a fuller picture, and estimate their wages as well. This would calculate the loss of wages from the displacement effect. The higher wages from the “contract negotiation” effect is easier to find, by simply finding the growth trend of wages in the post-Bosman years. We could then compare the relative size of the displacement effect and the contract negotiation effect of the Bosman ruling. Gauging the size of these two effects is important for public policy evaluation: taking again Economics professors as an example, knowing if wages would rise, and to whom the wages would benefit in the event of procedures for hiring foreign professors being simplified is of great interest.

Impact of foreign players and selection effects after the Bosman ruling (Tables 2, 3 and 4)

Do teams that recruit more foreigners finish higher in the league? The relationship between performance and willingness to look abroad is an important question that our dataset can answer. This is mostly what was done in Bryson et al (2012) with a slight twist in that we look at the effect pre- and post-Bosman. What we find is interesting: There definitely seems to be a pre and a post- Bosman in the effect of foreign players on performance. Our estimation strategy lies first in creating a “net” inflow of foreign players for the club and current year, then regressing that figure on the current year’s rankings. We control for club fixed effects in order to get rid of prestige or other factors that could affect future rankings and the likelihood of hiring foreign players. Controlling for club-fixed effects should allow us to see whether the deviation from mean ranking
can be accounted for by how many extra foreign players are recruited. The econometric model can be written as:

\[ \text{Ranking} = \alpha(\text{Net foreign player} \times 1(\text{PreBosman})) + \beta(\text{Net foreign player} \times 1(\text{PostBosman})) + \text{Club Fixed Effects} + \epsilon \]

Our results show that during the pre-Bosman period, recruiting foreign players is a strong indicator of success: one additional foreign player in the team increases future rankings by almost 2, whereas post-Bosman, the increase is much smaller. The difference between the two is of around 1.5 and is statistically significant. For comparison purposes, buying a net Italian player has a non-significant negative effect in our framework, which increases slightly after the Bosman ruling, but the difference between the two periods is small and not statistically significant. The fact that buying a net Italian player in a given season is negative or 0 is odd because we would imagine that buying more players would lead to a better ranking whatever the situation, but we could see this as an opportunity cost effect: Clubs that are buying more Italian players are probably buying less foreign players and are falling behind the competition.

The intuition we have for the decrease in performance of football players is a selection effect: before the Bosman ruling, foreign players travelling to Italy would probably be only the very best. Pre-Bosman, hiring foreign players implied not only higher scouting costs but also the cost of the foreign player constraint possibly binding. This constraint is not monetary but it forces clubs looking to maximise their performance to choose their foreign players very carefully. Post-Bosman, a large part of foreigners are not included in the new constraint, which makes it less likely to bind for non-EU players. Moreover, the constraint does not exist for EU players anymore, so the selection effect of EU players is likely to be smaller. One factor that strengthens this idea is that the Bosman effect appears to be smaller for non-EU than for EU players, although the difference is not statistically significant. An extension would be to look at these results in other leagues which are less attractive than the Italian league, which for the early post-Bosman years was the dominant league in European football. Do the foreign players in Sweden or Croatia have the same impact on productivity?

This selection effect could also be at work in more traditional labour markets. When there is a binding constraint on the number of foreign workers that can be employed, we should expect that the foreign employees hired should be the most productive. Relaxing rules and regulations increases mobility, but will also decrease the average qual-
ity/productivity of incoming migrants.

Another extension of this idea could be to look at the quality of the league following the Bosman ruling, by looking at the quality of incoming migrants versus outgoing players. In Italy, the impact of the Bosman ruling is probably positive, since the quality of migrants coming in is still higher than that of the Italian players, according to our results.

Impact of foreign players on attendance after the Bosman ruling (Table 5)  Another indicator of performance in sports is attendance. Theoretically, we should get the same type of results using attendance data as we should with rankings. Due to time constraints, the data collected on attendance is incomplete. The data on attendance only includes serie A clubs, and only goes back to 1991. However, data is available, so with more time, results with more power could be found. We use the same method as previously, with club attendance instead of rankings. We also control for trends, because of general falling attendances in the post-Bosman years. What our results seem to indicate here is that pre-Bosman there was a response of fans to buying foreign players: 1 net EU player more hired by a Serie A club brought in 1500 fans more to the stadium. Post-Bosman, the result is not significant any more and the number seems to be of only 60 fans. This again could be due to the declining quality of EU migrants, if we make the reasonable assumption that more fans come if better players are hired by the club.

Part V

Conclusion

This paper has found three key results that are crucial to understanding the Bosman Ruling and its effects: Mobility of workers increased, the quality of foreign players decreased and wages for local players that stayed in Italy decreased. These results were implied from key experimental results: a). Looking at time series of mobility by year. b). Regressing club ranking by year on net foreign player migration, pre and post Bosman c). Regressing stadia attendance on net foreign migration, pre and post Bosman. d). Regressing the shares of players moving to higher ranked clubs on time. We find significant results for all our experiments.

The results of this paper are relevant for other fields besides Sports Economics. Our paper has insights on how labour liberalisation would affect local labour markets. We should expect the productivity of incoming migrants to decrease with higher liberalisation, and wages and job opportunities for locals to decrease in the local market.
One important question that this paper doesn’t answer is whether incoming migration had an effect on local unemployment. This is one of the main puzzles of the migration literature. Football players often find jobs in other professions once their career is over so it’s difficult to answer this particular question with our dataset, because there isn’t really an unemployment pool. It would be difficult to spot players who retire in our dataset because we do not know if players retire or whether they drop down into lower divisions. A dataset with retirement and causes (injury, old-age or not good enough) could look at the effect of migration on employment in this context. In particular, looking at the situation of older players before and after the Bosman ruling could help us to understand some of the dynamics of unemployment and retirement following an influx of migrants.

References


Figures and Results

Table 1: Effect of the Bosman Ruling on the share of Italian players moving to a higher ranked club

<table>
<thead>
<tr>
<th>Effect on the share</th>
<th>Post Bosman intercept</th>
<th>Trend Post-Bosman</th>
<th>Trend Pre-Bosman</th>
<th>Constant</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19.85</td>
<td>-0.0113***</td>
<td>-0.00133</td>
<td>3.213</td>
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<tr>
<td></td>
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<td>(-4.35)</td>
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<td></td>
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<td>t -1.85</td>
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<td></td>
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\( t \) statistics in parentheses
\( * p < 0.05 \), \( ** p < 0.01 \), \( *** p < 0.001 \)

Table 2: Effect of the Bosman Ruling on competition

<table>
<thead>
<tr>
<th></th>
<th>Pre-Bosman</th>
<th>Post-Bosman</th>
<th>Pre-Bosman</th>
<th>Post-Bosman</th>
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<tbody>
<tr>
<td>Net EU players</td>
<td>2.399***</td>
<td>0.722**</td>
<td>2.043***</td>
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<td></td>
<td>(5.33)</td>
<td>(3.07)</td>
<td>(4.80)</td>
<td>(1.76)</td>
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<td>Net non-EU players</td>
<td>2.203***</td>
<td>0.935***</td>
<td>1.926***</td>
<td>0.669**</td>
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<td></td>
<td>(4.18)</td>
<td>(3.62)</td>
<td>(3.87)</td>
<td>(2.72)</td>
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<td>Past 3 years’ ranking</td>
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<td>-0.574***</td>
<td>-0.574***</td>
<td>-0.574***</td>
</tr>
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<td></td>
<td>(-18.55)</td>
<td>(-20.03)</td>
<td>(-18.55)</td>
<td>(-20.03)</td>
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<td>(-8.56)</td>
<td>(-9.60)</td>
<td>(-1.80)</td>
<td>(-2.94)</td>
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<tr>
<td>Fixed Effects</td>
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<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>Observations</td>
<td>283</td>
<td>396</td>
<td>283</td>
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\( t \) statistics in parentheses
\( * p < 0.05 \), \( ** p < 0.01 \), \( *** p < 0.001 \)
### Table 3: Effect of the Bosman Ruling on competition

<table>
<thead>
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<th>Effect on the club’s ranking</th>
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<tr>
<td>Net foreign player pre Bosman</td>
<td>2.109*** (5.02)</td>
</tr>
<tr>
<td>Net foreign player post Bosman</td>
<td>0.581*** (3.44)</td>
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<td>-4.456*** (-4.47)</td>
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<td>Difference</td>
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<td>Standard error</td>
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<tr>
<td>t</td>
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<tr>
<td>p</td>
<td>0.001</td>
</tr>
</tbody>
</table>

$t$ statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

### Table 4: Effect of the Bosman Ruling on competition

<table>
<thead>
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<th>Effect on rankings</th>
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<tbody>
<tr>
<td>Net Italian player pre Bosman</td>
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<tr>
<td>Net Italian player post Bosman</td>
<td>-0.0588 (-0.51)</td>
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$t$ statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

### Table 5: Effect of the Bosman Ruling on attendance

<table>
<thead>
<tr>
<th></th>
<th>Pre-Bosman</th>
<th>Post-Bosman</th>
<th>Pre-Bosman</th>
<th>Post-Bosman</th>
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</thead>
<tbody>
<tr>
<td>net EU players</td>
<td>1.500** (2.94)</td>
<td>0.00600 (0.03)</td>
<td>1.178* (1.97)</td>
<td>0.0145 (0.61)</td>
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<tr>
<td>net non-EU players</td>
<td>1.107 (1.97)</td>
<td>0.153 (0.61)</td>
<td>0.893 (1.68)</td>
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<tr>
<td>Trend</td>
<td>-0.943* (-2.65)</td>
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<td>34.10*** (22.30)</td>
<td>1920.6** (2.71)</td>
<td>1581.9*** (9.24)</td>
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<td>Observations</td>
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$t$ statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Figure 2: Number of Italians moving by club from 1980 to 2012
Figure 3: Number of foreigners arriving by club from 1980 to 2012
Figure 4: Number of foreigners departing by club from 1980 to 2012
Figure 5: Number of foreigners arriving by club from 1980 to 2012, corrected for double nationality
Figure 6: Number of double nationals arriving into a club from 1980 to 2012
Figure 7: Share of Italian players moving to better ranked clubs
Figure 8: Share of Italians moving to better clubs, 5 year moving average
Figure 9: Number of Italians leaving Serie A including double nationals
Figure 10: Number of Italians leaving Serie A without double nationals