

Comobility and Attainment

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Abstract: We explore *comobility*—the simultaneous movement of multiple workers from one firm to another—and its implications for attainment. As virtually all of the hundreds of articles on mobility are framed at the individual level, we begin with a field study of hundreds of comovers, which suggests that comobility is motivated by the desire to preserve shared skills and complementarities with colleagues. We then analyze comobility in the full Danish economy, finding a 5% wage premium for those who move jointly as opposed to on their own. Results indicate that higher-skilled groups and those with greater complementarities benefit most from comobility. A key implication of our findings is that changing jobs with colleagues may be even more advantageous to attainment than individual mobility.

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INTRODUCTION

At least since Ravenstein (1885), scores of scholars have explored the antecedents and implications of workers moving between organizations. Worker mobility has been shown to play a key role in job matching and individual attainment (Sørensen, 1977; Wegener, 1991), the diffusion of knowledge (Almeida & Kogut, 1999; Agrawal, Cockburn, & McHale, 2006), cluster formation and industry evolution (Saxenian 1994, Klepper, 2007), and other areas of interest to both sociologists and economists. Of the hundreds of articles on interorganizational mobility, however, nearly all focus on *individuals* as the unit of analysis. Psychologists and management scholars have investigated the antecedents of “collective turnover” or joint departures (Bartunek, Huang, & Walsh, 2008; Felps, et al., 2009; Hausknecht & Trevor, 2011; Nyberg & Ployhart, 2013). But only very rarely have researchers examined joint departure coupled with joint arrival at the same firm—a phenomenon we term *comobility*.

This omission seems curious given several salient examples of comobility which might inform our understanding of how organizations as well as individual careers develop. Although firms usually fill open positions one by one, some firms move more aggressively to bring aboard groups such as in the case of “acqui-hires” (Coyle & Polsky, 2013). For example, Apple acquired the music-streaming startup Lala even though its service was not popular and its licenses were not transferable: “Apple would primarily be buying Lala’s engineers” (Stone, 1999). Even absent an acquisition, firms execute “lift-outs” (Groysberg & Abraham, 2006) such as when Yahoo hired Nuance Communications R&D chief Larry Heck, who was soon followed by his entire group (Mills, 2005). Hiring coworkers can be attractive to firms because those who move jointly from one organization to another may be able to preserve shared skills and complementarities, which dissipate when workers move alone. Indeed, most of the few extant articles on comobility

focus either on the benefits to firms (Phillips, 2002; Groysberg & Abraham, 2006; Wezel, Cattani, & Pennings, 2006) or on instances where comobility takes place involuntarily (Campbell, et al., 2014) and thus workers do not immediately profit.

We propose that the benefits of comobility are not limited to organizations; rather, moving jointly with coworkers can accelerate individual attainment. Despite the fact that by changing jobs a worker is leaving firm-specific skills behind, solitary job mobility has long been seen as facilitating attainment including higher wages (Sørensen, 1977). Comobility may represent an even more attractive path to attainment because groups of workers are arguably more valuable given the shared skills and complementarities they bring with them. The only existing evidence for this that we know of, however, comes from Groysberg & Lee (2009), who find that ranked financial analysts' performance following a job move deteriorates less when they are accompanied by their prior support staff. However, Groysberg & Lee do not measure wages. Also, this and other studies of comobility focus on elite workers—co-founders, company executives, professional athletes—leaving unclear whether comobility can facilitate financial attainment more broadly. From the evidence available to date, one might suppose that comobility contributes either to exploitation of workers by firms or to stratification due to rewarding elites. We aim to complement prior research by studying comobility and attainment among a wide variety of workers. We gather field data from a single industry to understand individuals' motivations for moving jointly with others and then apply these insights in analyzing the connection between comobility and wages among all nongovernmental workers in Denmark.

The paper proceeds as follows. We review the literature on mobility and attainment, developing a theory of how comobility may enable a wage premium by preserving shared skills and complementarities when a group of workers moves across firm boundaries. Given that

comobility is a rarely examined phenomenon, we conduct a field study in which we attempt to contact all workers in one industry who appeared to move jointly with others from one firm to another. Although there are a few cases where one worker moves to a new organization and then refers a former colleague to a different part of that organization, the vast majority of workers who comove do so because they desire to keep working together. Our fieldwork also indicates that intentional comobility can often be distinguished from coincidental comobility by examining only simultaneous comobility between small firms, which proves useful in our large-sample analysis of nongovernmental workers in the entire Danish economy from 1999-2006. Analyzing simultaneous comobility where workers move from one plant in one firm to one plant in another firm, we find that pairs as well as larger groups achieve approximately a 5% wage premium as compared to individuals who move on their own. The wage premium for comobility is robust to a number of robustness and placebo tests, including displaced workers from defunct plants whose departures are involuntary. Wage gains are higher for comobile groups with higher skill levels as well as those with greater complementarities. Our results suggest that comobility facilitates financial attainment for a broad range of individuals by preserving shared skills and complementarities with coworkers.

COMOBILITY AND ATTAINMENT

How workers can most effectively achieve financial attainment has long been of interest to sociologists and economists alike. Like dissatisfied members of any organization, workers may respond to a lower than desired wage via loyalty, voice, or exit (Hirschman, 1970). The classical view is most closely aligned with the first of these options: workers remain at the firm in hopes that their performance will be rewarded as they accumulate skills specific to the firm (Topel,

1991; Neal, 1995; Le Grand & Tahlin, 2002; Altonji & Williams, 2005). Obviously, this path is aligned with the interests of firms, as expressed recently by Microsoft CEO Satya Nadella, who urged employees to “hav[e] faith that the system would actually give you the right raises as you go along” (Lawson, 2014). Yet empirical evidence tying wage gains to tenure is tenuous: Parent (2000) shows in the National Longitudinal Survey of Youth that longevity within an industry is a better predictor of wage growth than is longevity within a single organization.

One risk of relying on loyalty to achieve a wage increase is that firms are by no means obligated to share rents with their employees: Baker, Gibbs, & Holmstrom (1994) show that firms depress wages for those they believe will stay with the firm. A growing literature on employee non-compete agreements shows that firms discourage employees from leaving by insisting that they covenant not to join a rival—the firms likely most interested in their expertise—for 1-2 years after leaving. Garmaise (2011) finds that when non-compete agreements are enforceable under state law, firms pay employees less than in a more open labor market. Even without state-sponsored sanctions, firms have sought to suppress compensation by methods such as the alleged “anti-poaching” agreements between Apple, Google, and other technology companies headquartered in California (where non-competes are not enforceable). In the words of U.S. Assistant Attorney General Bill Baer, these “served no purpose but to limit competition between the two firms for employees, distorting the labor market and causing employees to lose opportunities for better jobs and higher pay” (United States Department of Justice, 2014).

Thus if workers remain loyal they may be shortchanged; to achieve higher wages, their only option may be to exit the firm. Job mobility has been seen as a key step in attainment at least since Sørensen (1977), both because outside offers create a market for the worker’s skills and also because a job change might yield a better match (Jovanovic, 1984; Postel-Vinay &

Robin, 2002, Sørensen & Sorenson, 2003). Indeed, several scholars have drawn a link between mobility and wage gains (Hall & Kasten, 1976; Borjas, 1981; Bartel & Borjas, 1981; Mincer & Jovanovic, 1982; Flinn, 1986; Fuller, 2008).

As is true of the mobility literature more generally, work on mobility and attainment has been framed at the individual level. Pfeffer (1991:795) observes that “turnover has been most often examined as the consequence of an individual decision process, with the individual acting in isolation...virtually all of the dominant models of turnover conceptualize it as an individual decision.” Chase (1991:133) similarly claims, “sociologists as well as economists and biologists often consider individuals who gain material resources or social positions as theoretically independent, virtually isolated entities.” Indeed, comobility is largely unexplored, and most of the few extant studies focus on firm-driven comobility such as lift-outs and acqui-hires.

But comobility can be worker-driven as well. This is clearly the case in the context of entrepreneurship, where coworkers quit their jobs to form a new firm. For example, the so-called “Traitorous Eight” left Shockley Semiconductor on September 8, 1957 to form Fairchild Semiconductor. More recently, Chad Hurley, Steve Chen, and Jawed Karim left PayPal together to found YouTube. Groups of workers may also move jointly absent either entrepreneurship or an acquisition. James Everingham, one of more than half a dozen engineers who moved from Netscape to Tellme Networks, described his motivation for comobility: “We’re probably the largest single collection of people who were originally involved in Netscape engineering. It’s the same team, and we love to work with each other” (Festa, 2004).

With the exception of founding a new firm or an acqui-hire, comobility involves a negotiation between workers and the new firm that desires to bring on board the group’s shared skills all at once. Traditionally, skills have been segmented into generally-applicable vs. firm-

specific (Becker, 1962), but more recently scholars have suggested a class of skills specific neither to a firm nor to a task but rather to one's coworkers. Various called "organization capital" (Prescott & Visscher, 1980), "network capital" (Mailath & Postelwaite, 1990), "coworker complementarities" (Hayes, Oyer, & Schaefer, 2006), and "team human capital" (Chillemi & Gui, 1997), the notion is that expertise accrues not only to individuals, as in Becker's (1962) original formulation, but also collectively to groups of workers. Empirical evidence supports this construct in three respects. First, the performance of workgroups has been shown to improve over time with joint experience inside a firm (Hamilton, Nickerson, & Owan, 2003; Reagans, Argote, & Brooks, 2005; Huckman, Staats, & Upton, 2009). Second, spillovers obtain among colleagues (Kendall, 2003; Gould & Winter, 2009; Arcidiacono, Kinsler, & Price, 2013). Third, executives are more likely to resign following the departure of an executive with whom they have complementarities (Hayes, Oyer, & Schaefer, 2006), perhaps anticipating that without their colleague they themselves will be less valuable to the firm.

Some suppose that in efficient labor markets the value generated by shared skills and complementarities will be allocated between owners and workers (Chillemi & Gui, 1997), but as argued above firms often fail to fully compensate employees for the value they create. Consequently, coworkers considering comobility find themselves facing a somewhat different calculus than when moving alone. A worker changing jobs unaccompanied by colleagues takes along individual expertise but forfeits shared skills. But if workers move jointly they can capitalize not only on their individual skills but also on those that depend on coworkers without being tied to the firm (Groysberg & Lee, 2009). In scenarios where comobility happens involuntarily (Campbell, et al. 2014) there may be no remuneration to the worker, but when

comobility occurs voluntarily and as a result of a negotiation, we hypothesize that *workers who move jointly will experience greater wage gains than those who move alone.*

Prior literature has not established a connection between comobility and financial attainment. The most relevant articles are Groysberg & Lee (2009) and Campbell, et al. (2014), both of which link comobility to individual performance but not wages. Campbell, et al. examine midseason trades in the National Basketball Association, which are largely involuntary aside from the rare player with a no-trade clause. Groysberg & Lee examine the post-move performance of financial analysts, finding that those who move with their support staff suffer less of a decline than those who move alone. Even if it were feasible to examine wages in these datasets, it is unclear that the results would generalize given the elite nature of the workers studied: professional basketball players and ranked financial analysts.

Moreover, other mechanisms besides the transfer of shared skills and complementarities may be in play. First, multiple workers may move from one firm to another purely by chance, with no coordination occurring. Coincidental comobility may be particularly frequent between large firms, where two workers who never knew each other at the prior firm end up at the new firm (and perhaps do not even meet at the new firm). For example, a marketing executive and a payroll specialist at IBM may move to Oracle in the same year, unaware of each other. Even if the comovers knew and worked with each other at the prior firm, they may end up at the same firm absent explicit coordination if relevant job opportunities are among a limited set of firms.

Second, intentional comobility may occur for reasons unrelated to shared skills and complementarities. Workers may move together for social reasons, such as in the case of “tied movers” (Mincer, 1978; Benson, 2014) whose work is not interdependent and who may accept a wage penalty in order to move jointly. Alternatively, workers may refer former colleagues given

knowledge of their expertise, but for a job in a different part of the organization such that they do not work together and therefore do not preserve any shared skills. Moreover, workers may refer those they know but have not worked with, such that no joint expertise existed. Referrals may in fact yield higher wages given the endorsement (Schmutte, 2013) or by saving on search costs (Kugler, 2003), and while scholars have found the impact of referrals on wages to be mixed (Marsden & Hurlbert, 1988; Mouw, 2003), more recent articles differentiating between referrals from acquaintances and referrals from coworkers find that the latter are associated with initial wage gains (Antoninis, 2005; Loury, 2006; Brown, Setren, & Topa, 2012). Hence, to draw a connection between comobility and wages based on the transfer of shared skills or complementarities it is essential either to account for or to rule out coworker referrals.

Given that several mechanisms could underlie comobility, before proceeding with large-sample analysis we conduct a field study in order to understand the motivations of those who appear to move jointly (to our knowledge, the first study of its kind). The next section describes the findings from our fieldwork and how they inform the large-sample analysis that follows.

FIELDWORK

We adopt as our fieldwork setting the automatic speech recognition (ASR) industry. We identified 803 ASR workers who appeared to move jointly from one firm to another within twelve months of each other. About two-thirds of comovers were in groups of two; roughly one-fifth were groups of three, and the remaining ~10% larger, for a total of 346 comobile groups.

Although we might have preferred to conduct the field study using a random sample of the population for our large-sample dataset, names in most employer-employee matched registers

(including the one we use) are anonymized and are thus not contactable. Moreover, these single-industry data complement the Danish register analysis, both because ASR is a worldwide industry and also because our records track job mobility over a longer time period (early 1980s through 2013, as opposed to a seven-year snapshot of the register).

Although the original data for workers in the ASR industry were collected using a variety of sources including patents, Capital IQ, industry newsletters, ZoomInfo.com, and industry conferences, these generally did not provide contact information (for a full description, see Kacperczyk & Marx, 2015). Instead, we looked up ASR workers by name and affiliation in LinkedIn and then attempted to contact them via paid “InMail” messages. We found contactable LinkedIn profiles for 525 of the comobile ASR workers. We asked whether the apparent comobility was coincidental or intentional, and if intentional what motivated them to move jointly and whether they continued to work with their comover(s) at the new firm. Consistent with IRB instructions, we did not require that respondents answer all questions. We offered to speak by phone if preferred, but most exchanges were conducted via email (only two respondents requested a phone interview).

Twenty-three percent (120) of our inquiries received responses. Respondents did not differ from non-respondents along observables (gender, age, experience, role) except that they were somewhat more likely to have obtained a patent. As we asked not only about respondents’ own career histories but also whether they moved with the individuals indicated by our records, most respondents provided information about others as well as themselves. In all, the responses to our InMails yielded information regarding 234 workers (45% of our 525 contactable comovers).

Intentional vs. unintentional comobility

A primary objective of the fieldwork was to determine how often what appears to be comobility is coincidental vs. intentional, as in large-scale databases it may be non-obvious whether or not two people who moved from one organization to another at approximately the same time had explicitly coordinated the move. Respondents indicated that 91 apparent comoves (38.9%) were undertaken intentionally, the rest involving workers who either did not know each other or were not aware that their coworker(s) had also moved to the same firm. That less than half of apparent comobility occurred intentionally underscores the importance of filtering out unintentional comobility.

One potential filter is organization size. Our expectation that coincidental comobility would increase with the size of the firm is borne out in the fieldwork. While only 38.9% of observed comobility in the ASR industry is intentional, this figure rises to 51.5% when excluding comobility between large firms. Specifically, we exclude comobility between any two firms where each had more than 100 employees in the year of the move.

A second potential filter is simultaneity. Intuitively, workers who move between two firms either months or even years apart would seem less likely to have coordinated their move than those who moved at the same time. When we examine comobility categorized as coincidental by our respondents, 85.1% occurred in different months. By comparison, slightly less than half (49.3%) of intentional comobility occurred in the different months. Excluding comobility that occurs across different calendar months helps to screen out coincidental, uncoordinated moves that appear to be comobility. This filter also helps to remove referral-based comobility, which often unfolds over time. Applying both the firm-size and simultaneity filters

boosts the percentage of intentional comobility among our respondents in the ASR industry from 38.9% to 78.3%.

A third potential filter is the size of the comobile group. As noted above, approximately two-thirds of ASR comovers were pairs while one-third of comovers were groups of three or more. Excepting unusual events such as the dissolution of a firm or an acqui-hire, which could spur large groups of workers to move at the same time, larger comobile groups would seem less likely to occur randomly. Indeed, in our field data, groups of three or more who appeared to move jointly always coordinated their comove intentionally.

Motivations for intentional comobility

When workers explicitly coordinated their plans and intentionally moved together from one firm to another, the desire to preserve shared skills and complementarities with colleagues appears to have been a key factor in their decision. Of the 91 individuals who comoved intentionally, we have been a key factor in their decision. Of the 91 individuals who comoved intentionally, we obtained data regarding their motivation for coordinating the move from 57 (62.6%). (Others merely replied that the joint move was intentional but did not elaborate further; again, our message did not require them to answer every question.)

Of the 57 comovers who provided insight into their motivation, almost all (54, or 94.7%) indicated that their intentionally-coordinated joint move was motivated by a desire to continue working with existing colleagues. One respondent said “when the trajectory of the company is not a great one, people bond together...to job-hunt as a group.” Workers decide not only to leave jointly (as in the literature on collective turnover, see Bartunek, Huang, & Walsh, 2008; Felts, et al., 2009; Hausknecht & Trevor, 2011; Nyberg & Ployhart, 2013) but also to look for a new firm

where they can continue working together. Said another respondent, “you want to be comfortable and confident in your move, surrounding yourself with the people you are familiar with. You tend to ‘pull-through’.” This worker-driven notion of pulling-through stands in contrast to the firm-driven “lift-out” construct. (Of course, while workers can unilaterally quit they cannot unilaterally demand to be hired; the firm plays an essential role.) But these field data make clear that comobility is not solely the province of firms; rather, workers coordinate so that they can move jointly to a new firm and continue to work together. Said another respondent, “we were interviewing for similar groups at these companies, given that we had worked together well for many years.” A few respondents even indicated that they moved jointly with someone multiple times. Another summed it up: “we moved together and worked great together.”

The responses from the fieldwork respondents portray a desire to continue working as a group at the new firm and generally indicate something more than just social attachment as a basis for doing so. The open-ended nature of our inquiry did not require respondents to adjudicate cleanly between shared expertise and social attachment, so we cannot rule out social attachment as a key or even primary mechanism. That said, none of the respondents indicated moving as a group purely for social reasons. We return to this issue in the large-sample analysis of wages and comobility, as a decreased wage for comovers would point to social attachment as the primary mechanism.

Finally, only three respondents (5.3%) reported that although the coordination among comovers was explicit, their skills and complementarities with coworkers were not preserved as they did not work together at the new firm but rather joined different divisions. For instance, one respondent said “<colleague at prior firm> informed me of a possible position...[but] we did not work together at <new firm>.” Much more prevalent was the intention of comovers to keep

working together at the new firm. Nevertheless, in our large-sample analysis we attempt to filter out referral-based comobility that does not result in former colleagues continuing to work together at the new firm.

Implications of fieldwork findings

The fieldwork holds implications both for our theory and also for the large-sample empirical analysis that follows. Our findings suggest that the preservation of shared skills and complementarities is a primary motivation for explicit coordination among comovers. We received no reports of purely social attachment or of trying to improve one's bargaining position at the new firm (e.g., for a higher salary), although the fieldwork alone cannot rule out social attachment as a key mechanism. As noted, we received only a few reports of referral-based comobility that was not driven by a desire to continue working with the same person in the new company.

These findings suggest a way forward in distinguishing coincidental comobility from intentional comobility in large-sample analysis. First, most coincidental comobility was between two large firms, whereas comobility between smaller firms was more likely to be intentional. Second, coincidental comobility tended to unfold over several months whereas simultaneous comobility was more often intentional. We apply these filters to our large-sample analysis, focusing on simultaneous comobility not just between small firms but also at co-located plants, which have a median size of 15 employees and where workers are highly likely to know and work with each other. We also strive to filter out coincidental comobility by exploring comobility not only between pairs of workers but also among comobile groups of three or more;

however, given that most apparent comobility occurs among pairs of comovers, we do not exclude pairs entirely.

LARGE-SAMPLE ANALYSIS

The fieldwork helps us to understand motivations for moving jointly with others, but like most studies of comobility our data are limited to a single industry (Phillips, 2002; Wezel, et al., 2006; Groyberg & Lee, 2009; Campbell, et al., 2014). To characterize comobility more generally, we turn to the Danish Integrated Database for Labor Market Research (“IDA”). IDA is administered by Statistics Denmark and contains information on all workers and firms in Denmark from 1980 onwards (for a detailed description, see Timmermans, 2010). Its longitudinal character and detailed demographic information on workers enables us to identify mobility and comobility in a variety of industries.

Several employer-employee databases could have been employed for this study, but IDA is particularly attractive for purposes of separating intentional and coincidental comobility given an unusual feature of the Danish labor market. According to the Employers’ and Salaried Employees’ Legal Relationship Consolidation Act (*Funktionærsloven*), once Danish employees give notice of their intent to leave a firm they must stay through the remainder of the current month as well as the following month.ⁱ This restriction enables us to assume that when employees comove in the same month, the occurrence is simultaneous rather than sequential. (Absent this restriction, it would be possible that one employee leaves firm A for firm B early in the month and then recruits an ex-colleague after a very short time on the job.) As noted in our fieldwork, simultaneous comobility is more likely to be intentional, whereas sequential

comobility is at higher risk of being coincidental, or of involving referrals (which do not necessarily transfer shared skills and complementarities).

Measuring IDA comobility

We examine IDA from 1999-2006, imposing several industry-, firm-, and individual-level filters. First, we analyze moves only from workers in manufacturing and service industries; public-sector employees are not included. Second, we focus on workers age 22-55 in order to exclude those with a higher probability of being enrolled in education/training or approaching retirement age. Third, by relying on the indicator that provides us with the year in which the worker was first employed in the plant, we assure that it falls within the individual's primary line of work, rather than being a continuation of a secondary/temporary prior job position.

We also attempt to separate voluntary from involuntary departures. Although IDA identifiers are scrambled and we cannot contact individuals to determine the nature of the separation, we eliminate job changes due to merger/acquisition or relocationⁱⁱ, as well as departures followed by a spell of unemployment before the worker attaches to a new firm (which could be either a voluntary departure or a layoff/firing). We also eliminate moves following a firm or plant closure, as such departures are involuntary. To eliminate comobility driven by longstanding traditions of one organization hiring from another, we take the additional step of removing pairs of plants where moves have previously occurred. Specifically, if someone moves from Plant A to Plant B in 2001 but we observe that someone else made the same move earlier (which might have occurred anywhere from 1990 onwards), only the first move is included. Following all of the above-mentioned restrictions, our sample includes 179,877 moves.

To identify the timing of a move, we use information available on how many days the worker has been employed at that workplace that year.ⁱⁱⁱ Based on this we determine whether two workers moved within the same month and apply our simultaneity filter for coincidental comobility based on the Danish requirement of providing at least one calendar month's notice before departing a firm. IDA also enables us to apply other filters identified in the fieldwork. We apply the 100-employee size-of-organization filter not at the firm level but at the level of a co-located plant within a firm. Thus comobility is not defined as two workers moving from one firm to another firm but from the same co-located plant within one firm to the same co-located plant within another firm. That the median number of employees per plant is 15^{iv} suggests that these comovers know and work with each other. Analyzing only simultaneous comobility at the plant level also helps to rule out the referral mechanism that might confound our wage analyses.

IDA comobility characteristics

IDA provides a rich set of covariates for both plants and workers. At the firm level, we have the size and age of the prior and new plants; whether the worker moves to a plant in the same 4-digit industry class; firm growth in both sales and employment; and whether that plant's firm is newly established (using the Danish entrepreneurship database). We include whether the plant is located in a municipality characterized as urban, semi-urban, rural, or remote. We also note the spatial distance between the prior and new plant as well as whether the two plants are located in the same local labor market region. To conserve space, not all covariates are reported.

Worker characteristics include age, gender, tenure, and wages. We aggregate nine categories from the International Standard Classification of Occupations into high-skilled white

collar workers, low-skilled white collar workers, high-skilled blue collar workers and low-skilled blue collar workers (details of the classification system are available from the authors). High skilled white collar workers are further divided into (1) managers; (2) professionals and associate professionals in science and technology, which represents the technical role in the organization; and (3) other professionals and associate professionals, who are mainly active in administration. In addition to occupation, we also note whether the worker is highly educated (i.e., has a college degree). Finally, the wage variable is the log value of the average hourly wage received from the firm where the worker is employed. We calculate the wage change as the difference of the initial (log) wage at the new firm and the last (log) wage at the prior firm.

Table 1 contains descriptive statistics of mobility events (solo or joint) in Denmark from 1999-2006. We find that 4.1% of moves occur simultaneously with others, a figure which rises to 11% when also considering sequential comobility. Appendix A contains multivariate comparison of comovers vs. solo movers: we do not find strong gender or educational differences although older, longer-tenured, and higher-paid workers are more likely to move jointly. Comobility is more common within an industry and decreases as the distance between the plants increases.

Table 1 about here

Comobility and wage attainment

We now turn to comobility and wages. If comobility is driven largely by the desire to retain shared skills and complementarities, we would expect firms to pay a premium to hire groups as opposed to individual workers. By contrast, if comobility were due primarily to social attachment, we might anticipate that workers would accept a wage penalty in exchange for

continuing to work with their friends in the absence of significant complementarities or shared skills (Mincer, 1978).

Our analysis of comobility and wages commences in Table 2. The population for this analysis is the job moves described in Table 1. The dependent variable is the difference between the mover's final wage (log) at the prior firm and the initial wage (log) at the new firm. In Model 1, workers achieve higher wage gains when their move covers greater geographic distance, and when they join firms that are older, larger, and growing faster. Women receive lower wage gains when moving. Older workers gain more financially from moving, as do workers with greater tenure. Wage gains are muted for higher-paid workers.

Table 2 about here

Turning to our explanatory variable of interest, a worker who moves simultaneously with others to the same plant obtains a higher wage premium than a worker who moved alone. Exponentiating the coefficient on comobility suggests approximately a 5% wage premium, slightly more than half a month's salary. That we see a wage premium among simultaneous comovers suggests that referrals cannot be wholly responsible for comobility since — given the Danish provision of at least a month's notice — referrals are unlikely to occur simultaneously (except perhaps as part of the interview process). Social attachment alone would predict stable or falling wages among comovers, so the preservation of shared skills and complementarities seems a more likely mechanism for explaining simultaneous comobility.

Although the anonymous nature of IDA does not allow us to verify the intentionality of a move, restricting our analysis to simultaneous comoves between plants where no prior mobility has taken place and both plants cannot have more than 100 employees should (according to our

fieldwork) eliminate much if not most coincidental comobility. In Models 2 and 3, we take the additional step of differentiating comobile pairs from larger groups, the latter of which in our fieldwork always involved intentional coordination. In Model 2, the coefficients on comobility for pairs vs. larger groups are both positive and statistically significant. To facilitate a direct comparison between pairs and larger comobile groups, in Model 3 we restrict analysis only to simultaneous comovers. Here, the coefficient on comobility for larger groups can be interpreted relative to the wage gain for pairs. The coefficient is positive but estimated very imprecisely, and while this may be due in part to the lack of power, if the wage gain associated with comobility were driven largely by coincidental comobility among worker pairs, we would expect to see lower wage gains among comobile groups of three or more.

Although we control for individual characteristics including age, gender, tenure, role, and prior wage, this result is vulnerable to alternative explanations. One concern is that comobility may be driven not by shared skills or complementarities but simply by the gravitational pull of high-performing companies that hire aggressively and happen to attract multiple employees from the same firm. If such firms offer higher salaries, it may be that the wage-gain premium for comobility occurs for mechanical reasons as opposed to the preservation of shared skills or complementarities. We attempt to account for this alternative explanation in Model 4. Given that the root of our concern is the characteristics of the hiring firm at a given point in time, we include hiring-firm/year fixed effects and include only firms that hired both solo movers and comovers in the same year. Although the coefficient on comobility is smaller in magnitude than in the cross-section, it retains statistical significance. These tests suggest the wage premium for comobility is not epiphenomenal due to aggressive hiring by high-paying firms.

Similarly, one might worry that the wage premium for comobility is driven by mass

exodus from struggling firms. Such firms may pay poorly and lose many workers—some of whom end up at the same firm—thus leading to comobility unrelated to shared skills or complementarities. Our fieldwork suggests that groups of workers at struggling firms “job hunt as a group,” which is reinforced by Appendix A in that comobility by large groups is more frequent when the prior firm has lower sales growth. In Model 5 we perform a similar exercise as in Model 4 by including prior-firm/year fixed effects, which continues to show a wage premium for comovers. (Note that if struggling firms lay off workers, and they do not immediately find new employment, such moves are excluded; firm dissolutions are also excluded.)

We focus on comobility between individual, co-located plants, but in Model 6 we relax our definition to include those who move to different plants within the new firm. If shared skills and complementarities are preserved when colleagues move and continue working together, we should not see a similar wage premium for coworkers who move to the same firm but work in different plants. In Model 6, the coefficient on comobility (i.e. from the same plant to the same plant) can be interpreted as the difference in the wage premium between those who moved to the same plant vs. different plants in the new firm. Indeed, we see a higher wage premium for those who moved not just to the same firm but to the same plant within that firm, again suggesting a role for shared skills and complementarities in comobility.

In Model 7 we address another alternative explanation. Moving simultaneously involves coordination costs: colleagues must find a new opportunity at another firm, agree that they will pursue it together, and arrange to leave at the same time. Given these costs, coworkers may be more selective about moving jointly than moving alone. Accordingly, the higher wage gain associated with comobility may be a manifestation of comobile groups applying a higher hurdle rate to joint moves, staying in their current jobs if the opportunity is not attractive enough. We

account for this possibility by analyzing comobility by workers whose plants were shut down. “Displaced” workers no longer have the option of staying in their existing jobs and must choose between finding a new job on their own or moving jointly with their likewise displaced colleagues. While coordination costs may still discourage comobility in this case, rates of comobility among displaced workers are higher than for all movers (18.4% vs. 4.1%). Model 7 confirms a wage premium for simultaneous comobility by displaced workers, so our main result is unlikely to be driven entirely by selection away from unattractive group moves.

Finally, in Model 8 we adjust our population to compare comovers not against all movers but against just those workers who left in the same month as the comovers but who each went to a different firm. This enables us to compare comobility directly against “collective turnover” (Nyberg & Ployhart, 2013): 23% of those who leave a plant in the same month as a coworker go to the same plant in another firm as compared with 4.1% of all movers. Comobility when compared with collective turnover still carries a wage premium of similar magnitude and with strong statistical significance. Moreover, in unreported results the comparison of comobility and collective turnover holds separately both for pairs and for larger groups in Models 2 and 3, as well as when specifying fixed effects for either the prior or new firms in Models 4 and 5.

Table 2 supports our hypothesis that comobile workers experience a wage premium when compared to those who move on their own. The wage premium is robust to controlling for group size; including fixed effects for both the prior and new firms; restricting analysis to “displaced” workers from defunct plants; and comparing comovers against either all movers or just collective departures. That comovers enjoy a wage premium would seem to rule out social attachment as the primary mechanism underlying comobility. Our exclusion of sequential comobility and prior moves between plants helps to rule out referrals (i.e. from ex-colleagues who do not work

together at the new firm) as the primary mechanism underlying comobility. The wage premium is stronger for those who move jointly to the same plant than to different plants within the firm, suggesting that the transfer of shared skills is essential. Next, we consider group-level evidence further supporting the notion of transferring complementarities as a primary mechanism.

Who benefits most from comobility?

The remaining tables shift the unit of analysis from the individual to the comobile group. Table 3 provides descriptive statistics for the groups of comovers. 76.3% of comobile groups are pairs while 23.7% involve three or more workers (mean=2.5). While the literature on collective turnover might imply that comobility involves a “follow-the-leader” mechanism where managers bring along their subordinates (Sgourev, 2011), 94.3% of comobile groups are composed solely of individual contributors. As shown in Table 3, 33% of comobile groups are composed entirely of high-skilled workers; 23% are entirely low-skilled; and 44% include a mix of high- and low-skilled workers. The average wage premium aggregated at the comobile group level is 4.1%.

Tables 3 and 4 about here

In Table 4 we reanalyze the wage premium associated with comobility, shifting the level of analysis from the individual to the comobile group. Solo movers are not considered here, so coefficients should be interpreted relative to other comobile groups. The dependent variable is the average wage differential for group members between their previous jobs and their new jobs. Model 1 examines all comobile groups; Model 2 subsets to pairs of comovers; Model 3 analyzes only comobile groups of three or more. Distinctly higher wages are achieved by two types of comobile groups: more highly-skilled workers, and those with greater complementarities.

Regarding skills, comobile groups composed entirely of high-skilled workers command a substantial wage premium. High-skilled comobile groups enjoy approximately a 6% wage premium as compared to an average of 4.1% (from Table 3), nearly 1.5x as large. That groups of high-skilled comobile workers achieve higher wage gains reinforces the role of shared skills among comovers. Moreover, groups composed entirely of lower-skilled workers have the smallest wage gains. While statistical significance is somewhat weaker for larger groups in Model 3 ($p < .081$), this may be attributable to the comparatively small number of observations since most comobile groups are pairs; moreover, the magnitude of the coefficient is preserved.

We also find higher wage gains among comobile workers with greater complementarities, measured in two ways. First, we compute the similarity in tenure between comovers. Hayes, et al. (2006) show that workers with greater complementarities are more likely to depart an organization at the same time, presumably because they will be less effective without their well-matched colleague. Extending their argument, we posit that coworkers should not only depart jointly given the loss of complementarities but should also move jointly to a new firm in order to preserve the same. We follow Hayes, et al. in using a measure of shared tenure at the firm as a proxy for the strength of complementarities. If complementarities are preserved across firms via comobility, we would expect higher wage gains for comobile groups whose members have more similar tenure. Indeed, the coefficient on the variance of tenure is negative and statistically significant, indicating that comobile groups with more similar tenure experience higher wage gains. Note that while this coefficient retains its sign for larger teams, its statistical significance is weak. On the one hand, this may be a power problem as above in the case of high-skilled groups; on the other, tenure covariance becomes a noisier measure as group size grows (perhaps for this reason, Hayes et al. limit their analysis to pairs of coworkers).

Our second approach to identifying complementarities among comobile groups is to examine managers and non-managers moving together. As noted above, 94.3% of comobile groups are solely of individual contributors. To the extent that complementarities develop among managers and individual contributors (Bridgewater, Kahn, & Goodall, 2015), these comobile groups should enjoy higher wage gains as seen in the positive, significant coefficient for comobile groups with a manager.

Discussion/Conclusion

We believe this to be the first population-level study of comobility and moreover the first fieldwork on the topic. Although joint or cascading departures have been examined (Sgourev, 2011; Bartunek, Huang & Walsh, 2008), only a few studies of elite workers have addressed comobility (Groysberg, et al., 2008; Campbell, et al. 2014). Based on the prior literature, one might wonder whether comobility is a rare event that obtains only among select types of workers and is therefore not highly consequential—or whether comobility is largely driven by firms, who alone reap the rewards of capturing shared skills and complementarities. Our findings indicate that comobility is not restricted to co-founders and other executives or “stars” but is undertaken by a wide variety of workers. Given our highly restrictive definition of comobility (simultaneous and not between two plants with more than 100 employees), we find that 4.1% of mobility occurs jointly with coworkers. This figure likely understates the true level of comobility, as actual instances of comobility surely occur between larger firms and also sequentially over a period of months (considering also sequential comobility raises the figure from 4.1% to 11%). Even if the actual comobility rate is 5-10%, this represents a significant portion of job-changing.

Our primary theoretical contribution is to the literature on mobility and attainment. We find a 5% wage-growth premium for those who move jointly vs. alone. Whereas prior work has primarily focused on individual mobility as a path to attainment (Sørensen, 1977; Halaby, 1988; Arthur & Rousseau, 1996), this result suggests that workers should not only consider moving to a new job but also coordinate with coworkers to move together (to the extent that shared skills and/or complementarities exist). Sociologists have long maintained that attainment is not simply due to individual skills and competence but due also to the structure of opportunities including organizational ecology (White, 1970; Fujiwara-Greve & Greve, 2000). Given the promise of comobility for earnings attainment, particular attention should be paid to what one might call “group vacancies” for co-workers to occupy jointly.

That comobility can lead to higher wage gains than moving alone calls for a reconsideration of job-matching models (Jovanovic, 1984), which traditionally consider only the fit between the worker and the firm. If a substantial portion of a worker’s productivity or value is bound up in shared skills and complementarities with other workers, the ability to continue working together may be as if not more important than characteristics of the firm. In other words, workers may be wise to choose a job at a firm that is not necessarily the best match for them individually but which suits their current colleagues. To the extent that productivity is more specific to the workgroup than to the firm, are firms as important as we might suppose? Or is the firm more a “container” for groups of workers, largely capitalizing on their joint capabilities?

Given that comobility can preserve shared skills and complementarities across firm boundaries, we find it surprising that more firms do not actively recruit workgroups as opposed to individuals. To our knowledge, almost all job postings are for individuals whereas the benefits of attracting groups of colleagues would seem to suggest advertising what one might call “co-

jobs.” Similarly, the apparent financial advantages of comobility would recommend that more workers jointly seek new job opportunities, possibly even shaping “co-careers” as they move together from organization to organization over time. As one example, several engineers left GPS manufacturer Garmin for rival Magellan upon learning they would be required to relocate from San Francisco to the company’s headquarters in Olathe, Kansas, setting up a website advertising their accomplishments that stated, “*We’re for hire*” (Maker, 2010; emphasis ours).

Ultimately, we are interested in the welfare effect of comobility. Employee non-solicitation contracts, which to our knowledge are almost universally enforceable, may discourage comobility as ex-employees have covenanted not to recruit their former colleagues. Unlike employee non-compete agreements, the enforceability of which is restricted by several U.S. states and some countries, to our knowledge non-solicitation agreements are universally enforceable with the exception of the information-technology industry in Hawaii. Although simultaneous comobility may help to sidestep such restrictions, the threat of litigation may nonetheless discourage would-be comovers. Given the wage benefits of moving jointly with coworkers, should such agreements be upheld? Or, if as suggested by prior research, the joint movement of workers to a competitor hurts firm performance, should companies like Apple and Google be allowed to strike non-poaching agreements of the sort banned by the Department of Justice? More generally, is it optimal for firms to hold on to their talent, or do open labor markets (including the movement of individuals and groups) promote overall innovation and productivity? Answers to these questions are essential for policymakers, managers, and workers.

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Table 1: Descriptive statistics for 179,877 job moves by 153,489 workers in the Integrated Database for Labor Market Research (IDA).

Variable	Obs	Mean	Stdev	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1) Year	179,877	2002	2.11	1.000																			
(2) Move is within same 4-digit industry	179,877	0.210	0.41	-0.027	1.000																		
(3) Size of prior plant	179,119	4.120	1.88	0.087	-0.141	1.000																	
(4) Age of prior plant	179,289	16.961	16.30	0.033	-0.046	0.252	1.000																
(5) Size of new plant	179,019	4.111	2.05	0.025	-0.112	0.166	0.040	1.000															
(6) Age of new plant	179,019	16.457	17.44	0.025	-0.027	0.078	0.055	0.362	1.000														
(7) New plant is startup	177,900	0.049	0.22	0.002	0.016	-0.026	-0.019	-0.258	-0.204	1.000													
(8) Distance from prior to new plant	178,681	17.801	25.72	-0.010	0.033	0.043	0.005	0.054	0.020	-0.017	1.000												
(9) Female	179,877	0.273	0.45	0.031	-0.003	0.065	0.004	0.064	0.019	-0.012	-0.075	1.000											
(10) Worker age	179,877	34.878	8.59	0.051	0.042	-0.010	0.042	-0.050	0.014	0.001	-0.023	-0.058	1.000										
(11) Tenure	179,877	2.143	3.30	0.027	-0.011	0.044	0.108	-0.030	0.012	0.009	-0.048	-0.005	0.269	1.000									
(12) Executive role	149,224	0.040	0.20	-0.012	-0.039	0.001	0.007	-0.005	0.005	0.013	0.039	-0.065	0.109	0.031	1.000								
(13) Technical role	149,224	0.113	0.32	0.003	0.024	0.047	-0.003	0.079	0.022	-0.001	0.051	-0.070	0.055	0.016	-0.072	1.000							
(14) Low-skilled, white-collar worker	149,224	0.190	0.39	0.068	0.075	0.072	0.039	0.056	0.031	-0.003	0.032	0.146	0.044	0.016	-0.098	-0.171	1.000						
(15) High-skilled, blue-collar worker	149,224	0.190	0.39	-0.025	-0.091	-0.134	-0.033	-0.085	-0.030	0.007	-0.024	-0.219	-0.039	0.054	-0.098	-0.172	-0.235	1.000					
(16) Low-skilled, blue-collar worker	149,224	0.296	0.46	-0.049	0.030	-0.029	0.034	-0.061	-0.021	-0.002	-0.028	-0.156	0.023	-0.052	-0.132	-0.231	-0.315	-0.316	1.000				
(17) Highly educated	179,877	0.090	0.29	0.054	0.044	0.026	0.002	0.065	0.007	0.010	0.024	0.041	0.007	-0.018	0.067	0.154	0.257	-0.150	-0.184	1.000			
(18) Wage at prior plant	179,877	5.087	0.62	0.096	0.048	0.098	0.044	0.020	0.023	0.011	0.034	-0.138	0.243	0.131	0.113	0.172	0.156	-0.036	-0.137	0.157	1.000		
(19) Change in wage	179,877	-0.018	0.92	0.007	0.002	-0.039	-0.009	0.169	0.084	-0.221	0.027	0.011	-0.068	-0.055	-0.028	0.003	0.002	0.007	-0.026	0.014	-0.4127	1.000	
(20) Sales growth of new plant	139,394	0.150	0.51	-0.028	0.005	-0.001	-0.015	0.006	-0.103	N/A	-0.002	0.005	-0.014	-0.004	-0.009	0.012	-0.008	-0.014	0.005	-0.003	-0.0029	0.0105	1.000
(21) Employment growth of new plant	144,385	0.100	0.39	-0.005	0.010	0.002	-0.009	-0.016	-0.109	N/A	-0.004	0.002	-0.003	-0.004	-0.007	0.011	0.005	-0.014	0.000	0.007	0.006	0.010	0.425

Notes: The unit of observation is an individual job move from one plant to another. (Excluded are public-sector job moves; workers younger than 22 and older than 55; temporary/secondary jobs; moves following mergers, acquisitions, or dissolutions; subsequent moves between two plants; and moves involving a spell of unemployment.) Thus these descriptive statistics are not directly representative of IDA as a whole: individuals who do not move are not included, and those who move multiple times are counted multiple times. For example, it might seem surprising that only 27% of our job moves involve women; however, Danish women are overrepresented in the public sector (70% of all governmental employees) and underrepresented in the private sector (36% of manufacturing and services industries, see Frederiksen and Halliday, 2015). Moreover, studies have demonstrated that based on unconditional probabilities women change jobs less often than men (Frederiksen, et al., 2015). Correlations between growth in sales or employees and the founding of a new firm are missing because new firms have no track record of growth. IDA regulations do not allow minimum or maximum values to be disclosed.

Table 2: Wage premium for comobility vs. solo mobility.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Population	all movers	all movers	comovers to same plant	all movers new plant	all movers prior plant	comovers to same firm	displaced workers	co-departures
Firm-year fixed effects	no	no	no	no	no	no	no	no
Year fixed effects	yes	yes	yes	no	no	yes	yes	yes
Simultaneous move to same plant	0.0452*** (0.006)			0.0231* (0.009)	0.0502*** (0.011)	0.0367* (0.015)	0.0634** (0.020)	0.0534*** (0.008)
Simultaneous move, pair of workers		0.0432*** (0.008)						
Simultaneous move, 3+ workers		0.0487*** (0.009)	0.0159 (0.012)					
Female	-0.1451*** (0.004)	-0.1451*** (0.004)	-0.1678*** (0.021)	-0.1317*** (0.004)	-0.1445*** (0.005)	-0.1549*** (0.018)	-0.1811*** (0.020)	-0.1685*** (0.010)
Worker age	0.0590*** (0.002)	0.0590*** (0.002)	0.0386*** (0.008)	0.0498*** (0.002)	0.0579*** (0.002)	0.0401*** (0.008)	0.0843*** (0.008)	0.0626*** (0.004)
Worker age ^2	-0.0007*** (0.000)	-0.0007*** (0.000)	-0.0005*** (0.000)	-0.0006*** (0.000)	-0.0007*** (0.000)	-0.0005*** (0.000)	-0.0010*** (0.000)	-0.0008*** (0.000)
Wage at prior plant	-0.7380*** (0.009)	-0.7380*** (0.009)	-0.6923*** (0.061)	-0.8225*** (0.003)	-0.7503*** (0.004)	-0.6810*** (0.057)	-0.9601*** (0.008)	-0.7452*** (0.021)
Tenure	0.0127*** (0.001)	0.0127*** (0.001)	0.0128*** (0.004)	0.0088*** (0.001)	0.0097*** (0.001)	0.0122*** (0.003)	0.0149** (0.006)	0.0141*** (0.002)
Tenure ^2	-0.0006*** (0.000)	-0.0006*** (0.000)	-0.0006** (0.000)	-0.0005*** (0.000)	-0.0005*** (0.000)	-0.0007*** (0.000)	-0.0007** (0.000)	-0.0007*** (0.000)
Age of prior plant	0.0003** (0.000)	0.0003** (0.000)	-0.0005 (0.000)	0.0001 (0.000)		-0.0003 (0.000)	-0.0011 (0.001)	0.0001 (0.000)
Age of new plant	0.0003*** (0.000)	0.0003*** (0.000)	-0.0001 (0.000)		0.0002* (0.000)	0.0002 (0.000)	0.0013* (0.001)	0.0002 (0.000)
Size of prior plant	-0.0065*** (0.001)	-0.0065*** (0.001)	0.0072 (0.005)	-0.0035*** (0.001)		0.0025 (0.004)	-0.0235*** (0.004)	-0.0100*** (0.003)
Size of new plant	0.0199*** (0.001)	0.0199*** (0.001)	0.0159*** (0.004)		0.0181*** (0.001)	0.0130** (0.004)	0.0218*** (0.006)	0.0201*** (0.002)
Sales growth of new plant	0.0099** (0.003)	0.0099** (0.003)	0.0022 (0.010)		0.0071+ (0.004)	0.0015 (0.009)	0.0196+ (0.011)	0.0145* (0.006)
Employment growth of new plant	0.0092+ (0.005)	0.0092+ (0.005)	0.0124 (0.015)		0.0075 (0.005)	0.0184 (0.012)	-0.0461+ (0.024)	0.0160+ (0.009)
Move is within same 4-digit industry	0.0601*** (0.004)	0.0601*** (0.004)	-0.0161 (0.013)	0.0515*** (0.005)	0.0616*** (0.006)	-0.0094 (0.012)	0.0324 (0.022)	0.0446*** (0.008)
Distance from prior to new plant	0.0004*** (0.000)	0.0004*** (0.000)	0.0002 (0.000)	0.0003*** (0.000)	0.0004*** (0.000)	0.0006 (0.000)	0.0009 (0.001)	0.0004* (0.000)
Constant	2.5090*** (0.043)	2.5089*** (0.043)	2.6604*** (0.264)	3.2890*** (0.034)	2.5232*** (0.069)	2.5693*** (0.243)	3.0464*** (0.176)	2.4561*** (0.103)
Observations	106,433	106,433	3,428	90,803	86,906	4,022	3,880	15,993
pseudo R-squared	0.420	0.420	0.522	0.721	0.604	0.493	0.928	0.501
log likelihood	-62978	-62978	-1146	-28183	-31628	-1356	-2766	-8010

Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05, + p<0.1. Not shown: urban/semi-urban/rural location, employment & sales growth of prior plant, occupation, education, # of prior jobs.

Notes: Observations are from Table 1. DV is change from final wage at prior firm to initial wage at new firm. Comobility is moving simultaneously from one plant to another plant in a different firm, where both plants do not have more than 100 employees. All models have industry and year fixed effects. Tests of statistical significance are two-tailed.

Table 3: Composition of comobile groups

Variable	Obs	Mean	Stdev	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) Mean change in wage	2443	0.041	0.58	1.000																
(2) Size of comobile group	2443	2.482	1.16	-0.013	1.000															
(3) All-male group	2443	0.618	0.49	0.000	-0.208	1.000														
(4) All-female group	2443	0.124	0.33	-0.037	-0.081	-0.473	1.000													
(5) Mean group age	2443	37.369	6.97	-0.035	0.058	0.005	0.005	1.000												
(6) Mean group tenure	2443	3.113	3.44	-0.053	0.031	0.041	0.013	0.362	1.000											
(7) Group includes a manager	2443	0.057	0.23	0.061	0.078	-0.030	-0.060	0.051	0.005	1.000										
(8) All high-skilled workers	2443	0.322	0.47	0.018	-0.112	0.150	-0.087	-0.138	-0.044	-0.083	1.000									
(9) All low-skilled workers	2443	0.228	0.42	-0.043	-0.088	0.014	0.134	0.100	0.089	0.020	-0.139	-0.399								
(10) Group tenure covariance	2100	0.730	0.54	-0.033	0.045	-0.051	-0.030	-0.102	-0.252	-0.005	-0.171	1.000	1.000							
(11) Age of prior plant	2436	15.505	15.16	-0.076	-0.019	-0.036	0.022	0.091	0.181	0.032	0.006	-0.030	0.072	1.000						
(12) Age of new plant	2432	15.017	16.56	0.003	-0.011	0.003	0.019	0.045	0.067	-0.029	-0.002	0.046	0.010	0.065	1.000					
(13) Size of prior plant	2422	4.027	1.71	-0.067	-0.007	-0.008	0.058	0.005	-0.023	-0.032	-0.046	0.029	0.185	0.235	0.036	1.000				
(14) Size of new plant	2432	4.308	1.76	0.019	0.035	-0.032	0.022	-0.036	-0.036	-0.048	-0.053	0.069	0.047	-0.038	0.355	0.246	1.000			
(15) Sales growth of new plant	1784	0.174	0.63	0.007	-0.017	-0.019	-0.006	0.024	-0.031	-0.024	-0.011	-0.027	0.027	0.018	-0.091	0.042	0.019	1.000		
(16) Employment growth of new plant	1864	0.115	0.42	0.029	-0.029	-0.018	0.036	-0.009	0.000	-0.016	-0.020	-0.003	0.011	0.029	-0.083	0.011	-0.009	0.372	1.000	
(17) Mean group wage at prior plant	2443	5.193	0.62	-0.633	0.027	0.084	-0.112	0.054	0.036	-0.036	0.064	0.148	-0.140	0.047	0.032	0.070	0.060	-0.013	-0.042	1.000
(18) Distance from prior to new plant	2417	14.667	24.13	0.004	0.097	0.077	-0.078	0.012	0.004	0.036	-0.022	0.006	-0.003	-0.004	-0.013	0.065	0.010	0.000	-0.002	0.040

Notes: The unit of observation is a group of workers who moved simultaneously from one plant to another plant in a different firm, where both plants do not have more than 100 employees. Solo movers are not included. All constraints from Table 1 apply. IDA regulations do not allow minimum or maximum values of any variable to be disclosed.

Table 4: Wage premium by composition of comobile groups

	(1)	(2)	(3)
# of simultaneous comovers to the same plant	any	pairs	3+ workers
Size of comobile group	-0.0020 (0.005)		-0.0061 (0.009)
All-male group	0.0427+ (0.025)	0.0216 (0.032)	0.1152** (0.038)
All-female group	-0.1153*** (0.029)	-0.1157*** (0.034)	-0.1230+ (0.068)
Mean group age	0.0021 (0.002)	0.0011 (0.002)	0.0081* (0.004)
Mean group tenure	-0.0004 (0.002)	-0.0003 (0.003)	-0.0018 (0.005)
Group includes a manager	0.1802*** (0.048)	0.1891** (0.070)	0.1609** (0.049)
All high-skilled workers	0.0622* (0.025)	0.0601* (0.030)	0.0631+ (0.036)
All low-skilled workers	-0.0511* (0.025)	-0.0272 (0.027)	-0.1607* (0.065)
Group tenure covariance	-0.0344* (0.017)	-0.0391* (0.019)	-0.0200 (0.037)
Age of prior plant	-0.0005 (0.000)	-0.0005 (0.001)	-0.0018+ (0.001)
Age of new plant	0.0001 (0.000)	-0.0000 (0.001)	-0.0006 (0.001)
Size of prior plant	0.0020 (0.006)	0.0060 (0.007)	-0.0025 (0.011)
Size of new plant	0.0156** (0.006)	0.0207** (0.007)	0.0101 (0.011)
Sales growth of new plant	-0.0008 (0.010)	-0.0043 (0.013)	-0.0170 (0.014)
Employment growth of new plant	0.0010 (0.021)	0.0073 (0.023)	0.0048 (0.056)
Mean group wage at prior plant	-0.6224*** (0.113)	-0.6014*** (0.130)	-0.7393*** (0.125)
Distance from prior to new plant	0.0007+ (0.000)	0.0010* (0.000)	0.0002 (0.001)
Constant	3.0872*** (0.558)	3.0007*** (0.637)	3.4161*** (0.616)
Observations	1,508	1,155	353
pseudo R-squared	0.484	0.481	0.587
log likelihood	-356.3	-295.2	-24.70

Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Notes: Observations are from Table 3, representing groups of workers who moved simultaneously from one plant to another plant in a different firm, where both plants do not have >100 employees. Solo movers are not included. All models have industry and year fixed effects. Not shown: municipality is urban/semi-urban/rural. All tests of statistical significance are two-tailed.

Appendix A: Antecedents of comobility vs. individual mobility.

Dependent variable	(1)	(2)	(3)	
	simultaneous move logit	simultaneous move logit	simultaneous move, pair	simultaneous move, 3+ mlogit
Female	-0.0409 (0.049)	-0.0289 (0.040)	-0.1130* (0.056)	0.2037** (0.075)
Worker age	0.0341+ (0.018)	0.0364* (0.015)	0.0728*** (0.022)	-0.0173 (0.028)
Worker age squared	-0.0001 (0.000)	-0.0001 (0.000)	-0.0007* (0.000)	0.0007* (0.000)
Wage at prior plant	0.1648** (0.053)	0.1411** (0.044)	0.2341*** (0.071)	0.1520+ (0.078)
Tenure	0.0998*** (0.012)	0.1016*** (0.010)	0.0693*** (0.014)	0.1281*** (0.018)
Tenure squared	-0.0028*** (0.001)	-0.0031*** (0.001)	-0.0016+ (0.001)	-0.0040*** (0.001)
Highly educated	0.0367 (0.064)	0.0151 (0.053)	0.0545 (0.075)	0.0122 (0.093)
Executive role	-0.0308 (0.118)	0.0092 (0.095)	0.0412 (0.136)	-0.0539 (0.183)
Technical role	0.0655 (0.080)	0.0989 (0.066)	0.1655+ (0.093)	0.1308 (0.122)
Low-skilled, white-collar worker	0.0521 (0.071)	0.0386 (0.055)	0.0886 (0.086)	0.0058 (0.108)
High-skilled, blue-collar worker	0.5247*** (0.074)	0.4158*** (0.061)	0.4580*** (0.087)	0.6791*** (0.119)
Low-skilled, blue-collar worker	0.3391*** (0.070)	0.2740*** (0.057)	0.5112*** (0.081)	0.2788* (0.111)
Age of prior plant	-0.0038** (0.001)	-0.0044*** (0.001)	-0.0025+ (0.001)	-0.0005 (0.002)
Age of new plant	-0.0049*** (0.001)	-0.0090*** (0.001)	-0.0021 (0.001)	-0.0076*** (0.002)
Size of prior plant	0.0159 (0.012)	-0.0037 (0.010)	0.0899*** (0.013)	0.0824*** (0.018)
Size of new plant	0.1372*** (0.009)	0.1291*** (0.007)	0.1708*** (0.010)	0.2375*** (0.013)
Distance from prior to new plant	-0.0026* (0.001)	-0.0025** (0.001)	-0.0085*** (0.001)	0.0005 (0.002)
Employment growth of prior plant	0.0825 (0.066)		0.1131 (0.072)	0.1178 (0.101)
Sales growth of prior plant	0.0220 (0.041)		0.0309 (0.050)	-0.2037** (0.075)
Employment growth of new plant	0.0214 (0.048)		0.1038* (0.051)	-0.2136* (0.086)
Sales growth of new plant	0.0592* (0.029)		0.0371 (0.031)	0.0553 (0.042)
Move is within same 4-digit industry	1.1928*** (0.042)	1.1153*** (0.036)	1.0219*** (0.051)	1.4366*** (0.063)
New plant is startup		0.1517 (0.095)		
(Move is within same 4-digit industry)*(new plant is startup)		-0.5305*** (0.153)		
Constant	-6.9997*** (0.394)	-6.5847*** (0.330)	-8.4801*** (0.479)	-7.7157*** (0.605)
Observations	105,479	144,980		105,615
pseudo R-squared	0.0688	0.0654		0.0742
log likelihood	-14027	-19899		-17821

Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05, + p<0.1. not shown: urban/semi-urban/rural; number of prior jobs.

Notes: Observations are from Table 1. DV for models (1) & (2) is moving simultaneously from one plant to another plant in a different firm, where both plants do not have more than 100 employees. In model 3, the omitted category is moving solo; the two columns present coefficients relative to that for comobility as a pair (i.e., with 1 coworker) vs. larger groups. All models have industry and year fixed effects. Tests of statistical significance are two-tailed.

ENDNOTES

ⁱ The provision of giving at least one month's notice is given by The Employers' and Salaried Employees' (Legal Relationship)(Consolidation) Act” (Funktionærsloven), available in Danish at <https://www.retsinformation.dk/forms/r0710.aspx?id=123029>. English translation: *Termination on the part of the salaried employee shall be subject to one month's notice to the end of a month, unless the parties have agreed that the employment contract is of a purely temporary nature and does not exceed a period of one month or that the employment is probationary and does not exceed a period of three months. However, it may be agreed in writing that a longer period of notice shall be given by the employee provided that the period of notice to be given by the employer is extended correspondingly.*

ⁱⁱ We also eliminate comobility by groups of more than 10 workers, which may represent acquisitions that are for whatever reason not annotated as such in IDA.

ⁱⁱⁱ The IDA contains only yearly observations. Employer-employee relationships are identified in week 48 (November). Despite that, we have information on the number of days a person has been employed, which can be used to determine the duration of employment at a given firm. The annual nature of these observations makes it difficult to track comobility across calendar-year boundaries, but our focus on comobility in the same calendar month ignores this limitation.

^{iv} Median size of plants in the IDA is lower than mean plant size in Panel A of Table 1 both because of outliers and also because Panel A does not represent all Danish plants but rather plants involved in mobility. Moreover, because the unit of observation in Panel A is a move, individual plants may be included multiple times.